

Innovation Diffusion Model for a Product Incorporating Segment-specific Strategy and the Spectrum Effect of Promotion

P.C. Jha^{1,*}

Sugandha Aggarwal^{1, †}

Anshu Gupta^{2, ‡}

U. D. Kumar^{3, ¶}

Kannan Govindan^{4, §}

¹*Department of Operational Research
University of Delhi
Delhi - 110007, India*

²*SBPPSE
Dr B. R. Ambedkar University
Delhi, India*

³*Indian Institute of Management
Bangalore, India*

⁴*Department of Business and Economics
University of Southern Denmark
Denmark*

Abstract

Promotion is an important component of a firm's marketing mix. It assists in dispersing the product information into minds of the customers and takes them to the final stage of purchase. Various promotional strategies are used by firms to capture maximum potential adopters in the market. Firms adopt segment driven marketing to best utilize its finite marketing resources. Mass market promotion and differentiated market promotion are amongst the two widely used techniques of promotion used in a heterogeneous market, segmented into homogeneous segments. Through mass market promotion, a product is promoted in the

*E-mail: jhpc@yahoo.com

†E-mail: sugandha_or@yahoo.com

‡E-mail: anshu@aud.ac.in

¶E-mail: dineshk@iimb.ernet.in

§E-mail: gov@sam.sdu.dk

Journal of Statistics & Management Systems

Vol. 17 (2014), No. 2, pp. 165–182

entire market, using a common promotional strategy, thereby creating a spectrum effect in all the segments of the market. Whereas, differentiated market promotion targets each segment of the market with distinct promotional strategies. In a segmented market, both types of promotional strategies play different and important roles for product adoption in the market. Innovation diffusion models are used to describe the adoption growth of durable technology products over their product life cycle. There is vast literature of innovation diffusion modeling. The existing literature mostly assumes a homogeneous market while formulating the model and effect of mass and differentiated promotion techniques on adoption growth in a segmented market is not yet analyzed. In this paper, we develop an innovation diffusion model for a durable technology consumer product considering the combined effect of mass and differentiated promotion along with the internal influence factors on adoption growth in segmented market. Model validity is tested on a real time data in four segments. Fairly good results have been obtained.

Keywords: Innovation Diffusion, Mass Market Promotion, Differentiated Market Promotion, Spectrum Effect, Adoption Growth.

1. Introduction

Promotion plays a dynamic role in the success of a business, product or service. Numerous promotional devices are used by firms to accentuate the value of their products to the customer, differentiate their products from those of the competitors, reach the target markets, increase sales, expand the size of the target market, etc. These may include advertising, sales promotion, personal selling, branding, event participation, etc. Firms adopt different promotional methods with different objectives. A consumer purchase decision can be the result of joint influence from the different promotional strategies; it may be due to some specific promotion that the customer has seen or due to social influence. Mass promotion and differentiated promotion are two major strategies of promotion in a segmented market. Each of these strategies may be conducted by means of different devices of promotion. In this paper, we have formulated an innovation diffusion model to capture the adoption growth over the lifecycle of a durable technology consumer product due to the combined influence of mass promotion and differentiated promotion in a segmented market.

Mass promotion addresses the potential market treating all customers alike and using a single promotional plan for the entire market [Rao (2011); Egan (2007)]. Advertising with TV commercials on national channels, radio, newspaper, etc. are major media of mass promotion. The idea behind such types of promotion is to communicate a message for

the product to large masses. This leads to creation of a spectrum effect in the entire market, spread knowledge and persuade the present and future potential customers to eventually adopt the product. Usually, firms with products having broad appeal, with very large market potential, indulge in mass market promotion. For example, small-size family car manufacturers and marketers such as Maruti, Hyundai, Tata, etc. spend significant portion of their promotional budget on mass promotion. The objective is to reach all possible present and future potential customers.

The impact of mass market promotion varies in different segments of the market. Market segmentation is the division of a market into distinct groups of consumers with common characteristics. These defining characteristics may be geographical (region, state, countries, cities and neighborhoods); demographical (age, gender, income, family size, occupation and education); psychographical (social class, life style, personality and value) or behavioral (user states, usage rate, purchase occasion and attitude towards product). The consumer market is segmented to cater to the differing concerns, interests and preferences of consumers effectively. Mass promotion being visible to audiences in all segments of the market creates an effectiveness spectrum, which is distributed over all the segments [Burrato *et al.* (2006)]. Thus, each segment gets affected by mass market promotion with a fixed proportion of spectrum effect. Mass promotion focuses on the average behavior of the entire population of potential customers. The potential customers in one segment may have some distinguished characteristics which differentiate them from the other segments. The influence of mass promotion on any segment is only partial. In order to target a specific customer, differentiated promotion is carried out by targeting individual segments through distinct promotional strategies. This method of promotion is also called segment-specific or target market promotion in which each segment is tailored separately through unique promotional methods and messages [Berry and Wilson (2001); Rao (2011); Egan (2007)].

In an attempt to capture maximum adopter population, companies carry out both mass and differentiated promotion. In this way, they try to ensure that they can reach out larger audience of potential consumers. Through mass market promotion, companies also reach the average adopter population which may not belong to the supposed target market, but are among the future potential of the product or could build interest in the product. Thus, product acceptance arises due to promotional influence of these two strategies; one, specific to each segment (differentiated/target market promotion) and the other, the spectrum effect arising from mass market promotion.

1.1. *Literature Review*

Innovation diffusion models describe the patterns of adoption, explain the mechanism, and assist in predicting how the product will behave in the market by forecasting its future sales growth. Modeling and forecasting the diffusion of innovations has been a topic of practical and academic interest since the 1960s due to the work of Fourt and Woodlock (1960), Mansfield (1961), Floyd (1968), Rogers (1962), Chow (1967) and Bass (1969). Fourt and Woodlock (1960) assumed that the diffusion process is influenced solely by external factors and proposed the external influence model. This model assumed no interaction between the members of the social system. The internal influence model was proposed which was based on a contagion paradigm that diffusion occurs only through personal contacts. Mansfield (1961) illustrated the applications of internal influence model which was also known as pure imitation diffusion model. Bass (1969) model pioneered to describe the penetration and saturation aspects of the diffusion process over the product life cycle through mixed influence model and it became a widely used first purchase model of new product diffusion in marketing for durable products. It assumes that a potential customer either makes the purchase decision independently or is influenced by a previous purchaser. The first category of consumers is called the innovators, whereas the second category is known as imitators.

Bass model has wide acceptance in the literature, but it works under certain set of assumptions such as constant market size, absence of repeat purchasers, effect of marketing variables etc., which limits its applicability to describe a typical product adoption behavior. Several researchers have worked to develop more generalized models applicable to diverse marketing environments. The study due to Bass (1969) formed basis for the development of many of these models. A dynamic diffusion model was proposed by Mahajan and Peterson (1978), where the market size was permitted to vary over time. Other dynamic diffusion models have been developed by Chow (1967), Lackman (1978), Dodson and Muller (1978), and Sharif and Ramanathan (1981). One of the first to use a heterogeneous population argument was Rogers (1962). He suggests that an adopting unit may pass through a series of stages in the innovation decision process. The multi-stage nature of the diffusion models was also studied by Midgley (1976), Dodson and Muller (1978), Sharif and Ramanathan (1982) and Mahajan *et al.* (1984). To forecast the use of ethical drugs, repeat purchase models were developed by Lilien *et al.* (1981), and Mahajan and Muller (1982). Models to capture the adoption growth of a new product with respect to time,

advertisement, quality, price, etc. were proposed by Robinson and Lakhani (1975), Horsky *et al.* (1990), Jain *et al.* (1990), Lilien *et al.* (1998). Bass *et al.* (1994) developed a Generalized Bass Model (GBM) (1994) to describe the growth in sales with respect to current marketing efforts. It primarily reflected the current effect of dynamic marketing variables on the conditional probability of adoption. Some studies also focused on analyzing the effect of diffusion channels (Rangaswamy, Gupta 2000), competition [Kauffman and Techatassanasoontorn (2005)], and product bundling (Gupta *et al.* 1999) on adoption growth. Studies carried out by Mahajan and Muller (1996), Bass and Bass (2004), Goldenberg and Oreg (2007), explored the new product diffusion caused by technological update. They considered that diffusion of technology updates can increase market potential and reflect the impact of consumer heterogeneity. Based on geographic segmentation Stefens (1998) investigated cross-country heterogeneity in product adoption. Dwyer *et al.* (2005) examined the influence of national culture on the cross national diffusion of innovations. Jha *et al.* (2006) proposed an alternative formulation of GBM [Bass *et al.* (1994)], considering its wide applicability and flexible mathematical form, applicable to describe the two most observed adoption growth curves (s-shaped and exponential) [Lilien (1998)]. The alternative derivation facilitated the development of more generalized innovation diffusion models. They proposed diffusion models considering dynamic product potential and repeat purchase. The adoption growth for these models is also analyzed with respect to promotional effort intensity function.

Chu *et al.* (2008) proposed a diffusion model that reveals the growth pattern of the mobile Internet subscriber in Taiwan utilizing the concepts of the “technical substitution” and the “multi-product competition”. Bohlmann *et al.* (2010) examined the effects of various network structures and relational heterogeneity on innovation diffusion within market networks. Chen *et al.* (2011) gave a product diffusion model that investigates the dynamics of single function and fusion product in electronic market. It captures the diffusion transition from two distinct single-function products into one fusion product. Jun *et al.* (2011) proposed an integrated forecasting model that incorporates both first purchase diffusion and replacement component of sales in predicting multi-product diffusion patterns. Qi *et al.* (2012) built the variable contingent diffusion model by introducing Bass model to the diffusion study on customized 3G mobile phone. This model combined the diffusion properties of customized 3G mobile phone and scientifically and effectively predicted the development trend of customized 3G mobile phone.

1.2. *Research Gap and Motivation*

Most of the research conducted in the area of innovation diffusion modeling assumed that the market is homogeneous and developed sales growth models considering the effect of promotion on total adoption. The concept of market segmentation is very popular and important in marketing. Firms develop different marketing mix for different segments to influence them distinctively and create maximum effectiveness of promotion by means of best utilization of its resources from buyers based marketing. From the point of view of practical applications, it is an important consideration for the development of optimization problems for marketing decision making such as promotional resource allocation in a segmented market. Only a few studies consider the impact of segmentation in diffusion modeling [Steffens (1998); Dwyer *et al.* (2005); Viscolani (2009)]. The models developed for homogeneous market to describe total adoption of a product are applied for analysis and decision making for segmented market assuming that adoption in a segmented market can be described simply by differing the parameter of these diffusion models, which is reflected by adding a subscript for each segment on total expected potential, coefficient of innovation, imitation and promotional intensity functions [Jha *et al.* (2007), (2011); Manik *et al.* (2011)]. This may not represent the real-life situations. To avoid unrealistic results and inappropriate estimations, it is very important to develop sales growth model to predict the adoption growth in a segmented market. The adoption of a product in a segmented market is governed by several factors. Mass promotion and differentiated promotion are the most important factors effecting the adoption of product in a segmented market and their effect cannot be ignored. This study addresses this issue by proposing an innovation diffusion model to capture the lifecycle of a durable technology consumer product due to the joint influence of mass market and differentiated market promotion in a segmented market. The proposed model not only addresses the effect of segmentation on adoption growth but also describes it with respect to the promotion intensity function.

In many real-life scenarios, the adoption of a product can be seen to evolve through the combined impact of mass market and differentiated market promotion. For example, consider a multiethnic and multicultural country such as India. Indian market can be segmented geographically into regional segments as the difference in the marketing environments of various regions of the country suggests that each market is different and requires a distinct marketing and promotional programs [Ramaswamy and Namakumari (2009)]. Companies cater to this diversified

customer base of India by promoting product in each region independently in its native regional language as well as with a common national language which reaches several regions with a spectrum effect. In India, national promotion (or mass market promotion) is done in either Hindi or English as these are the most ideally accepted languages all over the country. Regional promotion is done in each region independently keeping in mind their geographic, psychographic and behavioral aspects such as promotional messages are relayed in their native regional language, promoting the product through local events, regional TV channels, etc. Also, the product is promoted using the techniques of mass promotion such as promotion through national TV channels in national language, promotion through national events, etc. which reaches several regions and influences the product awareness as well as product acceptance in each of the geographical segments. Consider for example, various firms in Indian automobile industry such as Maruti Suzuki India Limited (MSIL), Hyundai, Honda, etc. target several platforms and connect them efficiently to produce sales. They use a multitude of national and regional promotional vehicles and media for designing their mass and differentiated promotional strategies. Targeting the potential customers with mass promotion as well as differentiated promotion is not only seen in the durable technology product segment, but also in the consumer good section. For example, Hindustan Unilever Limited (HUL) promotes most of its products through these two strategies viz. Fair & Lovely, a fairness cream is promoted using TV commercials on national TV channels such as Doordarshan, Zee, Star, Sony, etc. These commercials are dubbed in various state-dominant regional languages and are also telecasted in regional TV channels. In this way, higher adoption rates are yielded among different regions.

In this paper, an innovation diffusion model is proposed for a product promoted in a segmented market assuming that the adoption is evolved through external influence due to mass and differentiated promotion along with the internal influence. Keeping in mind the characteristics of the potential population of each segment, differentiated market promotion is done so that the efforts are target-oriented. Also, the product is promoted using mass market promotion with the same promotional strategy in all the segments of the market which affects each segment's population with a fixed spectrum.

The rest of the paper is structured in the following manner. Section 2.1 briefly describes mathematical formulations of innovation diffusion models used as a base for the development of the proposed model. Section 2.2, presents the development of proposed adoption growth

model. In section 3, the proposed model has been validated on a new product adoption data in a segmented market in a real-time situation. The paper is concluded in section 4 with directions for future research.

2. Model Development

Notations

- K : Total number of segments in the market;
- $\bar{N} (\bar{N}_i)$: Expected number of potential adopters of the product in the market (i^{th} segment).
- $p(p_i)$: Coefficient of external influence (i^{th} segment).
- $q(q_i)$: Coefficient of internal influence (i^{th} segment).
- $x(t)(x_i(t))$: Instantaneous rate of marketing/promotional effort at time t in the market (i^{th} segment); $X(t) = \int_0^t x(u) du$;
 $X_i(t) = \int_0^t x_i(u) du$.
- $N(t)(N_i(t))$: Expected number of adopters of the product in the market (i^{th} segment) by time t .

2.1. Mathematical Modeling of Innovation Diffusion Models

The basic model used in our study is the internal external innovation diffusion model due to Bass (1969). The model can be described with respect to time by the following mathematical equation.

$$\frac{dN(t)}{dt} = \left[p + q \frac{N(t)}{\bar{N}} \right] (\bar{N} - N(t)) = p(\bar{N} - N(t)) + \frac{qN}{\bar{N}} (\bar{N} - N(t))$$

Size of cumulative adoption at any time t assuming $N(0) = 0$ can be described as follows

$$N(t) = \bar{N} \frac{1 - \exp^{-(p+q)t}}{1 + (q/p)\exp^{-(p+q)t}} \tag{1}$$

The model has a flexible form as it can reduce to both pure internal or pure external model and also efficiently captures different shapes of the diffusion curve depending on the value of (q/p) . Bass model was later

modified by Bass *et al.* (1994) with respect to marketing effort. They proposed GBM under the basic assumption that the rate of purchase with respect to current effect of market variables is proportional to the number of potential adopters remaining to adopt the product at any given time. The mathematical equation describing GBM is given by

$$\frac{dN(t)}{x(t)} = p[\bar{N} - N(t)] + q\frac{N(t)}{\bar{N}}[\bar{N} - N(t)]$$

where $x(t)$ denotes “current marketing effort” to reflect the current effect of dynamic marketing variables on the conditional probability of adoption at time t . Solution for the above equation under the initial conditions $N(t = 0) = 0$ and $X(t = 0) = 0$ is given by

$$N(t) = \bar{N} \frac{1 - e^{-(p+q)(X(t)-X(0))}}{1 + (q/p)e^{-(p+q)(X(t)-X(0))}} \tag{2}$$

where $X(t)$ is the cumulative marketing effort and thus cumulative adoption is a function of cumulative marketing effort.

2.2. Proposed Model

Here, we develop an adoption growth model describing the diffusion of a single durable technology consumer product in a segmented market that has a closed form solution in the time domain with respect to promotional intensity function. Since promotion forms the major component of the marketing mix, keeping other factors constant, cumulative adoption is taken as a function of promotional efforts [Jha *et al.* (2006)] to represent the marketing efforts in Bass *et al.* (1994). The promotional effort intensity function represents combined influence due to differentiated market promotion and the spectrum effect of mass market promotion employed in all the segments.

The model is based on the following assumptions.

- (1) The market for a new product is divided into K disjoint segments.
- (2) Each purchaser buys a single unit of the product.
- (3) The consumer decision process is binary (adopt/not adopt).
- (4) The potential consumer population for the product in each segment is finite and remains constant during the promotional campaign.

- (5) The product in consideration belongs to the category of durable technology consumer products.
- (6) Buyers in each segment can be categorized into two groups (i) Innovators and (ii) Imitators.
- (7) The external influence is described by the joint influence of mass and targeted promotional strategies.
- (8) The consumer behavior within segments is independent of each other.
- (9) The parameters of external and internal influences are fixed over the product life cycle.
- (10) The rate of purchase with respect to promotional effort intensity is proportional to the number of non-purchasers of the product.

Following the assumptions and notations, the differential equation for the rate of adoption of the product in i^{th} segment with respect to the promotional effort (mass and targeted) is formulated as follows

$$\frac{d}{dt}N_i(t) = \left(p_i + q_i \frac{N_i(t)}{\bar{N}_i} \right) (\bar{N}_i - N_i(t)), \quad i = 1, 2, \dots, K \quad (3)$$

The expected number of adopters in the interval $(0, t]$ in the i^{th} segment is given as follows after solving Eq. (3), under the initial conditions $N_i(t) = 0, X_i(t) = 0, X(t) = 0$ at $t = 0$.

$$N_i(X_i(t), X(t)) = \frac{\bar{N}_i (1 - e^{-(p_i + q_i)(X_i(t) + \alpha_i X(t))})}{\left(1 + \left(\frac{q_i}{p_i} e^{-(p_i + q_i)(X_i(t) + \alpha_i X(t))} \right) \right)}, \quad i = 1, 2, \dots, K \quad (4)$$

3. Model Validity and Application

To validate and measure the performance of the proposed model, we performed parameter estimation on a real time adoption and data set of a hatchback car evolved through mass and differentiated promotion. The adoption and promotion data for a period of 24 months have been obtained from an ABC automobile company over four geographic segments. The data has been provided by the firm after suitable transformation to maintain the confidentiality of the data. The firm’s identity has not been disclosed for confidentiality reasons.

We have used statistical software SPSS to estimate unknown parameters of the model. Statistical package SPSS, a data management and analysis software provides several statistical data analysis features. The regression module in the package enables the user to validate their non linear regression models. Non-linear regression is a form of the regression analysis in which a nonlinear model is fitted on an observational data consisting of a set of independent variables and the associated dependent variable.

The performance of a model can be judged by its ability to fit the observed data and satisfactorily predict the future behavior of the process. Many established criteria are defined in the literature to validate the goodness of fit of models on any particular data and choose the most appropriate one. Some of these criteria are mean square fitting error (MSE), coefficient of multiple determination (R^2), mean absolute percentage error (MAPE), root mean square prediction error (RMSPE), variation, etc. Here, we use MSE and R^2 to validate the goodness of fit of the proposed model.

3.1. *Data Analysis*

Unknown parameters of the proposed adoption growth model for all four segments are estimated using the given 24-period adoption data against promotion data for mass and differentiated market promotion. The estimated parameter values using nonlinear regression in SPSS are given in Table 1. The MSE and R^2 values are also given in column 6 and 7 of Table 1. Fitting of the models for all the four segments are illustrated graphically in Figures 1– 4 against the actual data. Future forecast for six time periods has been shown in each of these figures for all the segments. It is observed that R^2 values in Table 1 are close to 1, signifying a good fit of

Table 1
Estimation Results

Segments	Parameter Estimates				Fit Statistics	
	\tilde{N}_i	p_i	q_i	α_i	MSE	R^2
S1	287962	0.000671	0.132113	0.372663	196105.48	0.98513
S2	156601	0.001128	0.470658	0.197823	13832.28	0.99426
S3	106977	0.001344	0.5660355	0.165732	11994.30	0.99825
S4	223291	0.000621	0.3316649	0.263569	173423.74	0.98355

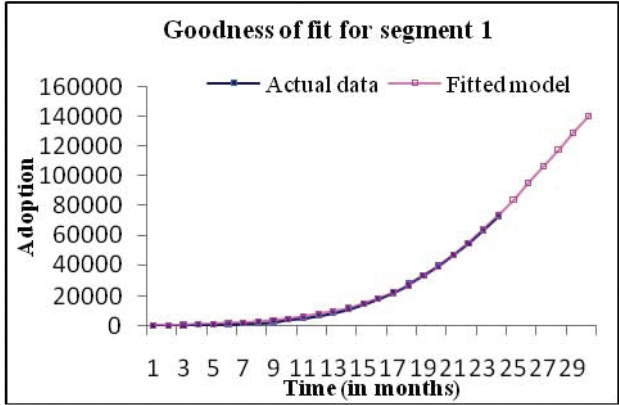


Figure 1

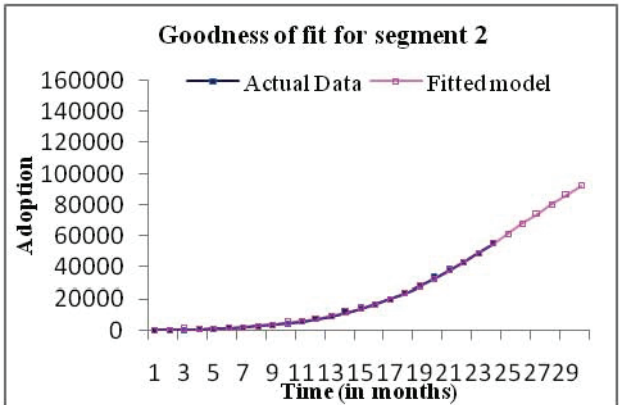


Figure 2

the proposed model. The flexible nature of the mathematical form of the model provides a good fit in all the segments.

The estimation results shows that the influence of mass promotion on adoption is approximately 37.27%, 19.78%, 16.57% and 26.35% in segments S1-S4 respectively. The estimation results also suggest that the product adoption is highly influenced due to social (internal) influence. Note that the results of the model can't be compared with the other models

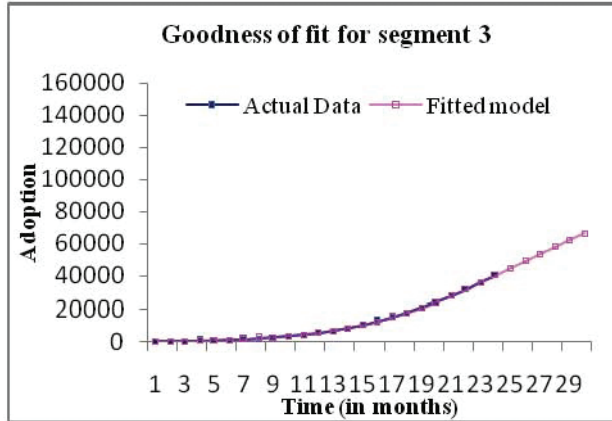


Figure 3

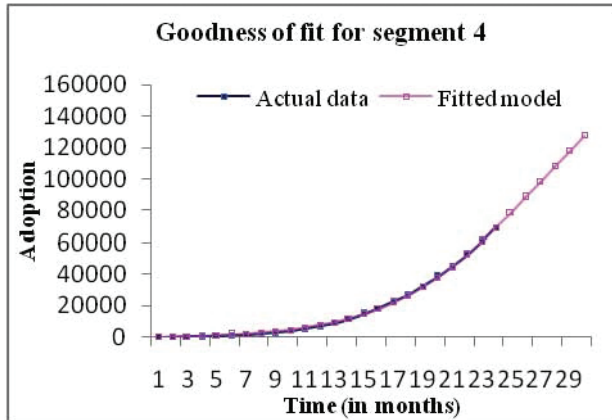


Figure 4

developed in literature as no other existing model considers the marketing environment as considered for the development of the proposed model in this paper to the best of our knowledge. Also note that as the data values in the curves below are in thousands and the curve given here are small in size so the two curves (actual and estimated) seems to be overlapping.

Because of good fitting, small difference in the actual and estimated values and the cumulative value curves, the difference in estimated and actual values is not much visible.

4. Conclusion

In this paper, we have formulated an innovation diffusion model for a durable technology consumer product assuming that the adoption in a segmented market is generated due to the joint effect of mass market and differentiated market promotion along with the internal influence. The effect of mass market promotion reaches each segment proportionally and is referred to as spectrum effect which results in wider exposure of the product. The targeted market promotion influences the potential adopters distinctly in each segment. Although innovation diffusion modeling is widely studied area however the effect of mass and differentiated market promotion on adoption growth in segmented market have been studied for the first time. The model finds lot of applicability in the present marketing scenario as the life cycle for technology products have become shorter, new technology product market have become highly competitive and new product replaces the older ones at very fast rate. Firms adopt buyer driven marketing by means of market segmentation for wider reach of their product and simultaneously uses mass market promotion to create wider spectrum for the firm's current and future products. The model has been validated on a real time adoption data. Lot of scope for further research exists in the area. Various extensions of the model can be worked upon to include more realistic situations such as repeat purchasing, multiple technological generations, dynamic market size, etc. by relaxing the assumptions considered. The model finds much applicability in research and application related to promotional resource allocation in segmented markets.

References

- [1] Bass, F. M. A new product growth model for consumer durables. *Management Science*, Vol. 15, 1969, pp. 215–227.
- [2] Bass, F. M., Krishnan, T. V., and Jain, D. C. Why the Bass model fits without decision variables? *Marketing Science*, Vol. 13(3), 1994, pp. 203–223.
- [3] Bass, P., and Bass, F. M. IT Waves: Two Completed Generational Diffusion Models, Working Paper, 2004.

- [4] Berry, T. and Wilson, D. *On Target: The Book on Marketing Plans*. 2nd Edition, Palo Alto Software Inc. 2001.
- [5] Bohlmann, J. D., Calantone, R. J., and Zhao, M. The Effects of Market Network Heterogeneity on Innovation Diffusion: An Agent-Based Modeling Approach. *Journal of Product Innovation Management*, Vol. 27, 2010, pp. 741–760.
- [6] Burrato, A., Grosset, L., and Viscolani, B. Advertising a new product in segmented market. *European Journal of Operational Research*, Vol. 175, 2006, pp. 1262–1267.
- [7] Chen Y., and Carrillo, J. E. Single firm product diffusion model for single-function and fusion products. *European Journal of Operational Research*, Vol. 214(2), 2011, pp. 232–245.
- [8] Chow, G. C. Technological change and the demand for computers. *American Economic Review*, Vol. 57, 1967, pp. 1117–1130.
- [9] Chu, C. P., and Pan, G. J. The forecasting of the mobile Internet in Taiwan by diffusion model. *Technological Forecasting and Social Change*, Vol. 75(7), 2008, pp. 1054–1067.
- [10] Dodson, J. A., and Muller, E. Models for new product diffusion through advertising and word of mouth. *Management Science*, Vol. 24, 1978, pp. 1568–1578.
- [11] Dwyer, S., Mesak, H., and Hsu, M. An exploratory examination of the influence of national culture on cross-national product diffusion. *Journal of International Marketing*, Vol. 13(2), 2005, pp. 1–26.
- [12] Egan, J. *Marketing Communications*. Thomson Publishing, London (UK), 2007.
- [13] Floyd, A. *A Methodology for Trend Forecasting for Industry and Government: Methods and Applications*. Inglewood Cliffs, NJ: Prentice Hall, 1968.
- [14] Fourt, L. A., and Woodlock, J. W. Early prediction of market success for grocery products. *Journal of Marketing*, Vol. 25, October 1960, pp. 31–38.
- [15] Gupta, S., Jain D. C., and Sawhney, M. S. Modeling the Evolution of Markets with Indirect Network Externalities: An Application to Digital Television. *Marketing Science*, Vol. 18(3), 1999, pp. 396–416.
- [16] Goldenberg, J., and Oreg, S. Laggards in Disguise: Resistance to Adopt and the Leapfrogging Effect. *Technological Forecasting and Social Change*, Vol. 74(8), 2007, pp. 1272–1281.

- [17] Horsky, D, and Leonard, S. Simon. A diffusion model incorporating product benefits, price, income and information. *Marketing Science*, Vol. 9, 1990, pp. 342–385.
- [18] Jain, D. C., Rao, C. Effect of price on the demand for durables: Modeling, estimation and findings. *Journal of Business and Economic Statistics*, Vol. 8, 1990, pp. 163–170.
- [19] Jain, D. C. Marketing mix effects on the diffusion of innovations. Marketing Science Conference, University of Illinois, Urbana-Champaign, March 1990.
- [20] Jha, P. C., Aggarwal, R., Gupta, A., and Kapur, P. K. Optimal allocation of promotional resource for multi-product in segmented market for dynamic potential adopter and repeat purchasing diffusion models. *International Journal of Advanced Operations Management*, Vol. 3(3/4), 2011, pp. 257–270
- [21] Jha, P. C., Gupta, A., and Kapur, P. K., Bass model revisited. *Journal of Statistics and Management Systems*. Vol. 11(3), 2006, pp. 413–437.
- [22] Jha, P. C., Gupta, A., and Kapur, P. K. On maximizing the adoption of multi-products in multiple market segments. *Journal of Information and Optimization Sciences*. Vol. 28(2), 2007, pp. 219–245.
- [23] Jun, D. B., and Kim, J. I. A choice-based multi-product diffusion model incorporating replacement demand. *Technological Forecasting & Social Change*, Vol. 78(4), 2011, pp. 674–689.
- [24] Kauffman, R. J. Techatassanasoontorn, A. International Diffusion of Digital Mobile Technology: A Coupled-Hazard State Based Approach. *Information Technology and Management*, Vol. 6(3), 2005, pp. 253–292.
- [25] Lackman, C. L. Gompertz curve forecasting: a new product application. *Journal of the Marketing Research Society*, Vol. 20, 1978, pp. 45–57.
- [26] Lilien, G. L., Rao, A. G., and Kalish, S. Bayesian estimation and control of detailing effort in a repeat purchase diffusion environment. *Management Science*, Vol. 27, 1981, pp. 493–506.
- [27] Lilien, G. L., Kotler, P., and Moorthy, K. S. *Marketing Models*. Prentice Hall of India, New Delhi, 1998.
- [28] Mahajan, V., and Muller, E. Innovative behavior and repeat purchase diffusion models. Proceedings American Marketing Educators Conference, Chicago: American Marketing Association, 1982, pp. 456–460.

- [29] Mahajan, V., Muller, E., and Kerin, R.A. Introduction strategy for new products with positive and negative word of mouth. *Management Science*, Vol. 30, 1984, pp. 1389–1404.
- [30] Mahajan, V., and Muller, E. Timing, Diffusion, and Substitution of Successive Generations of Technological Innovations The IBM Mainframe Case. *Technological Forecasting and Social Change*, Vol. 51(2), 1996, pp. 109–132.
- [31] Mahajan, V., and Peterson, R. A. Innovation diffusion in a dynamic potential adopter population. *Management Science*, Vol. 24, 1978, pp. 1589–1597.
- [32] Manik, P., Gupta, A., and Jha, P. C. Differential evolution approach to promotional effort allocation in segmented market for multi-period promotion strategies in a planning horizon incorporating repeat purchase. Proceedings of the International Conference on Soft Computing for Problem Solving (Roorkee, India), *Advances in Intelligent and Soft Computing*, Vol. 131, 2011, pp. 979–991.
- [33] Mansfield, E. Technical change and the rate of imitation. *Econometrica*, Vol. 29, 1961, pp. 741–766.
- [34] Midgley, D. F. A simple mathematical theory of innovative behavior. *Journal of Consumer Research*, Vol. 3, 1976, pp. 31–41.
- [35] Rao, K. R. *Services Marketing*. Second edition, Dorling Kindersley (India) Pvt. Ltd., Noida, 2011.
- [36] Ramaswamy, V. S., and Namakumari, S. *Marketing Management: Global Perspective–Indian Context*, 4th edition, Macmillan India Limited, 2009.
- [37] Rangaswamy, A., and Gupta, S. *Innovation Adoption and Diffusion in the Digital Environment: Some Research Opportunities*, Kluwer Academic, Boston, 2000.
- [38] Robinson, R., and Lakhani, C. Dynamic Price Models for New Product Planning. *Management Science*, Vol. 21, 1975.
- [39] Rogers, E. M. *Diffusion of Innovations*. 1st edition, The Free Press, New York, 1962.
- [40] Sharif, M. N., and Ramanathan, K. Binomial innovation diffusion models with dynamic potential adopter population. *Technological Forecasting and Social Change*, Vol. 20, 1981, pp. 63–87.
- [41] Sharif, M. N., and Ramanathan, K. Polynomial innovation diffusion models. *Technological Forecasting and Social Change*, Vol. 21, 1982, pp. 301–323.

- [42] Steffens, P. R. Applying Diffusion Models with Regional Heterogeneity. *Marketing Letters*, Vol. 9(4), 1998, pp. 361–369
- [43] Qi, W., Jiao, S.X., Ying, Z., and Dan, L. Variable Contingent Diffusion Model of Customized 3G Mobile Phones. *Journal of Beijing University of Posts and Telecommunications*, Vol. 14(5), 2012, pp. 72–78.
- [44] Viscolani B. Advertising decisions for a segmented market. *Optimization*, Vol. 58(4), 2009, pp. 469–477.

Received December, 2012

Journal of Services Research

Volume 14

Number 1

April - September 2014

Gaurav Tripathi
Kartik Dave

Exploration of Service Quality Factors in Restaurant Industry: A Study of Selected Restaurants in New Delhi Region

Milos Bujisic
H.G. Parsa

Consumer Comment Behavior and the Calendar Effect: A Longitudinal Study in Services

Bharat M. Josiam
Rosa Malave
Charles Foster
Watson Baldwin

Assessing Quality of Food, Service and Customer Experience at a Restaurant: The Case of a Student Run Restaurant in the USA

Vinay Chauhan
Deepak Manhas

Dimensional Analysis of Customer Experience in Civil Aviation Sector

Shaphali Gupta
Dinesh Sharma

Dimensions of Retail Service Convenience in Emerging Market Settings – A Qualitative Investigation

Durgamohan Musunuri
Sonia Bharwani

Decoding the Strategic Growth Challenges Faced by the Indian Hospitality Sector

Prabakar Kothandaraman
Raj Agnihotri
Rebecca E. Dingus

Pursuing Success in Service Recovery: A Conceptual Framework of Salesperson's Power in Selling Centre

Sanjit Kumar Roy
Abdolreza Eshghi
Ali Quazi

Consumer Advocacy's Impact on Satisfaction and Loyalty

Intekhab Alam

Conducting Research for New Service Development in Emerging Markets

Book Reviews

Journal of Services Research

The Journal of the Institute for International Management and Technology (IIMT), Gurgaon

Editor	: Vinnie Jauhari, Director, IIMT
Assistant Editor	: Parul Goyal Wasan
Marketing Manager	: Rama Krushna Charan Patro, IIMT
Editorial Co-ordinator and Production Manager	: Manjit Singh, IIMT
Website Developer	: Ashish Kumar Tiwari, IIMT

Editorial Advisory Board

Arun Upneja, Dean and Professor, School of Hospitality Administration, Boston University, Commonwealth Avenue, Boston, USA.

Charla Griffy Brown, Professor, Information Systems & Technology Management, Director of the Center for Teaching and Learning Excellence, Editor-in-chief Technology in Society, Graziadio School of Business Management, Pepperdine University, Los Angeles, California, USA.

Chihiro Watanabe, Professor, Department of Industrial Management, Tokyo Seitoku University, Japan.

David Cranage, Associate Professor, School of Hospitality Management, The Pennsylvania State University, PA, USA.

Dennis Reynolds, Ivar Haglund Distinguished, Professor of Hospitality Business Management Washington State University, College of Business and Economics, USA.

Fevzi Okumus, Editor, International Journal of Contemporary Hospitality Management, Chair of Hospitality Services Department, Rosen College of Hospitality Management, The University of Central Florida, Florida, USA.

H.G. Parsa, Editor-in-Chief, Journal of Foodservice Business Research, Rosen College of Hospitality Management, University of Central Florida, USA

Kamlesh Misra, Provost, Auro University, Surat.

Klaus Macharzina, Professor, Universitat Hohenheim, Stuttgart Germany.

Mahmood A. Khan, Professor, Hospitality and Tourism Management, Pamplin College of Business Virginia Tech - National Capital Region, USA.

Mark Saunders, Professor in Business Research Methods, School of Management, University of Surrey, Guildford, UK.

Mary Mathews, Associate Professor, Department of Management, Indian Institute of Science, Bangalore, India.

Peter O'Connor, Academic Director, Institute de Management Hotelier International & Professor, Information Systems Essec Business School Paris - Singapore.

R. Srinivasan, Professor, Department of Management Studies, Indian Institute of Science, Bangalore, India.

Rhodri Thomas, Professor, ITT Chair of Tourism and Events Policy, UK Centre for Events Management, Leeds Metropolitan University, Leeds, UK.

Richard C. Leventhal, Editor, Journal of Consumer Marketing, Upham Street Arvada Colorado, USA.

Richard Teare, Editor, World Wide Hospitality and Tourism Themes, Journal, President, Revans University-The University of Action Learning, Principal & Chief Executive, IMCA Chief Learning Officer, IMCA Socrates, Buckingham, UK.

Sandeep Sancheti, President, Manipal University Jaipur, Dehmi Kalan, Off Jaipur - Ajmer Expressway, Jaipur, Rajasthan, India.

Sanjay K. Jain, Head and Professor of Marketing and International Business, Department of Commerce, Delhi School of Economics, University of Delhi, India.

Sanjaya S. Gaur, Professor of Business and Law, Business School, Auckland University of Technology, New Zealand.

Shyam S. Lodha, Professor of Marketing and International Business Chair, Department of Marketing School of Business Southern Connecticut State University, USA.

Sushil, Professor, Editor-Global Journal of Flexible Systems Management, Department of Management Studies, Indian Institute of Technology, New Delhi, India.

Tom Redman, Professor, Human Resource Management, Durham University Business School, UK.

Venkatesh Umashankar, Professor of Marketing, International Mgmt. Institute, New Delhi, India.
Vinayshil Gautam, Professor, Indian Institute of Technology, New Delhi, India.

Wesley Johnston, Professor of Marketing & Director, Center for Business and Industrial Marketing, J. Mack Robinson College of Business Georgia State University, Atlanta, USA.

Review Board

Adam Nguyen, Assistant Professor, Marketing and Management Department, Siena College, Loudonville, NY.

Alex Gillett, Lecturer in Marketing, The York Management School, University of York, UK.

Alka Sharma, Professor, The Business School, University of Jammu, Jammu & Kashmir, India.

Altinay Levent, Professor, Oxford Brookes University, Department of HLTM, Business School, Wheatley Campus, Wheatley, Oxford, UK.

Amit Gupta, Professor, Management Development Institute (MDI) Mehrauli Road, Sukhrali, Gurgaon, India.

Amit Sharma, Assistant Professor, School of Hospitality Management, Pennsylvania State University, PA, USA.

Amit Bhatnagar, Associate Professor of Marketing Lubar School of Business, University of Wisconsin - Milwaukee, USA.

Anne L. Roggeveen, Lyle Howland Term Chair in Marketing, Associate Professor of Marketing, Babson College, Babson Park, MA.

Ashok Kumar Chandra, Senior Assistant Professor, Department of Management, Bhilai Institute of Technology Bhilai House, Durg Chhattisgarh, India

Atanu Adhikari, Associate professor, Indian Institute of Management-Kozhikode, Kerala, India.

Bharath Josiam, Associate Professor, Department of Hospitality Management, University of North Texas, Denton, USA.

Bhavesh Patel, Director, PGIM, Dean, AM-SoM, Ahmedabad University, Navrangpura, Ahmedabad, Gujarat, India.

David Bowie, MSc Programmes Director, Oxford School of Hospitality Management, Oxford Brookes University, Fuller Building, Headington Campus, Gipsy Lane, Oxford, UK.

Debajani Sahoo, Assistant Professor, Marketing & Strategy, IBS, Hyderabad, India.

Dwarika Prasad Uniyal, Associate Professor & Chairperson - Placements, Indian Institute of Management, Kashipur, Uttarakhand, India.

Edwin Love, Assistant Professor, Department of Finance & Marketing, College of Business and Economics, Western Washington University, WA.

Estrella Díaz Sánchez, Professor of Marketing, Department of Management Science and Marketing University of Castilla-La Mancha Ronda de Toledo, Ciudad Real-Spain.

G.S.Gupta, Professor of Economics, Indian Institute of Management, Ahmedabad, India.

Gaurav Tripathi, Assistant Professor, Institute for International Management and Technology, Gurgaon, India.

Grant Clendinning, International Partnership Development Client Manager and Principal Lecturer in Operations Management, Oxford Brookes University Business School and Director Oxford Gastronomia-The Centre for Food, Drink and Culture, UK.

Gunjan M. Sanjeev, Director- International Rela-

tions, Professor (Finance), ABS, Amity University, Gurgaon (Manesar), Haryana, India.

Hardeep Chahal, Associate Professor, Department of Commerce, University of Jammu, J&K, India.

Hooman Estelami, Associate Professor of Marketing, College of Business Faculty, Fordham University, Rose Hill Campus, Bronx, NY.

Juan (Gloria) Meng, Assistant Professor of Marketing, Department of Marketing & International Business, Minnesota State University, Mankato, MN.

Kartik Dave, Associate Professor, BIMTECH, Greater Noida, India.

Keith S. Coulter, Associate Professor of Marketing, Clark University, Graduate School of Management, Worcester, MA.

M. Durgamohan, Professor, Institute for International Management and Technology, Gurgaon, India.

Mark Friesen, Head of Pricing and Revenue Management APCOA Autoparking, Stuttgart-Flughafen, Germany.

Meghna Rishi, Assistant Professor-Marketing, Lal Bahadur Shastri Institute of Management, Dwarka, New Delhi, India.

Muhammad Kashif Saeed, Assistant Professor, Gift University, Pakistan.

Nada Nasr Bechwati, Associate Professor of Marketing, Bentley University, Waltham, MA.

Nawel Amrouche, Assistant Professor of Marketing, Managerial Sciences Department, Long Island University Brooklyn Campus, NY.

Prakash Chathoth, Associate Professor, Department of Marketing, School of Business and Management, American University of Sharjah, University City, Sharjah, United Arab Emirates.

Ram Palanisamy, Associate Professor, Department of Information Systems, St. Francis Xavier University, Nova Scotia, Canada.

Sandeep Munjal, Associate Professor, Institute for International Management and Technology, Gurgaon, India.

Sanjay Kumar Kar, Rajiv Gandhi Institute of Petroleum Technology, Rae Bareilly, UP, India.

Sanjit Kumar Roy, Assistant Professor, Marketing, Faculty of Business, The University of Western, Australia, Australia.

Velitchka D. Kaltcheva, Assistant Professor, Loyola Marymount University, Hilton, Los Angeles, CA.

Vinay Kanetkar, Associate Professor of Marketing and Consumer Studies, Department of Marketing and Consumer Studies, University of Guelph.

Vivienne J. Wildes, Assistant Professor, The Pennsylvania State University, University Park, PA.

Manuscript Submission

Manuscripts are invited on all aspects of management and related social sciences in the area of services. Author guidelines are available on www.jsr-iimt.in. Enquiries should be directed to the editor.

Full text of Journal of Services Research is available in EBSCO, PROQUEST and GALE Database and index/abstract in CABI Database.

Frequency and Subscriptions

Journal of Services Research is published twice a year (No. 1: April-September; No. 2: October - March). Annual subscription rates are as follows:

◆ Institutional / Individual (India)

Institutional Rate (India) Individual Rate (India)

- | | | | | |
|-------------|--------------------------|----------|--------------------------|----------|
| 1 Year | <input type="checkbox"/> | Rs.2500 | <input type="checkbox"/> | Rs.2000 |
| 2 Years | <input type="checkbox"/> | Rs.4500 | <input type="checkbox"/> | Rs.3500 |
| 3 Years | <input type="checkbox"/> | Rs.6000 | <input type="checkbox"/> | Rs.3200 |
| Life Member | <input type="checkbox"/> | Rs.18000 | <input type="checkbox"/> | Rs.15000 |
- Backdated issue on CD @ Rs. 750 per issue

◆ Institutional / Individual

	Asian Countries		Other Countries	
	Institutional	Individual	Institutional	Individual
1 Year	<input type="checkbox"/> \$200	<input type="checkbox"/> \$150	<input type="checkbox"/> \$250	<input type="checkbox"/> \$200
2 Years	<input type="checkbox"/> \$300	<input type="checkbox"/> \$250	<input type="checkbox"/> \$400	<input type="checkbox"/> \$300
3 Years	<input type="checkbox"/> \$400	<input type="checkbox"/> \$350	<input type="checkbox"/> \$600	<input type="checkbox"/> \$400
Lifetime	<input type="checkbox"/> \$1500	<input type="checkbox"/> \$1000	<input type="checkbox"/> \$2000	<input type="checkbox"/> \$1500

Backdated issue on CD @\$100 per issue

◆ Online Subscription (1 Year)

- India Rs.3000 Asian Countries \$250 Other Countries \$300
- ◆ Online Subscription + Hard Copy (both) (1 Year)
- India Rs.4000 Asian Countries \$300 Other Countries \$350

Demand draft or cheque should be drawn in favour of Institute for International Management and Technology and be payable at New Delhi, India.

Editorial/Subscription Information

Call or write to the Marketing Manager, Journal of Services Research, Institute for International Management and Technology, 336 Udyog Vihar-IV, Gurgaon, Haryana.
Phone : (0124) 4787111 E-mail: jsr@iimtobu.ac.in Website: www.jsr-iimt.in

Journal of Services Research (RNI NO.: HARENG/2001/4615, ISSN NO.: 0972-4702), its editorial board and publisher, IIMT, Gurgaon disclaim responsibility and liability for any statement of fact or opinion made by the contributors.

©2014 by Institute for International Management and Technology. All Rights Reserved.
IIMT® IIMT is a registered Trade Mark of RHW Management Schools Ltd.

Journal of Services Research

The Journal of the Institute for International Management and Technology (IIMT), Gurgaon

VOLUME 14 **NUMBER 1** **APRIL - SEPTEMBER 2014**

PAPERS

Exploration of Service Quality Factors in Restaurant Industry: A Study of Selected Restaurants in New Delhi Region	Gaurav Tripathi Kartik Dave	9
Consumer Comment Behavior and the Calendar Effect: A Longitudinal Study in Services	Milos Bujisic H.G. Parsa	27
Assessing Quality of Food, Service and Customer Experience at a Restaurant: The Case of a Student Run Restaurant in the USA	Bharath M. Josiam Rosa Malave Charles Foster Watson Baldwin	49
Dimensional Analysis of Customer Experience in Civil Aviation Sector	Vinay Chauhan Deepak Manhas	75
Dimensions of Retail Service Convenience in Emerging Market Settings - A Qualitative Investigation	Shaphali Gupta Dinesh Sharma	99
Decoding the Strategic Growth Challenges Faced by the Indian Hospitality Sector	Durgamohan Musunuri Sonia Bharwani	123
Pursuing Success in Service Recovery: A Conceptual Framework of Salesperson's Power in Selling Centre	Prabakar Kothandaraman Raj Agnihotri Rebecca E. Dingus	141
Consumer Advocacy's Impact on Satisfaction and Loyalty	Sanjit Kumar Roy Abdolreza Eshghi Ali Quazi	161
Conducting Research for New Service Development in Emerging Markets	Intekhab Alam	183

Book Reviews

- Khalil, Tarek and Shanker, Ravi, Management of Technology: The Key to Competitiveness and Wealth creation 2nd ed. New Delhi: Tata McGraw Hill, 2013. 536 pp. Rs. 650/- 203
- Gupta, S.L. and Gupta, H., Business Research Methods. New Delhi: Tata McGraw Hill, 2012. 440pp. Rs. 350/- 204
- A. Thompson, Margaret, A. Peteraf, John E. Gamble, A.J. Strickland, A.K. Jain, Crafting and Executing Strategy: The Quest for Competitive Advantage-Concepts and Cases. New Delhi: Tata McGraw Hill, s.l. 465pp. Rs. 615/- 204
- Vedamani, Gibson G., Retail Management: Functional principles and practices 4ed. Mumbai: Jaico, 2012. xxvi+475 pp. Rs. 395/- 207
- Suba Rao, P. International Human Resource Management, Mumbai: Himalaya Publishing House, 2013. 504pp. Rs. 375/- 208

Forthcoming Conferences and Seminars

Academic Opportunities and Fellowships

CALL FOR PAPERS

MANAGING AND DELIVERING SERVICES IN THE ASIAN CENTURY

10th – 12th December 2014

Macau

The 7th International Conference on Services Management

Co-organised by

Institute for Tourism Studies, Macau (China)

Institute for International Management and Technology (India)

Oxford Brookes University (UK)

Virginia Tech University (USA)

Conference theme

The unifying theme for the 7th ICSM is “MANAGING AND DELIVERING SERVICES IN THE ASIAN CENTURY” which challenges delegates to address the sea-change taking place as Asian consumers lift themselves economically, boosted by their vibrant economies-thereby changing the nature of service demand and the fundamentals of servicescapes.

The growth of outbound Chinese travelers, for example, has created opportunities but also challenges, forcing companies to adapt their communication, service offering and staff language skills, among others.

The challenge for researchers and scholars is: What service management principles need re-thinking? The challenge for practitioners is: What paradigm shifts are needed to thrive in the age of the Asian consumer?

We therefore invite services management practitioners and researchers to address the above issues and submit papers and presentations covering any of the following service management and marketing topics in any relevant focal service area/context:

Key areas for paper submissions

- ❖ Innovation and development in service management,
- ❖ Operations delivery
- ❖ Co-creation and enhancement of the service experience
- ❖ Revenue management, economics & strategic pricing of services
- ❖ Marketing, brand building & delivery of services
- ❖ Human resource management & labor economic issues
- ❖ Education & training service workers
- ❖ Use of technology, social media & communication innovations in services
- ❖ Governance, stakeholder & community issues;
- ❖ Corporate social responsibilities of service organizations;
- ❖ Family-ownership
- ❖ Entrepreneurship in services
- ❖ Leadership issues & ethics of services organization
- ❖ Growth, franchising & expansion challenges of service organizations
- ❖ Service quality, customer satisfaction

Any of these focal service areas or context:

- ❖ Public, medical, social & government services
- ❖ Food & beverage services
- ❖ Hotel & hospitality services management
- ❖ Transport, aviation, cruise, travel and tourism services
- ❖ Financial, financial services & banking
- ❖ Mobile communications and technology services
- ❖ Events, conventions & business support services
- ❖ Entertainment, leisure and cultural services; gaming & gaming-related services
- ❖ Utilities services
- ❖ Education & educational-support services
- ❖ Wellness, well-being, health & fitness, as well as personal care services
- ❖ Shopping & "retailtainment" service experience management
- ❖ Trading, supply chain & logistics services
- ❖ Small & medium service organization start-ups
- ❖ Real estate, housing & home services

Submissions and publication

We invite submissions of original, unpublished empirical or conceptual papers. We particularly welcome case studies or best practices contributions from practitioners. Contributors can submit abstracts or full papers for review (a double-blind process).

Authors of accepted abstracts must submit a full paper for publication in a digital-format conference proceedings which will have an ISSN number. Full papers should not exceed 5,000 words including references, tables and figures. Awards for best papers will be conferred from papers included in the proceedings. All submissions and presentations should be in English.

Once accepted for inclusion in the proceedings, at least one author of the paper must register by 10th October 2014. Each registered delegate will be allowed a maximum of two authorships or co-authorships.

How to submit

Download the submission guideline and template from the website <https://www.dropbox.com/s/uxw1ztbk2u4btdz/Submission%20guidelines%20and%20template%20ICSM-7.docx>.

Submissions should be uploaded to the EasyChair Conference System <https://www.easychair.org/account/signin.cgi?key=9158789.0rruUVVxbvpg5tzC>

For assistance or queries, please email Ms. Virginia Hong, of our Conference Secretariat, at icsm-conference@ift.edu.mo.

Important dates

Deadline for abstract submission	10 May 2014
Review outcome announced	10 June 2014
Early bird registration deadline	10 September 2014
Full paper submission deadline	10 October 2014
Final registration deadline	10 November 2014
Conference begins	10 December 2014

Conference host and chairs:



Conference Chair
Dr. Fanny Vong
President, Institute for
Tourism Studies



Co-chair
Prof. Levent Allinay
Oxford Brookes University



Co-chair
Prof. Muzzo Uysal
Virginia Polytech



Co-chair
Prof. Vinnie Jauhari
Institute for International
Management & Technology

EXPLORATION OF SERVICE QUALITY FACTORS IN RESTAURANT INDUSTRY: A STUDY OF SELECTED RESTAURANTS IN NEW DELHI REGION

Gaurav Tripathi

Kartik Dave

The purpose of this paper is to explore the underlying key dimensions of service quality in restaurants. Service quality items pertaining to the restaurants are extracted from extensive review of literature including the consideration of unique factors from Indian cultural orientation. The study was conducted in New Delhi and its adjoining cities wherein the restaurant customers were surveyed using a structured questionnaire. Factor analysis was used to bring out the underlying dimensions of service quality. The dimensions extracted are cultural orientation, aesthetics, ambient settings, empathy, privacy and entertainment, first impression, reliability and responsiveness. The Indian market is contextually different in contrast to various other countries where such research studies have been widely carried out. Hence, this study provides departure from previous studies and presents greater insight into the service quality factors as perceived by the consumers in India. This will help the restaurant managers to ponder on the factors, which are more pertinent for the Indian markets. Importantly, this study attempts to test the variables pertaining to cultural orientation from the Indian context as dimensions of the restaurant service quality and hence attempts to create a more suitable scale for the Indian market.

INTRODUCTION

The concept of service quality has emerged as the most important concept pertaining to the marketing of services in the last three decades. The original service quality model called SERVQUAL (Parasuraman *et al.*, 1988) did not take into consideration the restaurant industry and hence DINESERV was conceptualized by Stevens *et al.* (1995). However, because of contextual and cultural issues various service quality models including SERVQUAL have been criticised on their universal applicability, as market conditions and the consumer perception change with the passage of time. Importantly, because the service quality is perceptual in nature, it is likely to vary due to the type of services and also due to cultural differences. Cultural differences hold importance, as they are likely to influence the dining orientations. Additionally, DINESERV has also been exposed to criticism due to its limited applicability in various contexts. DINESERV constitutes the same five dimensions as that of SERVQUAL to include restaurant services. Absence of restaurant services

10 Exploration of Service Quality

is one of its shortcomings of SERVQUAL, which although based on four service industries, does not include the restaurant services. Many studies have used DINESERV studies on restaurant service quality. These include the works of Kim *et al.*, (2003, 2009), Markovic *et al.*, (2010), Vanniarajan (2009) and many others. These studies have come up with new and different factors, as against the DINESERV factors, suggesting the limitation of the DINESERV model.

The present study attempts to refine the work of Vanniarajan (2009) which so far has been the only study in the Indian context focussing on service quality measurement in restaurants. There exists a dearth of scholarly literature in the Indian context focusing on service quality in restaurants. The present study provides a fresh insight into the service quality perceptions towards eating out in restaurants in Indian context.

India is one of the fastest growing economies in the world, which has shown growth in the services sector rather than manufacturing. The growth of restaurant industry in India is largely due to the presence of variety of cuisines. The liberalization policy of 1991 has opened India to the western cultures, which has resulted in increase of customers who look forward to eating out. People in India are craving for foreign delicacies, which is largely attributed to the growing tourism industry. An example of changing lifestyles can be seen among the youth who have made the fast-food restaurants popular. The modern Indians are giving higher priority to eating out. Service quality is what 24% of the customers look for; while making a decision for eating out. The other factors responsible for eating out include ambience, convenience, enjoyment, social gathering and status (Anand, 2011).

The growth in the urban areas for the restaurant industry is also attributed to affluence, deskbound jobs, dual incomes, independence among youth and paucity of time. The eating out culture in India has transformed to a more global style in the metro cities with consumers ready to pay more for ambience, convenience and experience. In India, socializing with family and friends is strong way to stay connected with its culture. The Quick Service Restaurants (QSRs) are popular among youth, which are understood as popular joint to spend time with friends while the Full Service Restaurants (FSRs) are known for family gatherings. The changing demographics have strongly influenced the eating habits of the consumers

especially in the metro cities and the lifestyle factors are responsible for this change, which are phenomenal (Anand, 2011). Moreover, the restaurants in metros are delivering services, which are comparable to the services delivered by restaurants at luxury hotels (Berry, 2008). New types of restaurants, theme-based or otherwise, display high quality of services, making them popular brands. This phenomenon though popular in metros, is gradually diffusing into relatively smaller cities with high levels of supply chain integration (Bhardwaj, 2011).

It is worth noting that India is ranked third globally in terms of growth forecast for next five years. This is even higher than most developed economies for both Full Service Restaurants (FSR) and Quick Service Restaurants(QSR). Moreover, for the last five years, India ranks third in terms of the growth rate, which is even higher than the developed economies for the combined segments of QSRs and FSRs. In addition, the Indian food service industry has shown a CAGR of 7.9% based on the value of food service for five years ending in 2010 (Euromonitor, 2011). Interestingly, the growth is highest in the leisure and retail segment, which reflects the consumers' readiness to pay more for high quality experiences involving comfort and leisure.

On the other side of growth story, the forecast from 2010 to 2015 in CAGR terms is 4% for the food service value (Euromonitor, 2011). It appears that the industry is maturing. However, it is a possibility that consumers might be find some latent issues with the quality of service, etc., this provides a strong motivation to study these latent factors, which are significant determinants of service quality.

This research paper starts with the review of previous studies on service quality, which focus on restaurant industry and then defines the existing gap in the literature. It is followed by exploring the service quality factors using data collected through a structured questionnaire. Further the latent factors pertaining to service quality in Indian restaurants are extracted which are tested for their reliability and validity. This is followed by discussion of the analysis and managerial implications.

REVIEW OF LITERATURE

Quality is defined as "fitness for use" (Stephens and Juran, 2005). Research on service quality has grown in the last three decades. Although

12 Exploration of Service Quality

there have been various researches based on service quality, and the SERVQUAL model is most referred in the literature, it is worth noting that most of the researches that cite SERVQUAL have criticised the model for its lack of applicability on all kinds of services. Many scholars have improved the SERVQUAL model to fit to the needs of various service industries individually. Technically, most of these researches found the factor structure of their models different from that of SERVQUAL. The model was criticised by the original authors themselves. The model, which was developed by Parasuraman *et al.* (1988) collected data based on four types of service companies, and attempted to generalize the model for all the service industries, hence the name SERVQUAL. They attempted to retain the common scale items for most of the service industries. However, they might also have deleted the items, which were relevant to one or few firms thereby, ensuring the generalizability and applicability of the model to a wide range of service industries.

Various studies have attempted to measure service quality by using modified versions of SERVQUAL or DINESERV, or have attempted to pool the scale items from the literature to develop new scales. The divergence in the models proposed by various studies encourages an enquiry into the factors comprising service quality in restaurants in different cultural contexts.

Markovic *et al.* (2010) pointed out that evaluation of service quality in restaurant industry is difficult because both the process and delivery are at the focal point of customer's evaluation of service quality. Although many researchers have used SERVQUAL to assess the service quality in restaurants (Andaleeb and Conway 2006, Bojanic and Rosen 1994; Lee and Hing 1995; Yuksel and Yuksel 2002); yet, the development of DINESERV (Stevens *et al.*, 1995) is a pivotal contribution. Because of the shortcomings of SERVQUAL Stevens *et al.* (1995) developed a 29-item scale and named it DINESERV. It was based on SERVQUAL's five factors but focussed only on the restaurants.

Although, the SERVQUAL studies have been extended to various industry settings, the work of Stevens *et al.*, (1995) in shaping DINESERV is noteworthy. DINESERV is a service quality item-scale based model focusing specifically on the restaurants. Post conceptualization of DINESERV in 1995, most of the authors have focussed on either DINESERV or

SERVQUAL as the base model for their study. Various studies which have used DINSERV includes the work of Kim *et al.*, (2003, 2009), Markovic *et al.*, (2010) and Vanniarajan (2009). The aforementioned models have been extended on the basis of literature review or focus group discussions to suit to specific cultural contexts. The models developed have been further utilized to test their effect on customer satisfaction and behavioural intentions. Various studies pertaining to this are discussed in the following paragraphs.

Becker *et al.* (1999) compared the restaurants of Hong Kong and USA by focussing on wait-staff behaviour in which the scale-items were culled from focus groups. The authors derived the factors viz., professionalism, sanitation, cordiality, accommodation, knowledge and entertainment. The most interesting feature of this research was that this research attempted to include the importance of cultural differences. Kivela *et al.* (2000) conducted a research on 15 theme restaurants in Hong Kong and came up with five factors viz., ambience excellence, first and last impressions, food excellence and feeling comfortable to eat there, reservations and parking and service excellence. Kim and Kim (2004) discussed brand equity scale, which involved perceived quality as one of its factors. Lee *et al.* (2004) discussed CSQI, which was based on the SERVQUAL model. Hu (2005) while, researching on senior citizens In USA came up with Entertainment, (Front of the House) FOH service and Food, Nutrition and Perceived Value as the service quality factors. Ryu (2005) in the context of upscale restaurant came up with a new model called DINESCAPE, which comprised of facility aesthetics, ambience, lightening, service product, layout and social factors. Weiss (2005) while testing the intention to return for the theme restaurants used atmosphere, food, service and experience and tested the model based on both importance and expectations. Andaleeb and Conway (2006) extracted responsiveness, food quality/reliability, physical design and price as the factors of service quality. However, the authors suggested the results cannot be generalized. Kim *et al.* (2006) extracted factors similar to the service quality namely, relationship benefits, communication, price fairness, customer orientation, physical environment, food quality, as the factors which influenced relationship quality.

14 Exploration of Service Quality

Qin and Prybutok (2009) discussed the same five factors of SERVQUAL with an exception of recovery while responsiveness and reliability loaded on the same factor. Markovic *et al.* (2010) discussed service quality in Croatian restaurants and came up with separate factors for perception and expectations. Assurance, Basic demands, Cleanliness and appearance of facilities and staff, individual attention, responsiveness, reliability and satisfaction and loyalty constituted the expectation scale while the factors viz., overall dining experience and restaurant ambience formed the perception scale. More recently, Harrington *et al.* (2011) extracted six factors viz., Promotion, Price/value, Quality expectations, Settings, Dietary, and Variety/innovate.

The universal applicability of SERVQUAL has been under question (Gaur and Agrawal, 2006). DINESERV scale model (Stevens *et al.*, 1995) is likely to have similar limitations as it is based on SERVQUAL. It comprises of 29 scale-items constituting the five dimensions, which are similar to SERVQUAL's five dimensions. The individual scale items are however different. Interestingly, Stevens *et al.* (1995) themselves have discussed issues in the five dimensions of DINESERV model. Since these concepts are borrowed, a strong level of reliability and validity assessment for such scale models is advised (Oh and Parks, 1997). The aforementioned studies discussed in the previous paragraphs suggest the contextual limitations with differing dimensions.

In the Indian context, Vanniarajan (2009) came up with six dimensions viz., Communication, Empathy, Food Quality, Price fairness, Relationship benefits and Tangibles. However, Vanniarajan (2009) found problems with the generalizability of the results due to sampling issues, and since the six factors extracted differ from DINESERV, it was concluded that DINESERV also lacks universality. It was also felt that since the survey was carried out in non-metropolitan and non-cosmopolitan city of southern India its application cannot be justified for rest of the country. An earlier study by Jain and Gupta (2004) which used SERVPERF and SERVQUAL models on QSRs in Delhi did not test the dimensionality issue. Therefore, there exists a strong gap in the literature towards the factors structure of service quality of restaurants in the Indian context.

METHODS

Sample Design

Data was collected using questionnaire from various restaurant customers using the mall-intercept method in the major malls and market places of Delhi-NCR, as most of the popular restaurants in the New Delhi-NCR are located in various malls. 500 questionnaires were distributed out of which 369 were found usable in terms of completeness of the relevant data. Data was collected during two months from Feb 2013 to Mar 2013. In Mall-intercept survey methods the respondents are contacted just after the service experience/encounter has taken place. Mall-intercept method is useful for collecting data in short duration and it helps in screening the potential respondents (O'Cass and Grace, 2008). The paucity of time and limitation of funds also supported the choice of mall-intercept method (Prasad and Aryasri, 2011).

Instrument and Scale items

The first section of the questionnaire comprised of questions on the demographic profile of the respondents while the second part constituted the scale items. The questions on demographic profile included age, gender, income, occupation, religion, dietary orientation, core cultural food, etc. Respondents were from different ethnic food backgrounds including, Punjabi, Rajasthani, Mughlai, Gujarati, South Indian, Bengali, Bihar, Awadhi, Konkani, Kashmiri, etc. Although about half of the restaurants had their ethnic food background as Punjabi/North Indian their (respondents) favourite restaurants included cuisines from different cultural backgrounds. Moreover, the geographic region under study has numerous restaurants from different ethnic backgrounds. This strongly suggests that the population under study is cosmopolitan in terms of people, cultural aspects and ideas, a fact supported by the metropolitan status of the region and also due to the national capital which allows migration from various states making the region multi-ethnic.

Based on the aforementioned review of literature and unstructured interviews with ten restaurant consumers at different locations an initial pool of 54 items was generated. The scale items mainly consisted of scale items from the original DINESERV model created by Stevens *et al.* (1995). Other key sources of scale items include the works of Ryu (2005), Hu

16 Exploration of Service Quality

(2005), Harrington *et al.* (2011) and Weiss (2005). The remaining items, which were based on the interviews with the consumers, mainly related with culture including dietary and religious orientations. Since, this study is at an exploratory level wherein the focus is on developing a reliable and valid multi-item scale for measuring service quality in restaurants both the restaurant types viz. Fast food Restaurant and Fine dining restaurants, are included for this study. In addition, no precise categorising system exists in the Indian context, which is unlike the Michelin guide rating in Europe. Therefore, both quick service (fast food) and full service (fine dine) restaurants are used as broad categories. The scale items were scored on a 7-point Likert scale. A minimum response of 1 meant “Strongly disagree” and a maximum response of 7 meant “Strongly agree”. The scale items were validated with the help of three academicians and three consultants in the field of hospitality research.

Table 1: Rotated Component Matrix with Reliability Scores

Scale items	Factor Loading	Factors	Reliability Co-efficient (α)
The restaurant premises and its facilities are maintained in a way which respects your religious values	0.795	Culture	0.788
This restaurant serves food that meets your religious dietary prohibitions (e.g. pure vegetarian, non usage of onion and garlic, Jain food, Vaishnav food, Halal meat etc.)	0.757		
This restaurant respects your culture while serving the food	0.753		
This restaurant respects your religious beliefs and values	0.720		
The restaurant interiors are visually attractive and makes you feel comfortable	0.790	Tangibles: Aesthetics	0.677
The restaurant has comfortable seats in the dining room	0.673		
Table setting is proper and resembles high quality	0.634		
Lighting arrangement in the restaurant creates a comfortable atmosphere	0.813	Ambient Settings	0.7
The temperature setting in the restaurant is appropriate.	0.666		
The colour settings in the restaurant makes you feel calm	0.628		

Scale items	Factor Loading	Factors	Reliability Co-efficient (α)
The restaurant anticipates your individual needs and wants	0.806	Empathy	0.722
The restaurant makes you feel as a special customer	0.709		
The restaurant has employees who are sensitive to your individual needs and wants, rather than always relying on policies and procedures	0.708		
The restaurant has appropriate noise levels to allow easy conversation	0.781	Privacy and Entertainment	0.706
The restaurant maintains appropriate privacy levels	0.775		
The background music played in the restaurant is suitable to the dining atmosphere	0.610		
The restaurant has appropriate parking areas	0.798	Tangibles: First Impression	0.691
The restaurant has visually attractive building exteriors	0.767		
The restaurant has visually attractive dining area	0.637		
The restaurant serves you within the time promised	0.788	Reliability and Responsiveness	0.678
The restaurant serves your food exactly as you ordered it	0.685		
The restaurant provides prompt and quick service	0.643		

Analysis and Discussion

The 54 scale-items were subjected to exploratory factor analysis. Principle component analysis with Varimax rotation was used. After six rounds of refinement, the number of remaining items was 22, which were grouped under seven factors. These seven factors are Cultural orientation, Tangibles 1 (Aesthetics), Ambient Settings, Empathy, Privacy and Entertainment, Tangibles 2 (First Impression), Reliability and Responsiveness. A communality score of minimum 0.50 was used to retain any item. Apart from this a minimum score of 0.5 for factor loadings was used as the criteria for retention (Hair Jr. *et al.*, 2006). Only those scale items which conformed to both these criteria were retained, and all items with significant cross loading were excluded. After the final round of refinement total explained variance was 64% and The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.843. These values were higher than

18 Exploration of Service Quality

the benchmark values given by Hair Jr. *et al.* (2006). Cronbach α values were used to test the reliability of each factor which was above 0.6 and hence was acceptable (Hair Jr. *et al.*, 2006). All the reliability scores for each factor with significant item loadings are listed in Table #1.

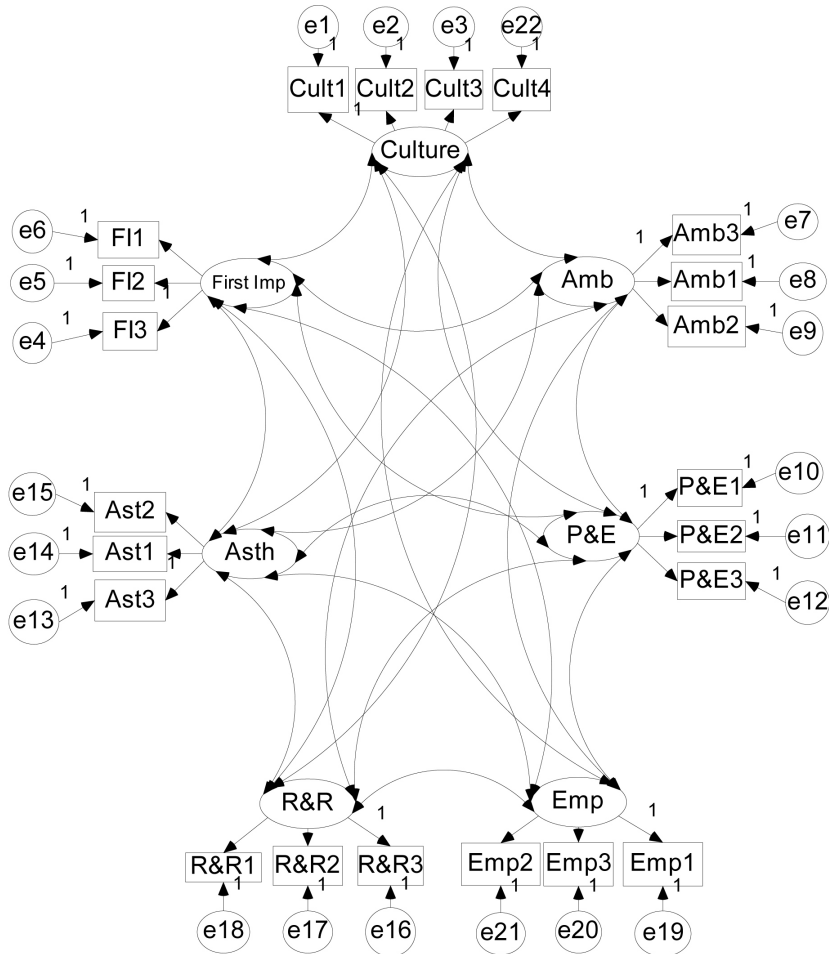


Figure 1: A Confirmatory Model of Restaurant Service Quality Factors in Indian Context

As EFA has produced the latent constructs, the next step is to apply confirmatory approach of the factor analysis for validation. The confirmatory

model is presented under Figure 1. It is essential to find out the uni-dimensionality of the model, which is the basis for construct validity. This is done by examining how well the individual items define a construct. A (Comparative Fit Index) CFI value of more than 0.90 is adequate to represents uni-dimensionality (Byrne, 2010). A value of 0.901 indicated a fairly good fit. The other goodness of fit included ($\chi^2 = 420.688$, $df = 188$, $p < .001$, $\chi^2/df = 2.238$). In addition, the RMSEA was 0.058 and GFI was 0.907. A value less than 0.08 for RMSEA is considered adequate for model fit (Hu and Bentler, 1999). In addition, all factor loadings were significant at $p < 0.001$ and the standardized regression weights were greater than 0.5 with all factor loadings in EFA greater than 0.5. According to Ford *et al.* (1986), these values should be above 0.4 for a good fit.

For achieving convergent validity, all factor loadings should be above 0.5 including the regression weights under CFA, variance extracted should be above 50% and reliability scores should be 0.70 (Hair Jr. *et al.*, 2006). Looking at the validity of the model a convergent validity was established as all the factor loadings under EFA were above 0.6, variance extracted was above 64% and reliability scores were mostly above 0.7 and some are just below it and hence can be fairly accepted with slightest of exceptions. In addition, the standardized regression weights were all above 0.55.

Discriminant validity was achieved by comparing the square of the inter-construct correlation between the factors and AVE between them (See Table #2). For achieving discriminant validity AVE should be greater than the square of the inter-construct correlations else there could be issues with the validity of the model (Farrell and Rudd, 2009; Mechinda and Patterson, 2011, Patterson and Spreng, 1997).

Table 2: Discriminant Validity

Correlation Between Factors		Interconstruct Correlation	Square of Interconstruct Correlation	AVE (First Factor)	AVE (Second Factor)
Culture	First Imp	0.305	0.093	0.483	0.439
Culture	Amb	0.412	0.170	0.483	0.459
Culture	P&E	0.392	0.154	0.483	0.455
Culture	Asth	0.281	0.079	0.483	0.426
Culture	R&R	0.456	0.208	0.483	0.415

20 Exploration of Service Quality

Correlation Between Factors		Interconstruct Correlation	Square of Interconstruct Correlation	AVE (First Factor)	AVE (Second Factor)
Culture	Emp	0.430	0.185	0.483	0.475
First Imp	Amb	0.484	0.234	0.439	0.459
First Imp	P&E	0.541	0.293	0.439	0.455
First Imp	Asth	0.566	0.320	0.439	0.426
First Imp	R&R	0.581	0.338	0.439	0.415
First Imp	Emp	0.416	0.173	0.439	0.475
Amb	P&E	0.533	0.284	0.459	0.455
Amb	Asth	0.591	0.349	0.459	0.426
Amb	R&R	0.587	0.345	0.459	0.415
Amb	Emp	0.544	0.296	0.459	0.475
P&E	Asth	0.510	0.260	0.455	0.426
P&E	R&R	0.508	0.258	0.455	0.415
P&E	Emp	0.463	0.214	0.455	0.475
Asth	R&R	0.643	0.413	0.426	0.415
Asth	Emp	0.432	0.187	0.426	0.475
R&R	Emp	0.475	0.226	0.415	0.475

Abbreviations : First Imp- Tangibles: First Impression; Amb- Ambient Settings; P&E- Privacy and Entertainment; Asth- Tangibles: Aesthetics; R&R- Reliability and Responsiveness; Emp- Empathy

IMPLICATIONS

This new service quality model pertaining to the restaurants will have strong implications due to its empirical nature. The implications for each of them are discussed in the following paragraphs.

Cultural orientation

A very important and notable finding of this research is the inclusion of the cultural orientation under service quality factors. Though this has not been previously discussed in the literature and it came from the unstructured interviews from the customers, the factor was highly significant. Some of the sub-cultures in India are sacrosanct towards their choice of food. Hence, they would only patronize a typical restaurant, which respects their cultural values. Common examples include the use of *Satvik* food by the

Jains, only *Halal* meat by the Muslims and prohibition towards eating *Beef* by the Hindus.

Ambient Settings

The ambient settings are given a lot of importance in various studies. Clearly, they imply a lot of meaning for the restaurant managers as soothing colour settings makes the customers feel comfortable. A good amount of lighting makes it comfortable for the customers to have a clear look at what they are served. Most importantly, the aroma inside the restaurant should make the customers feel happy. The outside environment is heavily polluted and customers would always prefer to breathe in a pleasant smelling environment. Bad ambient odours will never bring back a customer and hence proper cleaning and de-odourising is essential for the modern day restaurants.

Empathy

The restaurant employees should understand the need to empathise with the customers. Every customer should be understood differently from others and hence the special individual needs should be addressed. A customer might want to sit at any place of his/her choice e.g., a couple would like to sit at their preferred location while the employees sometimes push them to sit at an uncomfortable location because the table for two is placed in an undesirable place. This might create a sense of distress in the minds of the consumers. The smarter employees understand that it is easy to retain an existing customer than acquiring a new one and hence minor adjustment in the policies and procedures can be done to satisfy the customers.

Privacy and Entertainment

Despite all good arrangements, the restaurants might not be able to make the customers feel good due to an unpleasant and noisy setup, which breaches the privacy and comfort levels of the customers. In a QSR, this cannot be avoided hence some good music should be regularly played. High-pitched conversations of the employees should also be very seriously accounted for, as it may send negative vibes to the customers. Some restaurants have televisions, etc. but with an uncomfortable view which should be addressed. In addition, soft musical orchestra arrangements like Ghazals, etc. have become popular in many restaurants. Many customers often revisit due to these special events. In other words, a customer intends

22 Exploration of Service Quality

to visit a restaurant for refreshment, which includes good food, entertainment and a soothing experience.

Tangibles 1 (Aesthetics)

Many customers are often pleased with the external setting of the restaurant. Magnificent buildings of the malls, with front location of the restaurant and clear glass walls to have a look inside always makes a genuine contribution in luring the customers. Difficulty in parking is another important issue, which has been well addressed by the mall-culture in New Delhi region.

Tangibles 2 (First Impression)

When a customer enters a restaurant, the first impression is very important. In places like New Delhi, the lifestyle changes are governed by the modern services businesses, which include restaurants. The interior design of the restaurant is considered important by the customers as it subscribes to their lifestyles. The dining area should have comfortable (soft/cushioned) seats so that customers should enjoy their meal in FSRs while for QSRs hard wooden chairs are used in order to manage the heavy footfall. The table setting is also important such that the customers are able to relax on the seats and enjoy their meals.

Reliability and Responsiveness

In an attempt to address the lifestyle needs through the intangibles, the restaurant should not forget that the customer has come to the restaurant to eat good food. The customers would like to have the food the way they had expected it. For this, any error in order taking can create a serious problem. In addition, the time taken to serve as per the promise should be strictly adhered to. The server should make a check of the availability of offerings before making any promise about the time to deliver and its availability. The customer may stay with a delayed service once or twice but not forever.

CONCLUSIONS

The present research work outlines seven key dimensions of service quality in restaurants. These are Cultural orientation, Tangibles 1 (Aesthetics), Ambient Settings, Empathy, Privacy and Entertainment, Tangibles 2 (First Impression), Reliability and Responsiveness. The recommendations pro-

vided by (Gaur and Agrawal, 2006) are applied in the present work and have been found useful. It can be seen in the results that the review of literature has been useful in bringing out new factors pertaining to the service quality in Indian restaurants. These factors can be used in Indian restaurants for evaluating the service quality and hence it has strong practical implications. Strong reliability and validity measures also support this. It is worth noting that despite the criticism of service quality models existed since a long time along with very limited work in the Indian context a very significant gap remained in the literature. This study would provide departure from this gap in the literature.

From the academic point of view, it is widely discussed that service quality influences customer satisfaction, which subsequently influences behavioural (switching/loyalty) intentions. Future studies can focus on the same. Studies can be carried out for outlining any possible differences in the perceived service quality factors in various restaurant types along with their consequences.

From the practical point of view, the managerial implications would be useful in achieving customer satisfaction, which will result into positive behavioural intentions. The satisfied customers would make positive recommendations and would make revisits to the restaurant. This will result in increased profits.

LIMITATIONS

There are some limitations in the present research, which might affect the generalizability of the results. The study is conducted in New Delhi and its adjoining two cities, which might restrict the aspirations to use the same scale for national level studies or in other parts of India. However, it is noteworthy that New Delhi and its adjacent cities are cosmopolitan in the true sense because of its status of the national capital and metro city. The region under study has various embassies as well as restaurants of various cuisines of both Indian and foreign nature. Nevertheless, it is likely that the results might vary for smaller cities in the country. Further studies shall also look at measuring service quality and its consequences separately for fast food and fine dine restaurants.

24 Exploration of Service Quality

REFERENCES

- Anand, R. (2011) 'A study of determinants impacting consumers food choice with reference to the fast food consumption in India', *Society and Business Review*, 6:2, pp. 176-187.
- Andaleeb, S.S. and Conway, C. (2006) 'Customer satisfaction in the restaurant industry: an examination of the transaction-specific model', *Journal of Services Marketing*, 20:1 pp. 3-11.
- Becker, C., Murrmann, S.K., Murrmann, K.F., and Cheung, G.W. (1999) 'A pan cultural study of restaurant service expectations in the United States and Hong Kong', *Journal of Hospitality & Tourism Research*, 23:3, pp. 235-255.
- Berry, P. (2008) 'Trends in the Indian Hospitality Industry'(online)(cited 14 September 2011). Available from <URL http://edissertations.nottingham.ac.uk/1892/1/08_MSc_lixbp9.pdf>.
- Bhardwaj, R. (2011) 'Perception about the Attributes of Selected Fast Food Retailers and their Impact on Consumer Satisfaction and Sales', *Management Convergence*, 1:2, pp. 83-102 (online)(cited 14 Sep 2011). Available from <URL: <http://www.inflibnet.ac.in>>
- Bojanic, D.C. & Rosen, L.D. (1994) 'Measuring service quality in restaurants: An application of the SERVQUAL instrument', *Hospitality Research Journal*, 18:1, 3-14.
- Byrne, B.M. (2010) *Structural equation modeling with AMOS: Basic concepts, applications, and programming*, (2nd edn.), Routledge: Taylor and Francis Group, New York.
- Euromonitor (2011) 'Consumer Foodservice by Location in India' (online)(cited 15 August 2011). Available from <URL <http://www.euromonitor.com/>>
- Farrell, Andrew M., and John M. Rudd (2009) 'Factor analysis and discriminant validity: A brief review of some practical issues' ANZMAC'(online)(cited 27 march 2013). Available from <URL:<http://www.duplication.net.au/ANZMAC09/papers/ANZMAC2009-389.pdf>>
- Ford, J.K., MacCallum, R.C., & Tait, M. (1986) 'The application of exploratory factor analysis in applied psychology: A critical review and analysis', *Personnel Psychology*, 39:2, pp. 291-314.
- Gaur, S.S. and Agrawal, R. (2006) 'Service Quality Measurement in Retail Store Context: A Review of Advances Made Using SERVQUAL and RSQS', *The Marketing Review*, 6:4, pp. 317-330.
- Hair Jr., J.F., Black, W.C., Babin, B.J., Anderson, R.E., and Tatham, R.L. (2006) *Multivariate Data Analysis* (6th edn), Pearson Education, New Delhi.
- Harrington, R.J., Ottenbacher, M.C. & Kendall, K.W. (2011) 'Fine-Dining Restaurant Selection: Direct and Moderating Effects of Customer Attributes', *Journal of Foodservice Business Research*, 14:3, pp. 272-289.
- Hu, S.M. (2005) 'A structural equation model of the senior citizens' purchasing process in foodservice: Considering the quality of food, nutrition, service and entertainment', Doctoral dissertation, Oklahoma State University,(online)(cited 14 September 2011). Available from <URL:<http://digital.library.okstate.edu/etd/umi-okstate-1426.pdf>>
- Hu, L.T., and Bentler, P.M. (1999) 'Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives', *Structural Equation Modeling: A Multidisciplinary Journal*, 6:1, pp. 1-55.

- Jain, S.K. and Gupta, G. (2004) 'Measuring Service Quality: SERVQUAL vs. SERVPERF Scales', *Vikalpa*, 29:2, pp. 25-37.
- Kim, H.S., Joung, H.W., Yuan, Y.H. E., Wu, C. and; Chen, J.J. (2009) 'Examination of the reliability and validity of an instrument for measuring service quality of restaurants', *Journal of Foodservice*, 20:6, pp. 280-286.
- Kim, H.J., McCahon, C. and Miller, J. (2003) 'Assessing Service Quality in Korean Casual-Dining Restaurants Using DINESERV', *Journal of Foodservice Business Research*, 6:1, pp. 67-86.
- Kim, W.G. Lee, Y.K. and Yoo, Y.J. (2006) 'Predictors of Relationship Quality and Relationship Outcomes in Luxury Restaurants', *Journal of Hospitality & Tourism Research*, 30:2, pp. 143-169.
- Kim, W.G. and Kim, H.B. (2004) 'Measuring Customer-Based Restaurant Brand Equity: Investigating the Relationship between Brand Equity and Firms' Performance', *Cornell Hotel and Restaurant Administration Quarterly*, 45: 2, pp. 115-131.
- Kivela, J., Inbakaran, R. and Reece, R. (2000) 'Consumer research in the restaurant environment. Part 3: analysis, findings and conclusions', *International Journal of Contemporary Hospitality Management*, 12:1, pp.13-30
- Lee, Y.L. & Hing, N. (1995) 'Measuring quality in restaurant operations: an application of the SERVQUAL instrument', *International Journal of Hospitality Management*, 14:3-4, pp.293-310.
- Lee, S.H., Kim, Y.P., Hemmington, N. and Yun, D-K. (2004) 'Competitive service quality improvement (CSQI): a case study in the fast-food industry', *Food Service Technology*, 4:2, pp. 75-84.
- Markovic, S., Raspor, S. and Šegaric, K. (2010) 'Does restaurant performance meet customers' expectations? An assessment of restaurant service quality using a modified DINESERV approach', *Tourism and Hospitality Management*, 16:2, pp. 181-195.
- Mechinda, P. and Patterson, P.G. (2011) 'The impact of service climate and service provider personality on employees' customer-oriented behavior in a high-contact setting', *Journal of Services Marketing* 25:2, pp.101-113.
- O'Cass, A. and Grace, D. (2008) 'Understanding the Role of Retail Store Service in Light of Self-Image-Store Image Congruence', *Psychology & Marketing*, 25:6, pp. 521-537
- Oh, H., and Parks, S.C. (1997) 'Customer satisfaction and service quality: a critical review of the literature and research implications for the hospitality industry', *Hospitality Research Journal*, 20:3, pp. 35-64.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988) 'SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality', *Journal of Retailing*, 64:1, pp. 12-40.
- Patterson, P.G., and Spreng, R.A. (1997) 'Modelling the relationship between perceived value, satisfaction and repurchase intentions in a business-to-business, services context: An empirical examination', *International Journal of service Industry management* 8:5, pp. 414-434.
- Prasad, C.J. and Aryasri, A.R. (2011) 'Effect of shopper attributes on retail format choice behaviour for food and grocery retailing in India', *International Journal of Retail & Distribution Management*, 39:1, pp. 68-86.

26 Exploration of Service Quality

- Qin, H. and Prybutok, V.R. (2009) 'Service quality, customer satisfaction, and behavioural intentions in fast-food restaurants', *International Journal of Quality and Service Sciences*, 1:1, pp. 78-95.
- Ryu, K. (2005) 'DINESCAPE, emotions, and behavioral intentions in upscale restaurants' (online0(cited 14 September 2011). Available from <URL: <http://krex.k-state.edu/dspace/bitstream/handle/2097/71/KisangRyu2005.pdf?sequence=1>>
- Stephens, K.S. and Juran J.M. (2004) *Juran, Quality, and a Century of Improvement: The Best on Quality*, American Society for Quality, Quality Press: Milwaukee.
- Stevens, P., Knutson, B. and Patton, M. (1995) 'DINESERV: A tool for measuring service quality in restaurants', *Cornell Hotel and Restaurant Administration Quarterly*, 36:2, pp. 56-60.
- Vanniarajan, T. (2009) 'Dineserv: A Tool for Measuring Service Quality in Restaurants', *Journal of Marketing & Communication*, 4:3, pp. 41-52.
- Yuksel, A and Yuksel, F. (2002) 'Measurement of tourist satisfaction with restaurant services: a segment-based approach' *Journal of Vacation Marketing*, 9:1, pp. 52-68.
- Weiss, R., Feinstein, A.H., and Dalbor, M. (2005) 'Customer satisfaction of theme restaurant attributes and their influence on return intent' *Journal of Foodservice Business Research*, 7:1, pp.23-41.

Gaurav Tripathi is Assistant Professor at Institute for International Management and Technology, Gurgaon, Haryana, India. Email: tripathi_gaurav@hotmail.com.

Dr. Kartik Dave is Associate Professor at School of Business, Public Policy & Social Entrepreneurship, Ambedkar University Delhi, India. Email: davekartik123@gmail.com.

CONSUMER COMMENT BEHAVIOR AND THE CALENDAR EFFECT: A LONGITUDINAL STUDY IN SERVICES

Milos Bujisic

H.G. Parsa

Consumer comments are considered essential tools to enhance any product or service. Unfortunately, the effect of day of the week and time of the day on consumer comment behavior is one of the least understood areas in spite of plethora of scientific evidence. Current study investigates the role of day and time of the week on consumers' comment behavior. Results from a year-long study of 31 restaurants indicated that day of the week and time of the day have a significant effect on consumers' comments. Majority of comments were focused on service attributes followed by food, ambiance and price. The week days between Thursdays through Sundays have experienced most of the comments followed by the period of Sunday through Tuesday. Surprisingly, in contrast to the commonly held belief, lunch periods had the highest number of comments followed by dinner and breakfast periods. Comments are significantly more positive when an employee's name is included in customers' comments compared to the situation where no employee name is included.

INTRODUCTION

Consumer comments have received significant academic and industry attention in the past. They are considered as important performance indicators (Robinson and Berl, 1980) that can be used as indicators to improve operational efficiencies. Studies on consumer comments can be broadly classified into two major streams: positive feedback (suggestion boxes, innovative ideas, product/service improvement focus groups, etc); and negative feedback (complaint behavior; oral (word of mouth), written and legal complaints; switching behaviors, etc.). Interestingly most of the research has focused on the second stream, negative comments (complaints) (Bell and Luddington, 2006; Bell, Mengüç and Stefani, 2004; Bennett, 1997; Davidow, 2000, 2003; Etzel & Silverman, 1981; Forbes, 2008; Heung and Lam, 2003).

Consumer satisfaction and the resulting loyalty can be improved exponentially when the cause of negative complaints can be addressed effectively. Thus, most academic researchers and companies have placed greater emphasis on addressing the issues related to negative complaint behaviors and strategies to improve organizational policies with reference

28 Consumer Comment Behavior

to consumer services / products. On the other hand positive comments or compliments are less researched even though some studies show that they can be equally important as negative comments (Erickson and Eckrich, 2001; Robinson and Berl, 1980).

Mood of the customers and employees was shown to change according to day of the week (Egloff, Tausch, Kohlmann and Krohne, 1995; Kennedy-Moore, Greenberg, Newman, and Stone, 1992; Rossi and Rossi, 1977; Stone, Hedges, Neale and Satin, 1985) and time of the day (Clark, Watson and Leeka, 1989; Egloff, *et al.*, 1995; Froberg, 1977; Thayer, 1987; Thayer, Takahashi and Pauli, 1988). In addition, previous research has shown that consumers' mood has an effect on their complaining behavior (Bearden and Teel, 1980; Kim, Kim, Im and Shin, 2003; Liljander and Mattsson, 2002) while changes in employees' mood influence their service performance (Pelled and Xin, 1999).

The main objective of this study is to explore the changes in customer comments during the different periods of the day and the calendar days (day of the week). In this section we further address the importance of service relationship on customer comments and the difference in customer comments between different types of restaurant service (dine-in, carry-out). Based on prior research (DiPietro, Parsa and Gregory 2011; Namkung and Jang, 2007; Namkung and Jang, 2008; Pantelidis, 2010; Sulek and Hensley, 2004; Parsa, Perutkova, Yoon, Self and Gregory, 2012), this study focuses on four types of comments: food quality, service quality, ambiance and price. Parsa, *et al.* (2012) have conducted a series of experiments, manipulating different restaurant quality dimensions. They have recognized that quality of service is more important than food quality and ambiance in quick-service restaurants. Similarly, customers tend to leave more comments about service quality compared to all other restaurant quality dimensions in quick-service restaurants. Each of the comments is separately analyzed and the important factors that influence comment subcategories are recognized.

THEORETICAL FRAMEWORK

Consumer Comments

Consumer comments are important sources of data for companies in different industries. Previous research has mostly focused on negative com-

ments and how to address them (Bearden and Mason, 1984; Bearden and Teel, 1980; Bell and Luddington, 2006; Bell, Mengüç and Stefani, 2004; Blodgett, Wakefield and Barnes, 1995; Clopton, Stoddard and Clay, 2001; Davidow, 2000, 2003; Davidow and Dacin, 1997; Etzel and Silverman, 1981). On the other hand studies that address both positive and negative comments are limited (Cadotte and Turgeon, 1988; Friman and Edvardsson, 2003; Kraft and Martin, 2001). Positive comments have been shown to be equally important for the companies as negative ones because they help businesses recognize their strengths (Erickson and Eckrich, 2001; Robinson and Berl, 1980). Friman and Edvardsson (2003) addressed the need for balance between complaints and positive comments.

Consumer Comments in Services:

Consumer's complaints are an important topic because they are highly correlated with satisfaction and loyalty (Clopton, *et al.*, 2001; Davidow, 2000). Davidow (2000) has also shown that complaints that are not addressed lead to low satisfaction and high defection rates. Service quality is a significant predictor of consumer complaints and comments (Forbes, 2008). Prior research has focused on companies' reactions to complaints (Blodgett, *et al.*, 1995; Clark, Kaminski and Rink, 1992; Davidow, 2000, 2003; Davidow and Dacin, 1997) and the type of service recovery strategies that seem to be most appropriate (Mattila, 1999), as well as finding appropriate strategies to address customer complaints (Tax, Brown and Chandrashekar, 1998).

Liljander and Mattsson (2002) argue that pre-consumption mood has an effect on evaluation of three service behaviors: concern, congeniality and incivility. Similarly post-consumption mood also has an effect on customer satisfaction regarding service behaviors. Kim *et al.* (2003) and Bearden and Teel (1980) have shown that consumer attitudes influence complaints. Mattila (1999) argues that pre-consumption affect influences evaluation of service which is closely connected with consumer comments.

Service Relationship and Customer Comments

Previous research has shown that mood tends to change according to the

30 Consumer Comment Behavior

day of the week (Kennedy-Moore, *et al.*, 1992; Rossi and Rossi, 1977; Stone, *et al.*, 1985). Egloff, *et al.* (1995) have shown that mood is usually elevated on weekends compared to weekdays. Based on these findings, it appears that customer comments are influenced by mood and are going to be higher on weekends. However, one should take into account that even though customers' mood improves over weekends, employees' performance might decline during weekends thus resulting in lower occurrence of positive customer comments.

Other studies have addressed the relationship between time of the day and mood (Clark, *et al.*, 1989; Froberg, 1977; Thayer, 1987; Thayer, *et al.*, 1988). Egloff, *et al.* (1995) have argued that mood pleasantness of the affective state will peak during the evening times while activation aspect will be highest in the middle of the day. Therefore it seems that customer comments should be highest at the beginning of the day. However, regarding the effect of calendar day (day of the week), employee performance might decline due to fatigue over the weekdays which again might result in fewer positive comments. Additionally following previous studies no interaction effect between calendar day (day of the week) and time of the day is expected (Egloff, *et al.*, 1995).

H1a: Consumer comments are higher during weekdays compared to weekends.

H1b: Consumer comments are higher at the beginning of the day compared to afternoons and evenings.

Service Relationship and Customer Comments

Service relationships are the repeated contacts between service providers and customers with a shared history of service interactions (Guttek, Bhappu, Liao-Troth and Cherry, 1999; Guttek, Cherry, Bhappu, Schneider and Woolf, 2000). In service relationships, the customer is capable of identifying an employee, with whom they have a "relationship", as "their own" service provider (Guttek, Cherry, Bhappu, Schneider and Woolf, 2000). Also, in service relationship situations, both customers and service providers expect to have repeated contacts in future (Guttek, *et al.*, 1999). Moreover, service relationships imply psychological loyalty (Czepiel, 1990) and rapport - customers having enjoyable interactions and personal connections with the employee (Gremler and Gwinner, 2000). Based on

this framework one could believe that customers that are capable of recognizing an employee by name are more likely to leave positive comments.

H2: Comments that include employee name (s) are more positive than comments that do not include employee name(s).

Based on the previous research a conceptual model of predictors of customer comments has been created. Model incorporates three different independent variables: day of the week, time of the day and service relationship. It is believed that these factors will have significant impact on the level of customer comments in restaurant environment (Figure 1).

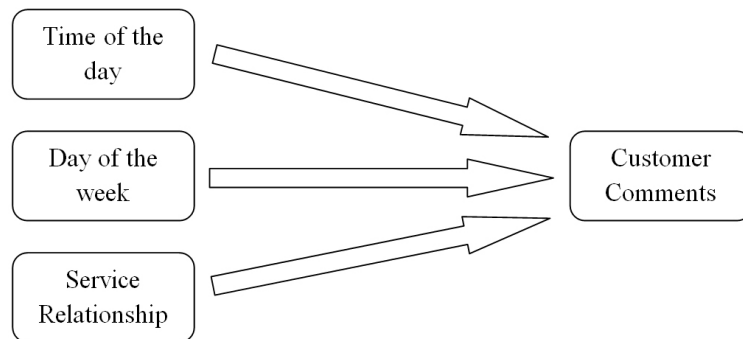


Figure 1: A Conceptual Model of Consumer Comment Behavior and Calendar Effect

METHODOLOGY

To test the above presented research hypotheses, a secondary restaurant comment data set were obtained. The nature of the obtained data set is described below.

Consumer Comment Data

Consumer comments data was provided by a large, nationwide, fast-casual dining restaurant chain. The data covered 32 different restaurants operated by the same company in the region of Central Florida. All the restaurants in the area were part of the same fast-casual franchise system and maintained standardized procedures to collect consumer comments and record them. Since it is a franchised restaurant chain, all operational procedures, menu mix, service standards and ambiance are standardized. To ensure compliance with the company standards and uniformity across the 32 units, each restaurant is inspected weekly by a mid-level

32 Consumer Comment Behavior

manager, District Manager, who is typically responsible for supervising four to five restaurants. Any restaurant that fails to meet these standards is placed on operational probation until conformity is achieved as described by DiPietro, Parsa and Gregory (2011). Thus, we were able to aggregate all customer comments and analyze the data as all operational procedures were strictly controlled and standardized

The timeline for the data included July 2010 to July 2011 with a total of 3,258 different consumer comments from 32 restaurants for 365 days. Data was organized as a combination of quantitative and qualitative inputs. Two research associates were trained to code the qualitative data and to transfer it into a numerical form. Data were randomly assigned to students and the analysis showed no significant difference between the means of the comments between two researchers thus confirming that there is no bias in coding. Inter-coder reliability was established at 81.5% when a sample data was tested for each coder. Qualitative data consisted of a short paragraph (usually one sentence long) written by the consumer regarding their experiences at the restaurant. The data was coded into three different quantitative variables:

- **“Comment Level”** variable with a range from 1 to 5 (1 = very negative, 2= somewhat negative, 3=neutral, 4=somewhat positive and 5 =very positive).
- **“Content of Comment”** variable was coded according to the central theme of the comments food quality, service quality, ambiance or price.
- **“Employee Name”** is a dummy variable that was coded as 1 if any specific employee was mentioned in the comment and 0 if no employee name was mentioned.

Demographic Data

Additional data obtained from the comment cards included the name and the identification number of the specific restaurant where the comments were collected, date of the comment, day of the week, meal period, average number of visits per month for the consumer that left the comment, and the type of dining experience (dining-in or carry out). Meal period variable had six different time periods: Breakfast (6am and 9am); First Transition (between 9am and 11am); Lunch (from 11am and 2pm); Second Transition (from 2pm and 5pm); Dinner (from 5pm to 8pm); and Post-Dinner (between 8pm and 10pm). This classification of six periods was consistent with the classification system used by this fast casual restaurant chain nationally.

Average number of visits per month had 5 different levels: no visits, 1 visit per month, 2 or 3 visits, 4 or 5 visits and 6 or more visits per month. The type of dining included three different categories: Carry-out option; Dining-in; and Combination of the two. Comments regarding catering and drive thru were discarded due to their small sample size (only one restaurant had a drive thru among 31 restaurants).

RESULTS

Data analysis involved a total of 3,258 consumer comments. There were only 246 very negative comments (score 1 out of 5), 410 somewhat negative comments (2 out of 5) and 487 neutral comments (3 out of 5). On the other hand, somewhat positive comments were most common with 1390 cases and very positive had 725 occurrences. The mean of all comments was 3.59 (out of 5) with a standard deviation of 1.179. The comment content was also not equally distributed among the four content categories. A majority of comments were regarding – service quality (2402 cases) followed by food quality (653 comments), ambience (163 comments) and price (40 comments) (Table 1).

Table 1: Distribution of Comments According to the Restaurant Attributes Food Quality; Service Quality; Ambience and Price

Dependent Variable: Comment (1-5)

F/S/A/P	Mean	Std. Deviation	N
1. Food Quality	3.11	1.311	653
2. Service Quality	3.74	1.091	2402
3. Ambience	3.77	1.162	163
4. Price	2.18	1.152	40
Total	3.59	1.179	3258

ANOVA Analysis: Calendar Day, Meal Period and Customer Comments Hypothesis H1a (*Consumer comments are higher during weekdays compared to weekend*) was tested with univariate ANOVA. Normality and homogeneity of variance assumptions for the use of ANOVA procedure were met. From the Table 2 it can be seen that Sunday and Saturday had lowest customer comment scores compared to other weekdays. This finding is interesting as most comments are often expected to occur over the week-

34 Consumer Comment Behavior

ends. This could be explained by the fact that it is a fast-casual restaurant with an attached bakery, thus, it is extremely busy over the weekends with breakfast and lunch crowds. The authors have visited these restaurants and verified that over the weekends sometimes these restaurants are so busy that there were long lines looking for vacant tables. In those situations, most customers are less likely to take time to write a comments card as they are often busy trying to make room for waiting customers. This factor may explain the high occurrence of comments during weekdays compared to weekends (Table 2).

Table 2: Descriptive Statistics of Customer Comments per Day of The week Descriptive Statistics
Dependent Variable: Comment (1-5)

Day of the Week	Mean	Std. Deviation	N
Monday	3.72	1.176	452
Tuesday	3.56	1.240	518
Wednesday	3.64	1.144	532
Thursday	3.62	1.190	457
Friday	3.63	1.131	510
Saturday	3.55	1.144	393
Sunday	3.40	1.215	396
Total	3.59	1.179	3258

Additionally from Table 3, it is clear that calendar day (day of the week) was a significant predictor of comments with p-value of 0.007. Additional analysis continued to test the difference in scores between differ-

ent calendar days with Scheffe post-hoc test. Scheffe post-hoc test was selected because of an unequal size of the comparison groups (Hair *et al.*, 1998). The obtained results provide partial support for Hypothesis H1a that only Monday comments were significantly higher than Sunday comments, while other days did not differ significantly (Table 4).

Table 3: ANOVA Analysis of Customer Comments per Day of the Week
Tests of Between-Subjects Effects
Dependent Variable: Comment (1-5)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power ^b
Corrected Model	24.658 ^a	6	4.110	2.965	.007	17.788	.906
Intercept	41423.314	1	41423.314	29882.647	.000	29882.647	1.000
Day of Week	24.658	6	4.110	2.965	.007	17.788	.906
Error	4506.535	3251	1.386				
Total	46634.000	3258					
Corrected Total	4531.193	3257					

a. R Squared = .005 (Adjusted R Squared = .004)

b. Computed using alpha = .05

36 Consumer Comment Behavior

**Table 4: Scheffe post-hoc Multiple Comparison of Customer Comments per Day of the Week.
Multiple Comparisons
Dependent Variable: Comment (1-5)
Scheffe**

(I) DOW cor- rected	(J) DOW cor- rected	Mean Dif- fer- ence (I-J)	Std. Er- ror	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Mon	Tue	.15	.076	.666	-.12	.42
	Wed	.08	.075	.985	-.19	.34
	Thu	.10	.078	.960	-.18	.37
	Fri	.09	.076	.967	-.18	.36
	Sat	.16	.081	.679	-.13	.45
	Sun	.32 [*]	.081	.019	.03	.60
Tue	Mon	-.15	.076	.666	-.42	.12
	Wed	-.08	.073	.980	-.34	.18
	Thu	-.06	.076	.997	-.33	.21
	Fri	-.06	.073	.993	-.32	.20
	Sat	.01	.079	1.000	-.27	.29
	Sun	.16	.079	.642	-.12	.44
Wed	Mon	-.08	.075	.985	-.34	.19
	Tue	.08	.073	.980	-.18	.34
	Thu	.02	.075	1.000	-.25	.29
	Fri	.01	.073	1.000	-.25	.27
	Sat	.09	.078	.976	-.19	.36
	Sun	.24	.078	.153	-.04	.52
Thu	Mon	-.10	.078	.960	-.37	.18
	Tue	.06	.076	.997	-.21	.33
	Wed	-.02	.075	1.000	-.29	.25
	Fri	-.01	.076	1.000	-.28	.26
	Sat	.07	.081	.995	-.22	.35
	Sun	.22	.081	.286	-.07	.51

(I) DOW cor- rected	(J) DOW cor- rected	Mean Dif- fer- ence (I-J)	Std. Er- ror	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Fri	Mon	-.09	.076	.967	-.36	.18
	Tue	.06	.073	.993	-.20	.32
	Wed	-.01	.073	1.000	-.27	.25
	Thu	.01	.076	1.000	-.26	.28
	Sat	.07	.079	.991	-.21	.35
	Sun	.23	.079	.224	-.05	.51
Sat	Mon	-.16	.081	.679	-.45	.13
	Tue	-.01	.079	1.000	-.29	.27
	Wed	-.09	.078	.976	-.36	.19
	Thu	-.07	.081	.995	-.35	.22
	Fri	-.07	.079	.991	-.35	.21
	Sun	.15	.084	.765	-.14	.45
Sun	Mon	-.32*	.081	.019	-.60	-.03
	Tue	-.16	.079	.642	-.44	.12
	Wed	-.24	.078	.153	-.52	.04
	Thu	-.22	.081	.286	-.51	.07
	Fri	-.23	.079	.224	-.51	.05
	Sat	-.15	.084	.765	-.45	.14

Based on observed means.

The error term is Mean Square(Error) = 1.386.

*. The mean difference is significant at the .05 level.

Similarly hypothesis H2b that states that consumer comments are higher at the beginning of the day compared to afternoon and evening periods was tested with univariate ANOVA. From Table 4 one can note that later periods during a day have lower comments. Additionally, ANOVA test indicates that time of a day is a significant predictor of customer comments (Table 5, 6). Finally Scheffe post-hoc test shows that early periods during a day have significantly higher customer comments compared to evening ones and therefore provide support for hypothesis H1b (Table 7). These results clearly indicate that customers that visit for breakfast are more pleased with the operations thus posting most comment cards. It

38 Consumer Comment Behavior

can also be stated that this particular restaurant chain is less recognized by customers for its lunch and dinner operations compared to breakfast which is consistent with the mission of this restaurant concept. In other words, this restaurant concept has operational and conceptual integrity focusing on breakfast as its primary marketing edge and being the leader in the breakfast segment.

Table 5: Descriptive Statistics of Customer Comments per Time of the Day
Descriptive Statistics
Dependent Variable: Comment (1-5)

Meal Period	Mean	Std. Deviation	N
1. Breakfast	3.80	1.114	560
2. First Transition	3.75	1.070	529
3. Lunch	3.56	1.156	1187
4. Second Transition	3.61	1.168	445
5. Dinner	3.32	1.335	470
6. Post Dinner	3.16	1.355	67
Total	3.59	1.179	3258

Table 6: ANOVA Analysis of Customer Comments per Time of the Day
Tests of Between-Subjects Effects
Dependent Variable: Comment (1-5)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power ^b
Corrected Model	86.263 ^a	5	17.253	12.622	.000	63.112	1.000
Intercept	18867.532	1	18867.532	13803.863	.000	13803.863	1.000
Meal-Period	86.263	5	17.253	12.622	.000	63.112	1.000
Error	4444.931	3252	1.367				
Total	46634.000	3258					
Corrected Total	4531.193	3257					

a. R Squared = .019 (Adjusted R Squared = .018)

b. Computed using alpha = .05

**Table 7: Scheffe post-hoc Multiple Comparison of Customer Comments per Time of The Day.
Multiple Comparisons
Dependent Variable: Comment (1-5) Scheffe**

(I) Meal Period	(J) Meal Period	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
6:00-9:00 am	9:00-11:00am	.05	.071	.990	-.18	.29
	11:00am-2:00pm	.24*	.060	.006	.04	.44
	2:00p.m.-5:00p.m.	.19	.074	.277	-.06	.43
	5:00pm-8:00pm	.48*	.073	.000	.24	.73
	After 8:00pm	.64*	.151	.003	.13	1.14
9:00-11:00am	6:00-9:00 am	-.05	.071	.990	-.29	.18
	11:00am-2:00pm	.19	.061	.089	-.01	.39
	2:00p.m.-5:00p.m.	.13	.075	.679	-.12	.38
	5:00pm-8:00pm	.43*	.074	.000	.18	.68
	After 8:00pm	.58*	.152	.012	.08	1.09
11:00am-2:00pm	6:00-9:00 am	-.24*	.060	.006	-.44	-.04
	9:00-11:00am	-.19	.061	.089	-.39	.01
	2:00p.m.-5:00p.m.	-.06	.065	.981	-.27	.16
	5:00pm-8:00pm	.24*	.064	.014	.03	.45
	After 8:00pm	.39	.147	.208	-.10	.88

40 Consumer Comment Behavior

(I) Meal Period	(J) Meal Period	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
2:00p.m.-5:00p.m.	6:00-9:00 am	-.19	.074	.277	-.43	.06
	9:00-11:00am	-.13	.075	.679	-.38	.12
	11:00am-2:00pm	.06	.065	.981	-.16	.27
	5:00pm-8:00pm	.30*	.077	.012	.04	.55
	After 8:00pm	.45	.153	.126	-.06	.96
5:00pm-8:00pm	6:00-9:00 am	-.48*	.073	.000	-.73	-.24
	9:00-11:00am	-.43*	.074	.000	-.68	-.18
	11:00am-2:00pm	-.24*	.064	.014	-.45	-.03
	2:00p.m.-5:00p.m.	-.30*	.077	.012	-.55	-.04
	After 8:00pm	.15	.153	.962	-.36	.66
After 8:00pm	6:00-9:00 am	-.64*	.151	.003	-1.14	-.13
	9:00-11:00am	-.58*	.152	.012	-1.09	-.08
	11:00am-2:00pm	-.39	.147	.208	-.88	.10
	2:00p.m.-5:00p.m.	-.45	.153	.126	-.96	.06
	5:00pm-8:00pm	-.15	.153	.962	-.66	.36

Based on observed means.

The error term is Mean Square(Error) = 1.367.

*. The mean difference is significant at the .05 level.

ANOVA Analysis: Customer Comments and Relationship with Employees

The final step of the analysis was to verify the hypothesis H2 which indicated that comments that include employee name are more positive than comments that do not include employee names. The results from table 8 and 9 clearly provide support for hypothesis H2. One may observe that comments that included employee name had a significantly higher mean of 4.31 compared to those that did not include the name ($M=3.29$).

Table 8: Descriptive Statistics of Customer Comments Including and Not Including

Employee Name

Descriptive Statistics

Dependent Variable: Comment (1-5)

Emp. Name/ no name (1/0)	Mean	Std. Deviation	N
0. No Employee Name	3.29	1.182	2277
1. Employee Name	4.31	.804	981
Total	3.59	1.179	3258

Table 9: ANOVA Analysis of Customer Comments Including and Not Including Employee Name. Tests of Between-Subjects Effects
Dependent Variable: Comment (1-5)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power ^b
Corrected Model	717.667 ^a	1	717.667	612.746	.000	612.746	1.000
Intercept	39566.473	1	39566.473	33781.972	.000	33781.972	1.000
Emp. Name/no name10	717.667	1	717.667	612.746	.000	612.746	1.000
Error	3813.526	3256	1.171				
Total	46634.000	3258					
Corrected Total	4531.193	3257					

a. $R\text{ Squared} = .158$ ($Adjusted\ R\text{ Squared} = .158$)

b. Computed using $\alpha = .05$

42 Consumer Comment Behavior

DISCUSSION

Most of the previous research has focused on complaints (negative comments) while positive comments have received significantly less attention. In the present study, positive comments are greater in number than negative or neutral comments. This finding indicates that management should pay equal attention to all comments, positive and negative (Pantelidis, 2010).

This study also indicates that consumers are most likely to leave comments regarding service quality with 73.7% of all comments falling into this category. The second most common category is food quality with 20% of all comments. The other two types of comments: ambiance (5%) and price (1.2%) are significantly less common. These findings indicate that management should put strong emphasis on service quality, since it is a very important element for the consumer's perception of restaurant performance in the fast-casual segment. These results are consistent with the results reported by Parsa, Perutkova, Yoon, Self and Gregory(2012). Obviously service delivery appears to be the strength of this type of organizations as noted by consumers' positive comments. One may also conclude that service attributes are more important in this type of operations compared to food quality and ambiance which is consistent with the earlier findings of Parsa *et al.* (2012).

Current results also indicated that customer comments are affected by the calendar day (day of the week) and different meal periods. According to previous studies customer comments are better at the beginning of the week and are lowest on Sundays. Also customer comments usually decrease in numbers from morning periods (breakfast time) to late evenings (dinner times). However, this trend is not the same for all days of the week. But in the present case, customer comments stayed consistent across the meal periods (from breakfast to post dinner) from Wednesdays through Saturdays. Results also indicated that customer comments remained steady for breakfast and first transition but gradually declined towards dinner times for Sundays, Mondays and Tuesdays. These results have pointed to the fact that there are two distinct marketing segments targeted by this concept based on day of the week, first segment being Sunday-Tuesday and second segment being Wednesday-Saturday. It is an interesting finding that is worthy of further investigation.

Additionally, the effect of service relationship was shown to have a significant effect on customer comments. Comments that include an employee's name and indicate some level relationship between a customer

and the organization are significantly better than those comments that do not include a name or indication of organizational relationship. Therefore we believe that customers are more likely to comment positively if they know a name of their server, and also they are more likely to remember employee's name if the service is better.

CONCLUSIONS, SUGGESTIONS AND IMPLICATIONS

Consumer comments are valuable sources of information that can help management improve the quality of their services. As seen in this research consumer's perception of restaurant quality and consumer comments are affected by different time factors. Time of the day and calendar day should be taken into account when predicting demand, scheduling workers, and organizing any type of promotion or special events. Also, when trying to interpret consumer comments, management should be aware of time of the day and calendar day patterns. Some negative comments might indicate objectively weak services while other might be influenced by consumer's negative mood. Current results also indicate that consumer comments are affected by the calendar day and day of the week; thus, management must take these factors into consideration while evaluating the meaning of consumer comments.

MANAGERIAL IMPLICATIONS

There are several important managerial implications of this study. In the first place, management should be aware that customers' mood changes according to the day of the week and time of the day. As the customer mood changes so does the customer comments and general customer behavior. Management should put more effort to keep customers satisfied at later periods during the day and should try to motivate employees to deliver high quality of service until the end of the day. Similarly, management should schedule best performing employees for weekends since it is seen that customers are least satisfied on Sunday. By scheduling best performing employees during the weekends, a high quality of service could be delivered and overall customer satisfaction would improve. Finally, this research shows the importance of service relationship on customer comments. Management should encourage employees to disclose their names and get to know customers personally, so that customer would develop a sense of the relationship with the restaurant and be more satisfied.

LIMITATIONS OF THE STUDY

The main significant limitation is that data was collected in only one region of the USA that has one specific type of climate and climatic patterns. If

44 Consumer Comment Behavior

different areas with different climatic variables are available, more meaningful and more generalizable conclusions could be drawn. Additionally, time of the day and day of the week are just a sub-set of a myriad of factors that affect comments through mediating effect of consumers' mood.

DIRECTIONS OF FUTURE STUDIES

Future studies could focus on several issues. Current study was based on the premise of the mediating effect of mood on the relation between temporal factors and comments. However, since the study is limited by the secondary data, it is not possible to test this relationship. Future studies should use primary data with surveys that would collect both consumer comments and consumer mood data while calendar day and time of the day can be controlled. Additionally, studies regarding effect of time of the day and calendar day on employees' mood and effect of mood on employee performance could expand current findings. Future studies should show if consumer's perception of service quality is based more on consumers' and service providers' dimensions and which dimension is more affected by temporal factors. Additionally, future studies should test the effects of different demographic characteristics of customers on their comment behavior. It is expected that different customer segments might have different comment and complaint behavior. Therefore additional primary data collection is needed to conduct future studies.

REFERENCES

- Bearden, W.O. and Mason, J.B. (1984) 'An investigation of influences on consumer complaint reports', *Advances in Consumer Research*, 11:1, pp.490-495.
- Bearden, W.O. and Teel, J.E. (1980) 'An Investigation of Personal Influences on Consumer Complaining', *Journal of Retailing*, 56:3, pp.3-13.
- Bell, S.J. and Luddington, J.A. (2006) 'Coping with customer complaints', *Journal of Service Research*, 8:3, pp.221-233.
- Bell, S.J., Mengüç, B. and Stefani, S.L. (2004) 'When customers disappoint: a model of relational internal marketing and customer complaints', *Journal of the Academy of Marketing Science*, 32:2, pp.112-126.
- Bennett, R. (1997) 'Anger, catharsis, and purchasing behavior following aggressive customer complaints', *Journal of Consumer Marketing*, 14:2, pp.156-172.
- Blodgett, J.G. Wakefield, K.L. and Barnes, J.H. (1995) 'The effects of customer service on consumer complaining behavior', *Journal of Services Marketing*, 9:4, pp.31-42.
- Cadotte, E. and Turgeon, N. (1988) 'Dissatisfiers and satisfiers: Suggestions from customer complaints and compliments', *Journal of Satisfaction, Dissatisfaction and Complaining Behaviour*, 1, pp.74-79.
- Clark, G.L., Kaminski, P.F. and Rink, D.R. (1992) 'Consumer complaints: Advice on how companies should respond based on an empirical study', *Journal of Consumer Marketing*, 9:3, pp.5-14.

- Clark, L.A. Watson, D. and Leeka, J. (1989) 'Diurnal variation in the positive affects', *Motivation and Emotion*, 13:3, pp.205-234.
- Clopton, S.W., Stoddard, J.E., and Clay, J.W. (2001) 'Salesperson characteristics affecting consumer complaint responses', *Journal of Consumer Behaviour*, 1:2, pp.124-139.
- Czepiel, J. (1990) 'Service encounters and service relationships: Implications for research', *Journal of Business Research*, 20:1, pp.13-21.
- Davidow, M. (2000) 'The bottom line impact of organizational responses to customer complaints', *Journal of Hospitality & Tourism Research*, 24:4, pp.473-490.
- Davidow, M. (2003) 'Organizational responses to customer complaints: what works and what doesn't', *Journal of service Research*, 5:3, pp.225-250.
- Davidow, M. and Dacin, P.A. (1997) 'Understanding and influencing consumer complaint behavior: improving organizational complaint management', *Advances in Consumer Research*, 24:1, pp.450-456.
- DiPietro, R.H., Parsa, G. and Gregory, A. (2011) 'Restaurant QSC inspections and financial performance: an empirical investigation', *International Journal of Contemporary Hospitality Management*, 23 :7, pp.982-999.
- Egloff, B., Tausch, A., Kohlmann, C.W. and Krohne, H. (1995) 'Relationships between time of day, day of the week, and positive mood: Exploring the role of the mood measure', *Motivation and Emotion*, 19:2, pp.99-110.
- Erickson, G.S., and Eckrich, D.W. (2001) 'Consumer affairs responses to unsolicited customer compliments', *Journal of Marketing Management*, 17:3-4, pp.321-340.
- Etzel, M.J., and Silverman, B.I. (1981) 'A managerial perspective on directions for retail customer dissatisfaction research', *Journal of Retailing*, 57:3, pp.124-136.
- Forbes, S.J. (2008) 'The effect of service quality and expectations on customer complaints', *The Journal of Industrial Economics*, 56:1, pp.190-213.
- Friman, M., and Edvardsson, B. (2003) 'A content analysis of complaints and compliments', *Managing Service Quality*, 13:1, pp.20-26.
- Froberg, J.E. (1977) 'Twenty-four-hour patterns in human performance, subjective and physiological variables and differences between morning and evening active subjects', *Biological psychology*, 5:2, pp.119-134.
- Gremler, D.D. and Gwinner, K.P. (2000) 'Customer-employee rapport in service relationships', *Journal of Service Research*, 3:1, pp.82-104.
- Gutek, B.A., Bhappu, A.D., Liao-Troth, M.A. and Cherry, B. (1999) 'Distinguishing between service relationships and encounters', *Journal of Applied Psychology*, 84:2, pp.218-233.
- Gutek, B.A., Cherry, B., Bhappu, A.D., Schneider, S. and Woolf, L. (2000) 'Features of service relationships and encounters', *Work and Occupations*, 27:3, pp.319-352.
- Hair, J.F., Anderson, R.E., Tatham, R.L., and William, C., Black (1998) *Multivariate data analysis*, Upper Saddle River, US: Prentice Hall.
- Heung, V.C.S. and Lam, T. (2003) 'Customer complaint behaviour towards hotel restaurant services', *International Journal Of Contemporary Hospitality Management*, 15:5, pp.283-289.

46 Consumer Comment Behavior

- Kennedy-Moore, E., Greenberg, M.A., Newman, M.G., and Stone, A.A. (1992) 'The relationship between daily events and mood: The mood measure may matter', *Motivation and Emotion*, 16:2, pp.143-155.
- Kim, C., Kim, S., Im, S., and Shin, C. (2003) 'The effect of attitude and perception on consumer complaint intentions', *Journal of Consumer Marketing*, 20:4, pp.352-371.
- Kraft, F.B., and Martin, C.L. (2001) 'Customer compliments as more than complementary feedback', *Journal of Consumer Satisfaction Dissatisfaction and Complaining Behavior*, 14:1, pp.1-13.
- Liljander, V., and Mattsson, J. (2002) 'Impact of customer preconsumption mood on the evaluation of employee behavior in service encounters', *Psychology and Marketing*, 19:10, pp.837-860.
- Mattila, A.S. (1999) 'An examination of factors affecting service recovery in a restaurant setting', *Journal of Hospitality & Tourism Research*, 23:3, pp.284-298.
- Namkung, Y., and Jang, S. (2007) 'Does food quality really matter in restaurants? Its impact on customer satisfaction and behavioral intentions', *Journal of Hospitality & Tourism Research*, 31:3, pp.387-409.
- Namkung, Y., and Jang, S.C.S. (2008) 'Are highly satisfied restaurant customers really different? A quality perception perspective', *International Journal Of Contemporary Hospitality Management*, 20:2, pp.142-155.
- Pantelidis, I.S. (2010) 'Electronic meal experience: a content analysis of online restaurant comments', *Cornell Hospitality Quarterly*, 51:4, pp.483-491.
- Parsa, H., Gregory, A., and Terry, M. (2010) 'Why do restaurants fail? Part III: An analysis of macro and micro factors', *Dick Pope Tourism Research Institute Working Paper Series*, University of Central Florida, Orlando, Florida, USA.
- Parsa, H.G., Perutkova, J., Yoon, H., Self, J. and Gregory, A. (2012) 'Relative importance of restaurant attributes and consumer patronage: An experimental investigation', (forthcoming) *Journal of Services Research*.
- Pelled, L.H. and Xin, K.R. (1999) 'Down and out: an investigation of the relationship between mood and employee withdrawal behavior', *Journal of Management*, 25:6, pp.875-895.
- Robinson, L.M., and Berl, R.L. (1980) 'What about compliments? A follow-up study on customer complaints and compliments' in Hunt, Keith, H. and Day, Ralph L. (eds) *Refining Concepts and Measures of Consumer Satisfaction and Complaining Behavior*, Bloomington IN:, Indiana University Press, pp.144-148.
- Rossi, A.S. and Rossi, P.E. (1977) 'Body time and social time: Mood patterns by menstrual cycle phase and day of the week', *Social Science Research*, 6:4, pp.273-308.
- Stone, A.A., Hedges, S.M., Neale, J.M., and Satin, M.S. (1985) 'Prospective and cross-sectional mood reports offer no evidence of a "Blue Monday" phenomenon', *Journal of Personality and Social Psychology*, 49:1, pp.129-134.
- Sulek, J.M. and Hensley, R.L. (2004) 'The relative importance of food, atmosphere, and fairness of wait', *Cornell Hotel and Restaurant Administration Quarterly*, 45:3, pp.235-247.

- Tax, S.S., Brown, S.W. and Chandrashekar, M. (1998) 'Customer evaluations of service complaint experiences: implications for relationship marketing', *The Journal of Marketing*, 62:2, pp.60-76.
- Thayer, R.E. (1987) 'Problem perception, optimism, and related states as a function of time of day (diurnal rhythm) and moderate exercise: Two arousal systems in interaction', *Motivation and Emotion*, 11:1, pp.19-36.
- Thayer, R.E., Takahashi, P.J., and Pauli, J.A. (1988) 'Multidimensional arousal states, diurnal rhythms, cognitive and social processes, and extraversion', *Personality and Individual Differences*, 9:1, pp.15-24.

Dr. Milos Bujisic, Assistant Professor, Ohio State University, Columbus, Ohio, USA. Email: milosbujisic@yahoo.com.

Dr. H.G. Parsa, Barron Hilton Chair in Lodging & Professor, University of Denver, Colorado, USA. Email: hparsa@du.edu.

ASSESSING QUALITY OF FOOD, SERVICE AND CUSTOMER EXPERIENCE AT A RESTAURANT: THE CASE OF A STUDENT RUN RESTAURANT IN THE USA

Bharath M. Josiam
Charles Foster

Rosa Malave
Watson Baldwin

In the restaurant business, satisfied customers will return and provide positive word of mouth to peers. Studies have shown that restaurants that generate repeat patronage have six significant attributes in common, namely food quality, service quality, consistency of food and service, menu variety, cost/price-value relationship, atmosphere/ambience, and hygiene/cleanliness. University-level hospitality management programs regard the Student-Run Restaurant (SRR) as an essential part of the curriculum. Despite many such restaurants housed in universities in the USA and across the world, little information is available about how these restaurants assess quality and promote usage and loyalty. This study addresses this subject by identifying the perceptions of the patrons of a SRR, segmenting the customer base, and ascertaining the quality of drivers of repeat and referral patronage. A total of 503 guests were surveyed at a university SRR in the southwestern region of the USA. Overall, patrons were satisfied with the food quality, service quality, value for money, and convenience of location. However, satisfaction levels were lower for convenience of payment methods and portion size. Significant differences were found between males and females, as well as between younger and mature patrons. Significant differences also existed between the perceptions of heavy-users and light-users. These findings suggest the SRR serves distinct segments, which emphasizes a need to focus on customized strategies for customer retention. More information about patrons and the quality of restaurant attributes that drive their choices will assist hospitality faculty in SRRs and restaurateurs to competitively position their restaurants for success in the marketplace.

INTRODUCTION

On-campus restaurants where students both prepare and serve meals are rich learning environments unique to hospitality management programs. These restaurants provide opportunities for active involvement in operations, thereby linking theoretical principles to real-world business situations. Students readily transfer knowledge gained through these experiences to the workplace, resulting in enhanced career success. The term *Student-Run Restaurant* (SRR) has been adopted for this paper to describe these on-campus restaurants. Research has shown that

50 Assessing Quality of Food

hospitality management programs in the United States of America (USA) with a SRR generate more graduates who enter the foodservice industry than those without such an experience (Nies, 1993).

NEED FOR THE STUDY

The most recent research conducted specifically on SRRs was in 1993 by Nies, in which 38 out of the 77 four-year US hospitality programs reported the use of an SRR. Despite the fact that SRRs are an integral part of the curriculum of all reputed hospitality programs, there is very limited literature on this topic. A thorough literature search for this study could identify only two papers directly pertaining to this study namely, Nies (1993), and West and Farley (1991). Therefore, the purpose of this study is to fill the gap in the literature by identifying the perceptions of patrons of a SRR on a US campus regarding the following attributes related to *repeat and referral patronage*: food quality, service quality, price-value issues, convenience, motivation for dining, and ambience.

Little information is available, however, concerning the criteria used in these programs to assess quality of food, service and customer experiences and the steps taken to maintain their customer base and encourage patronage. West and Farley (1991) focused on cost reduction through sharing facilities with a foodservice contractor and improved educational outcomes due to greater student involvement in a simulated business environment. Nies (1993) reported on the prevalence of SRRs and their role in educating students. Almost half of all the American hospitality Programs operate a SRR (Nies, 1993). The cost of operating SRR is substantial; investment in kitchen equipment alone is much greater than the cost of facilities for a lecture-based classroom. Less than half of all SRRs in the USA earn a profit (Nies, 1993). Therefore, in addition to controlling operating expenses, there is a need to generate more income. This is certainly true for all restaurants, not just for SRRs. To improve revenues, drivers of customer satisfaction and their quality needs to be assessed.

One strategy for measuring food and service quality is the comment card. A number of SRRs utilize this approach to evaluate service success (Nies, 1993). Unfortunately, the construct validity of customer comment cards is often too poor for management to confidently use them in making strategic decisions (Lewis and Pizam, 1981; Schall, 2003). There is a

need, then, for research on customer perception of SRRs using an in-depth survey, with a broader, more representative sample. The results of such research would provide information beyond that of the limited, self-selected comment card data that typically suffers an inadequate sample size and shallowness of scope

LITERATURE REVIEW

The increasing complexity of the hospitality industry is a result of its numerous and diverse service components (Harris and Cannon, 1995). It is often hailed as “one of the largest [industries] in the world” handicapped by ineffectively trained employees (Harris and Bonn, 2000, p.321). Hospitality management programs have recognized the values of experiential learning as an effective tool towards career preparation (Daly, 2001; Feinstein, 2001; Hawkins and Weiss, 2004). Hawkins and Weiss (2004) state its value as assisting students with information retention, problem solving, and providing an invaluable experience, as they become overall more effective self-learners. The presence of SRRs within hospitality management curriculums is based upon this focus on experiential learning. Students receive instruction and gain experience in the requirements for quantity food production and the principles of dining room services (Nies, 1993). In the following literature review, SRR management and marketing issues will be extensively discussed. Parallels will be drawn to the methods by which commercial restaurants succeed in competitive markets.

The SRR Business

The description of SRRs in the USA is primarily based upon the research completed by Nies in 1993. Most SRRs in the USA are located on campus and have a typical capacity of 30 to 100 seats. Unlike their commercial counterparts, these restaurants operate only on weekdays and are often closed during shorter summer sessions. The majority concentrate on lunch service due to the lack of dinner demand, though a few do serve both. Lunch checks have an average range from US\$2 to \$8, while dinner checks range from US\$4 to \$30. Cafeteria service is found in only 25% of on-campus restaurants and buffet service in 6%. The majority of SRRs feature a full-service dining experience with student wait staff on hand.

The cornerstone of any foodservice operation is the menu (Frei, 1995). According to Frei, the menu “determines the image, price range, and profit

52 Assessing Quality of Food

potential of a restaurant” (1995). SRRs in the USA structure their menus to maximize the student experience while operating within the constraints of a modest budget. Most menus afford a limited selection of *entrees* to choose from, in order to manage service expediency and food quality. Only a minority restrict their offering to a selection among soups, salads, or desserts. Alcoholic beverages are available at less than half of the SRRs. Theme menus are also popular, in which case both the meal and the overall dining experience reflect a unifying theme such as Thanksgiving or Valentine’s Day. Theme menus represent a changing slate of offerings for the customer, with a new dining experience on each visit (Nies, 1993; Jennings, 2005).

Student operations are as vulnerable to failure as their commercial counterparts. Although SRRs are housed in educational institutions and typically have nonprofit status, maintaining a break-even operation is still necessary. As is true in the business world, SRRs require a substantial capital investment of facilities, equipment, as well as monies for daily operation (Nies, 1993; Walker and Lundberg, 2000). Unfortunately, a considerable amount of time is also necessary to obtain profit over this initial investment, which is the cause of failure for many restaurant ventures. Previous research indicates a failure rate of 27% for restaurants in the first year of business that rises to 50% by the end of the third year (Walker and Lundberg, 2000). As a non-profit entity, the management of SRRs is further challenged by the complexity of balancing its educational responsibility alongside profitability goals (Rojas, 2000). Similarly, many SRRs struggle to breakeven or fail altogether in their attempt to avoid substantial loss (Nies, 1993).

Importance of Customer Retention

Dining out is an important part of the lifestyle of many Americans. Research conducted by Kant and Graubard on this activity revealed “in 1999-2000, three or more weekly commercially prepared meals were reported by 48% of males and 35% of females” in the U.S. (2004). Repeat customers are the bedrock of solvency for a successful business venture, as they generate more profit than new guests (Zeithaml, 2000). Blattbert *et al.* (2001) found that “30 percent of the company’s [loyalty card] customers represented over 75 percent of its profits” (2001). A key indicator of

return patronage is customer satisfaction (Dube, Reneghan, and Miller, 1994; Kivela, Inbakaran, and Reece, 1999; Schall, 2003). Although there is no guarantee that a satisfied customer will return, statistics indicate that over 90% of dissatisfied customers will *not* return to a restaurant associated with a negative dining experience (Stevens, Knutson, and Patton, 1995). Researchers have delineated certain attributes that are associated with repeat business. The top six restaurant attributes that generate repeat customers are (1) food quality, (2) consistency, (3) menu variety, (4) an attractive price-value relationship, (5) ambience, and (6) cleanliness. Restaurant operators that focus on these attributes stand to strengthen customer loyalty and retention (Dube *et al.*, 1994; Soriano, 2002; Koo, Tao, and Yeung, 1999; Josiam and Monteiro, 2003; Josiam, Sohail, and Monteiro, 2007). In addition, regularly conducting customer satisfaction research will guide management in their efforts to better satisfy their customers, as the findings can help restaurateurs better understand how their operations are performing with regards to the drivers of customer satisfaction (Brierley, MacDougall, and Hill, 2003).

Meeting Expectations of Consumers

Customers are becoming more sophisticated and expectations have risen concomitantly. Service providers are routinely expected to go beyond the commonplace and provide an exemplary dining experience (Bojanic and Rosen, 1994; Grindy, 1999). For many customers food quality is almost indistinguishable from service quality, and most agree that both must be present for a restaurant to qualify for a repeat visit (Koo *et al.*, 1999; Soriano, 2002). The value considerations of these lifestyle customers, in regards to their dining experiences, surpass the issue of price. They respond more emphatically to ambience, hygiene, and cleanliness (Soriano, 2002; Yuksel and Yuksel, 2002; Yuksel, 2003). As a consequence, unique restaurant concepts grow in importance. Conversely, an outdated look or static design disenchant lifestyle customers and adversely affects profitability (Soriano, 2002).

Food Quality

Food is often seen as the single most important overall aspect of the dining experience. (Kivela *et al.*, 1999; Raajpoot, 2002; Sulek and Hensley, 2004). Maintaining a high level of food quality is absolutely necessary to

54 Assessing Quality of Food

satisfy the needs and expectations of the restaurant customers (Peri, 2006). It is important to recognize how food quality is viewed in a restaurant; the literature has identified the following attributes most commonly used in evaluating food quality in restaurants: presentation, taste, freshness, and temperature. These attributes are used as the tangible cues of food quality in restaurants. Presentation is seen as how attractively food is presented as a tangible cue for customer perception of quality and it has been seen as a key food attribute in modeling dining satisfaction. (Kivela *et al.*, 1999) Food presentation is also seen as on the product/service factors in the tangible quality scale (Raajpoot, 2002). Taste is also a key aspect in food that influences restaurant customer satisfaction and future behavior intentions (Kivela *et al.*, 1999). Freshness refers to the state of food associated with its crispness, juiciness, and aroma (Péneau *et al.*, 2006). Temperature is another element of evaluating food quality (Johns *et al.*, 1996; Kivela *et al.*, 1999). Temperature interacts with the three of the major sensory properties: taste, smell and sight which have a strong connection with the flavor of food and its associated evaluation (Delwiche, 2004).

Service Quality

One of the most researched aspects of service marketing is service quality. (Fisk, Brown, and Bitner, 1993) The scale used to measure service quality is SERVQUAL, which was introduced by Parasuraman, Zeithaml, and Berry (1988) and is the single most used scale for the conceptualization and measurement of service quality constructs (Brady, Cronin, and Brand, 2002). SERVQUAL is a useful starting point for assessing and improving service quality, but it is not a final solution. (Parasuraman, Berry, and Zeithaml, 1991) SERVQUAL utilizes five quality dimensions for its scale of measurement: reliability, assurance, tangibles, empathy, and responsiveness. These five dimensions can be viewed as the perceived service quality evaluations (Wakefield and Blodgett, 1999). In Parasuraman *et al.*'s (1988) original model, each of the five dimensions held their own definitions. *Reliability* refers to the ability to perform the promised services dependably and accurately. *Assurance* is defined as the knowledge and courtesy of employees, as well as their ability to convey trust and confidence. *Empathy* refers to the provision of caring and individualized attention to customers. *Responsiveness* means willingness to help custom-

ers and provide prompt service. Finally, *tangibles* is defined as the physical facilities, equipment, and appearance of personnel. These elements of service quality need to be addressed and periodically measured in both commercial restaurants and in SRRs to evaluate customer's perception of the services being delivered.

Additionally, customers expect a full representation of modern technology and frown upon antiquated methods of payment (Mehta, 1999). In 2003, electronic forms of payment, such as debit and credit cards, exceeded cash and check payments for the first time in the USA (ATM Marketplace, 2003). Increasing preference for electronic forms of payment imply that credit/debit card usage at restaurants is rising (National Restaurant Association, 2002).

Market Segmentation

An effective strategy for optimizing the match between expectations and service is to identify those factors that result in homogeneous purchasing behaviors of discrete market segments. Market segmentation capitalizes on the predictive power of customer satisfaction resulting in increased sales and profits (Yuksel and Yuksel, 2002; Yuksel, 2003). A variety of factors, such as demographics, lifestyle, service usage, and ethnic origin have been used as a basis for segmentation. In response to an increasingly diverse society, restaurateurs have learned to consider age, gender, income, and ethnicity as differentiating factors that have significant financial implications (Shank and Nahhas, 1994; National Restaurant Association, 1999; Silver, 2000; Soriano, 2002; Josiam and Monteiro, 2003; Josiam *et al.*, 2007). While Soriano (2002) found no gender based difference in the importance of food quality, service, cost/value, and place/ambience, an earlier study of service quality by Silver (2000) found that women consider service more important than men. SRRs would benefit from emulating their commercial counterparts and determine the distinctive profiles of their current market segments, and tailor their offerings to better serve them.

An important and growing segment in the US is the mature market. The 2000 US Census revealed that people 55 years of age or older made up 20% of the population (Moschis, Folkman, and Bellenger, 2003). Estimates are that these mature adults will comprise 25% of the population by 2015 and 33% of the population by 2050 (Shank and Nahhas, 1994).

56 Assessing Quality of Food

Mature consumers control three-fourths of all US financial assets and half of all discretionary spending. In fact they enjoy a higher level of discretionary spending than other age segments and are willing to purchase experiences in addition to products (Moschis *et al.*, 2003). In terms of dining experiences, the mature market favors breakfast and lunch over dinner, making them an important segment for a SRR (Fu and Parks, 2001). SRRs generally offer a relatively full-service dining experience with a pricing structure that competes at a higher average than the standard convenience food options provided by campus cafeterias. The mature market is an ideal market segment for SRRS due to their market characteristics. They are more loyal and less price conscious than younger customers, as well as less concerned with speed of service, because they place greater value on discounts, nutrition, convenience, friendly service, and individualized attention (Knutson and Patton, 1993; Shank and Nahhas, 1994; Fu and Parks, 2001; Moschis *et al.*, 2003).

OBJECTIVE OF THE STUDY

Despite the large number of SRRs in hospitality management programs across the world, there have been no studies to date of customer concerns in SRRs. To address this gap in the literature, the current study looks at customer satisfaction and retention in SRRs. The findings can assist hospitality management programs world-wide to sustain their SRR as a financially and educationally viable part of the hospitality curriculum. The purpose of the current study is to fill the gap in the literature by identifying the perceptions of patrons of a SRR in the USA. The study will be guided by the main elements of quality management (Breyfogle, Cupello, and Meadows, 2001; George, 2003). These include a process that defines, measures, and analyses current process to improve and control them. This process, as applied to service quality needs to incorporate the Voice of the Customer (VOC). The findings of this study will expand knowledge of SRR performance and assist universities in increasing customer retention and enhancing financial stability. A better understanding of the relationship between operations and customer satisfaction would benefit hospitality management programs that operate a SRR. Furthermore, it would benefit restaurant operators by helping them to better understand how to assess the quality of their food, service and customer experiences.

This study explores factors that influenced the decision of patrons to dine at a SRR operated by a Hospitality Management program at a university campus in the southwestern region US. The objectives of the study were as follows:

1. Identify the most important SRR attributes as viewed by customers
2. Identify differences between SRR patrons, and segment them based on gender, age, level of usage, and membership in campus community.
3. Identify the attributes of the SRR that drive referral and revisit patronage.

METHODOLOGY

Questionnaire

This study collected data on factors that contributed to return patronage at a SRR operated by a leading Hospitality Management program in the southwestern region of the USA. Students enrolled in a Dining Room Service and Management course operated the dining room, while those enrolled in a Quantity Food Production and Management course prepared the meals. A three course *Table-de-hoté* meal priced at US \$6.50 was served three days per week during a long semester. A book of nine tickets was available for purchase discounting the cost of each meal by 10%. The SRR served 75 to 250 meals daily during the period of investigation. The typical patrons at the SRR were university students, university staff, members of the local community, and visitors to campus.

A self-administered questionnaire was developed for the purpose of collecting data. The questionnaire included questions on both demographic and other variables expected to influence the decision to dine at the SRR. A five-point Likert scale was utilized and respondents were asked to rank their degree of agreement with a list of statements that were categorized under the headings of service, food, reason to dine, barriers to dining more often, overall evaluation, and referral and repeat visit intention. The points on the scale were: 1= strongly disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, and 5 = strongly agree. Demographic and usage questions were given as multiple-choice options.

Several terms were adopted for descriptive purposes of this study. *Mature consumers* were defined as those who were 55 years of age or older.

58 Assessing Quality of Food

Heavy-users were defined as patrons who had purchased a book of nine meal tickets, whereas *light-users* were those who did not purchase ticket books.

Sample Selection, Data Collection, and Data Analysis

A convenience sampling method was employed, given the constraints on time and resources. The researchers surveyed patrons during lunch service at the SRR over a six-week period. A researcher would approach the patrons during their meal and ask if they would be willing to complete the anonymous and confidential survey. Completed surveys were retrieved by the researchers from willing participants. No compensation was provided to respondents.

Data was analyzed using SPSS. Descriptive statistics, including frequencies and means, were calculated. ANOVA analysis was conducted to identify significant differences between demographic groups and other usage segments. Correlation analysis was conducted to examine the relationship between age and importance of SRR attributes. Multiple-Regression analysis was conducted to examine the relationships between restaurant attributes and intention to re-visit or recommend the SRR.

FINDINGS AND DISCUSSION

A sample size of 500 was targeted, and a total of 503 usable responses were collected. Over half of the respondents were university employees and students. Approximately 68% of respondents were female. Just over a third (33%) were mature customers (age 55 or older). This gender composition was confirmed as representative of the sample base, by comparing the researchers' observations and those of the SRR General Manager.

Approximately 40% of the respondents were first-time/ light-user patrons, while the other 60% were repeat/heavy-users. Similarly, 60% of the respondents bought the book of meal tickets for the SRR (Table 1). Approximately 40% of the patrons of the SRR reported an annual household income in the US\$ 49,999 or less category, while over 40% reported an annual household income of over US\$75,000. The median US household has an income of US\$42,228 (U.S. Census Bureau, 2001). It appears that many SRR patrons come from more affluent households and are more educated than the general U.S. population, with only 7.1% indicating their highest academic credentials to be a high-school diploma.

Table 1: Demographic Characteristics of SRR Patrons

Demographics	N	%
<u>Gender</u>		
Male	137	32.5%
Female	284	67.5%
<u>Occupation</u>		
University students	153	32.5%
University employees	123	26.1%
Others	195	41.4%
<u>Annual Household Income</u>		
Less than \$24,999	105	26.3%
\$25,000 to \$49,999	60	15.0%
\$50,000 to \$74,999	60	15.0%
\$75,000 to \$99,999	52	13.0%
\$100,000 to \$124,999	54	13.5%
\$125,000 to \$149,999	27	6.8%
\$150,000 and over	42	10.5%
<u>Age</u>		
Less than 55 years	322	64.0%
55 and older	166	34.0%
<u>Psychographics/Usage</u>		
<u>First Time or Repeat Patron of SRR</u>		
First Time Guest	197	41.0%
Repeat Patron	283	59.0%
<u>Purchased Book of Tickets</u>		
Yes	172	40.8%
No	250	59.2%

Note: Totals differ due to missing data

Objective 1: Identify the perceptions of SRR attributes

Respondents answered questions related to attributes associated with dining at the SRR, on a 5-point Likert Scale ranked from Strongly Disagree (1) to Strongly Agree (5). Using a study by Yuksel and Yuksel (2002) as a guideline, the attributes were grouped into various categories (Table 2). Mean scores for individual variables were consistently above 4.00 for all categories. On the whole, it appears that patrons perceived that food, service, and the overall experience were of good quality, and that the SRR provided good value for money. Multiple questions related to these issues generated mean scores ranging from 4.3 to 4.87 (Agree to Strongly Agree). With respect to barriers to increased patronage, the highest scores were for “Convenience”, “Parking”, and “Credit Cards/Payment Methods”. This suggests that patrons are currently satisfied with food, service

60 Assessing Quality of Food

and price/value issues, but that they seek conveniences such as multiple payment methods, and better parking. The high overall scores bode well for repeat and referral patronage of the SRR. Both referral and re-visit intentions received high scores, with means of 4.70 and 4.77 respectively.

Table 2: Mean Scores of Attributes by Category

Categories and Attributes	N N	Mean	SD
<u>Food</u>			
The amount of food is right	500	4.46	0.828
Plate presentation is attractive	500	4.59	0.723
Food is flavorful	497	4.56	0.765
Food is fresh	493	4.62	0.702
Temperature of food is right	498	4.40	0.832
Food is consistent across cuisines	450	4.30	0.864
<u>Service Quality Dimensions</u>			
Staff is clean and well dressed	498	4.87	.441
Staff is knowledgeable	501	4.67	.668
Staff is approachable	500	4.79	.520
Staff anticipates my needs	499	4.57	.697
Staff gives prompt service	499	4.63	.723
Staff is well-trained	497	4.69	.607
Staff serves food as ordered	474	4.69	.670
Staff makes effort to handle my special requests	457	4.64	.737
Staff provides consistent service	492	4.72	.598
<u>Motivations To Patronize SRR</u>			
SRR is convenient	489	3.66	1.067
I dine at SRR to entertain guests	481	3.78	.998
SRR gives me value for money	489	4.22	.942
SRR offers a different menu each day	483	3.99	.965
<u>Motivations - Support and Showcase School/University</u>			
Support School of Merchandising & Hospitality Management	490	4.38	0.860
Support Hospitality Management (HM) students	497	4.45	0.802
SRR provides learning for HM students	496	4.70	0.661
Showcase the university	480	3.73	1.042
<u>Barriers To Patronage (I would dine more often if :)</u>			
If menu was "set"	483	2.73	1.101
If wine/beer were served	488	2.74	1.418
If portion sizes were larger	482	2.82	1.274
If I could get in-out in 30 minutes	486	2.96	1.182
If parking was more convenient	487	3.69	1.235
If credit/debit cards were accepted	488	3.37	1.254
If ambience was more attractive	480	2.75	1.179
<u>Overall Evaluation</u>			
Overall – Food quality is good	499	4.60	.667
Overall – Service is good	497	4.82	.480
Overall – Experience is good	499	4.69	.595
<u>Referral and Return Intentions</u>			
I would recommend this SRR	498	4.70	0.621
I would dine again at this SRR	497	4.77	0.610

Note: 1 = strongly disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, 5 = strongly agree.

Objective 2: Identify differences between restaurant patrons, and segment them based on gender, age, level of usage, and membership in campus community

Gender

Analysis of variance (ANOVA) revealed that significant differences existed between the perceptions of male and female patrons (Table 3). Males perceived more menu choices within a set menu, acceptance of credit/debit cards, larger portion size, the availability of wine and beer, and ambience as the biggest barriers of the SRR. Females perceived that the SRR delivered better value for money. These differences point to segmentation issues.

Table 3: Analysis of Variance of Restaurant Attributes by Gender

Categories and Attributes	Male		Female		F
	N	Mean	N	Mean	
<u>Food/Menu Issues</u>					
The SRR offers a different menu each day	131	3.85	277	4.06	4.626*
Patronize SRR more if "set" menu	134	2.96	270	2.64	7.675**
Patronize SRR more if wine/beer served	135	3.14	273	2.58	14.947***
<u>Payment/Value Issues</u>					
The SRR gives me value for money	134	4.06	277	4.30	6.188*
Patronize SRR more if credit cards accepted	134	3.58	276	3.27	5.598*
<u>Portion Size Issues</u>					
The amount of food is right	136	3.13	283	4.57	17.568***
Patronize SRR more if portions were larger	132	2.78	272	2.64	22.288***
<u>Ambience</u>					
Patronize SRR more if ambience more attractive	132	2.92	269	2.67	4.193*

Note: 1 = strongly disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, 5 = strongly agree.
Note: *p<.05; **p<.01; ***p<.001

Age

Significant differences were found between the perceptions of younger patrons and mature patrons. Younger patrons place greater value on menu choices, credit card payment options, price, and larger portion sizes. Mature patrons were significantly more likely to agree that the SRR provided good food, good service, and good experience. Additionally, mature patrons would like alcohol to be served, and expressed less concerned with

62 Assessing Quality of Food

other barriers such as parking or payment with credit cards (Table 4). It appears that the SRR is meeting the needs of the mature patrons very well. While that bodes well for attracting the mature segment, it also points to the importance of better understanding and serving the younger patron segment.

Table 4: Analysis of Variance of Restaurant Attributes by Age Categories

Categories and Attributes	Younger (less than 55)		Mature (55 and older)		F
	N	Mean	N	Mean	
<u>Food Issues</u>					
Food is flavorful	317	4.51	165	4.67	4.760*
Food is fresh	315	4.54	163	4.75	9.806**
Plate presentation of food is attractive	320	4.53	165	4.72	7.376**
Overall – Food quality is good	319	4.56	165	4.68	3.936*
<u>Menu Issues</u>					
The SRR offers a different menu each day	313	3.93	157	4.12	4.265*
Patronize SRR more if “set” menu	314	2.85	155	2.52	9.758**
Patronize SRR more if wine/beer served	316	3.04	158	2.19	41.375***
<u>Payment/Value Issues</u>					
The SRR gives me value for money	316	4.10	160	4.43	12.750***
Patronize SRR more if credit cards accepted	315	3.70	159	2.73	74.171***
<u>Portion Size Issues</u>					
The amount of food is right	320	4.39	165	4.58	5.890*
Patronize SRR more if portions were larger	311	3.14	157	2.24	59.712***
<u>Ambience</u>					
Patronize SRR more if ambience better	310	2.97	156	2.31	35.597***
<u>Service Quality Issues</u>					
SRR staff is knowledgeable	321	4.63	164	4.76	4.034*
SRR staff is approachable	321	4.73	165	4.88	9.200**
<u>Motivation/Barriers for Dining at SRR</u>					
I dine at SRR to entertain guests	313	3.62	155	4.06	20.886***
Dine more at SRR if get in-out in 30 minutes	135	3.16	157	2.57	27.795***
<u>Referral and Return Intentions</u>					
I would recommend SRR to others	319	4.66	165	4.78	3.932*

Heavy versus Light Users/Ticket book purchase

Significant differences were found on several attributes between patrons

who purchased a book of tickets and those who did not (Table 5). Purchasers reported significantly higher scores on “to support the students and the school.” Purchasers also indicated that they dined at the SRR, because it was convenient. Ticket-book purchasers gave relatively high scores to the SRR on food and service attributes. However, it is troubling to note that their scores were significantly lower than those of casual visitors. Perhaps, ticket book holders have higher expectations than casual patrons. Management needs to better understand and meet the needs of this important long-term, heavy-user segment. The findings also suggest that the restaurant serves two distinct usage segments and strategies for customer retention need to be crafted accordingly.

Table 5: Analysis of Variance of Restaurant Attributes By Purchase of Ticket Books

Categories and Attributes	Purchased		Not Purchased		F
	N	Mean	N	Mean	
<u>Food Issues</u> Plate presentation of food is attractive	172	4.53	248	4.67	4.212*
<u>Menu Issues</u> The SRR offers a different menu each day	168	4.14	239	3.89	6.843**
<u>Payment/Value Issues</u> Patronize SRR more if credit cards accepted	169	3.15	240	3.51	8.429**
<u>Portion Size Issues</u> The amount of food is right	172	4.38	248	4.58	6.094*
<u>Service Quality Issues</u> SRR staff is clean and well-dressed	169	4.82	248	4.92	6.146*
SRR staff is knowledgeable	171	4.58	249	4.77	9.459**
SRR staff is approachable	171	4.76	248	4.86	5.264*
Staff anticipates my needs	171	4.47	248	4.68	10.443**
Staff gives prompt service	171	4.56	249	4.73	5.760*
Staff is well trained	171	4.61	246	4.76	6.040*
<u>Motivation/Barriers for Dining at SRR</u> I dine at SRR, because it is convenient	168	3.88	242	3.50	12.706***
I dine at SRR to support HM students	172	4.62	246	4.35	11.305**
I dine at SRR to support SMHM	168	4.51	244	4.31	5.103*

Note: 1 = strongly disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, 5 = strongly agree. Note: *p<.05; **p<.01; ***p<.001

University Community and Outsiders

Significant differences were also found between the perceptions of the off-campus patrons and the university community (Table 6). Off-campus cus-

64 Assessing Quality of Food

tomers placed greater importance on different menus, availability of wine and beer, value for money, service and dining experiences, and wishing to eat every day. University employees and students had significantly higher scores than off-campus patrons for more menu choices, loyalty programs, payment method options, parking, larger portion size, and formal atmosphere. Respondents from the campus community indicated that they dined at the SRR, because it was convenient. Consistent with this, they found parking, and the service time to be barriers to patronage. They also gave significantly lower scores to the size of food portions. Respondents from the campus community gave relatively high scores to the SRR on food and service attributes. However, it is troubling to note that their scores were significantly lower than those of off-campus and presumably casual visitors (Table 6). Perhaps, the campus community has higher expectations than casual patrons. This again suggests that the restaurant serves two distinct segments and strategies for customer retention need to be crafted accordingly. Management needs to be sure that the campus community is not taken for granted and that their needs are being met.

Table 6: Analysis of Variance of Restaurant Attributes by On/Off University Identity

Categories and Attributes	University Community		Non-University Community		F
	N	Mean	N	Mean	
<u>Menu Issues</u>					
Patronize SRR more if wine/beer served	273	3.00	184	2.45	16.864***
<u>Payment/Value Issues</u>					
Patronize SRR more if credit cards accepted	272	3.71	185	2.94	43.938***
<u>Portion Size Issues</u>					
The amount of food is right	274	4.38	194	4.53	3.918*
Patronize SRR more if portions were larger	271	3.11	181	2.50	26.390***
<u>Ambience</u>					
Patronize SRR more if ambience better	268	2.94	182	2.51	15.135***
<u>Service Quality Issues</u>					
SRR staff is knowledgeable	275	4.59	194	4.75	6.387*
SRR staff is approachable	275	4.71	193	4.87	10.110**
SRR staff anticipates my needs	275	4.48	193	4.66	7.655**
SRR staff gives prompt service	274	4.53	193	4.74	9.147**
Overall – Service at SRR is good	273	4.77	192	4.87	4.388*
<u>Motivation/Barriers for Dining at SRR</u>					
I dine at SRR, because it is convenient	274	3.78	184	3.41	13.447***
Dine more at SRR if get in-out in 30 minutes	274	3.16	182	2.70	17.394***

Note: 1 = strongly disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, 5 = strongly agree. Note: *p<.05; **p<.01; ***p<.001

Objective 3: Identify the attributes of the SRR that predict referral and revisit patronage

To identify the attributes of the SRR that predicts referral and revisit patronage, two multiple regression analyses were employed with SRR attributes as the independent variables and referral and revisit intention as the dependent variables. All food, service, motivations, barriers, and demographic variables were initially entered into the regression equation. An iterative process was utilized to identify the most powerful predictors, taking into consideration issues of multicollinearity (Table 7).

Both regression equations were found to be significant with relatively high predictive power. The variables in the equation were able to predict 74.1% of the variance in the case of referral intention and 63.5% in the case of revisit intention respectively. The most powerful and significant predictors of both referral and revisit intention were the perceived overall experience, followed by overall food quality. As expected, select service attributes were also found to be significant predictors, as was the desire to support students. Among barriers to patronage, time taken for lunch service was found to be important for potential repeat guests (Table 7).

Previous research identified food quality, service quality, overall experience and convenience to be key drivers of customer satisfaction in restaurants (Dube *et al.*, 1994; Soriano, 2002; Koo *et al.*, 1999; Josiam, and Monteiro, 2003; Josiam *et al.*, 2007). The findings of this study are consistent with the literature on customer satisfaction in restaurants. Not surprisingly, this study found those that perceived that the SRR provided high quality food and experience were the most likely to refer or revisit, while time related convenience was found to be a barrier to revisit. In line with this, number of prior visits was a significant predictor of revisit, suggesting that satisfied customers were likely to return.

Table 7: Regression Analyses: Predictors of Referral and Return Visit Intentions

Predictor Variables	Referral Intention Beta Values	Revisit Intention Beta Values
Overall – Experience at SRR is good	.670***	.540***
Overall - Food quality at SRR is good	.197***	.163***
Overall – Service at SRR is good	NS	.094**
SRR staff provides consistent service	-.087**	NS
SRR staff makes the effort to handle my special requests	.058*	NS

66 Assessing Quality of Food

Predictor Variables	Referral Intention Beta Values	Revisit Intention Beta Values
SRR lets me support Hospitality Mgmt. students	-.094**	-.070*
SRR lets me support School	.147***	NS
SRR provides learning for Hospitality Mgmt. students	NS	.198***
SRR gives me value for money	.090**	NS
Would dine more at SRR, if I could get in-out in 30 minutes	NS	.063*
Number of visits to the SRR	NS	.072*
Model Statistics		
Degrees of Freedom	426	446
F Value	175.063***	111.882***
Adjusted R Square	0.741	0.635

Note: *p<.05; **p<.01; ***p<.001, NS = Not Significant

DISCUSSION

By analyzing the preferences of each market segment, managers of SRRs can gain insights leading to more effective strategies addressing the needs of different target markets. Although a number of differences were found between segments, it is noteworthy that food quality, service quality, consistency, price/value, and payment methods were important issues for all segments. While the management of the SRR can take comfort in the high scores on the core issues of food and service, they now have new opportunities to improve customer satisfaction. Acting upon study results, the SRR can make improvements in menu variety, portion sizes, and service time. Payment options can be widened by accepting debit and credit cards. Management can examine the costs and benefits of serving wine and beer. These changes have a high potential to enhance the probability of repeat and referral patronage.

Gender

The results are consistent with Soriano's study (2002), which found no differences between males and females regarding value and service. In other areas, however, gender does pose differences. The heightened importance of a larger portion size to males may be correlated to a higher awareness of caloric intake among women due to their increased tendency to diet (Wardle, Haase, Steptoe *et al.*, 2004; Pew Research, 2006). Furthermore, women may view the restaurant as a place to socialize, while men may

view it as an avenue for business entertainment. Hence the greater importance attributed by men to ambience, time, service of alcohol, and acceptance of credit cards, as these attributes would facilitate a business lunch.

Age

Study findings concerning the relationship between age and perceptions agree with Shank and Nahhas (1994), who found positive correlations between age and convenient location, loyalty, and the need for individualized attention, and negative correlations between age and frequency of dining out with friends and co-workers, shopping for low prices, having discounts available, and quality of food. It is not surprising that older patrons were more comfortable in the somewhat formal atmosphere of the SRR and gave higher scores to food, service, and ambience and were less concerned with barriers to patronage.

Mature Market Potential

The percentage of mature patrons within the sample was higher than the national average of 20% of the population (Moschis *et al.*, 2003). The researchers found that residents of nearby retirement communities and nursing homes patronize the SRR for lunch on a regular basis, which is consistent with the previous literature on the preference of mature patrons on lunchtime dining (Fu and Parks, 2001). The mature demographic group is thus a valuable market segment for SRRs due to their stability as a consumer base. Management should pursue further advertising and sales opportunities to sustain and nurture the growth of this market in nearby retirement communities and nursing homes.

Heavy and Light User Perception

Significant differences were found between the perceptions of heavy-use patrons and light-use patrons with respect to different menu, price and value, support and showcase school/university, service quality attributes, dining experiences, and convenience. The findings support the contention of Silver (2000), that infrequent restaurant-goers value service more than frequent restaurant-goers. However, menu, price and value, overall dining experiences, convenience, and support and showcase school/university are important attributes associated with heavy users. They are similar to previous findings that consistency of service, menu variety, cost/price-value

68 Assessing Quality of Food

relationship, and atmosphere/ambience are important restaurant attributes across different segments (Dube *et al.*, 1994; Soriano, 2002; Koo *et al.*, 1999; Josiam and Monteiro, 2003; Josiam *et al.*, 2007).

Showcase the School

One attribute common to SRRs is “to support and showcase school/university.” The mean score ranging from 3.73 to 4.45 puts respondents in the categories “agree” and “strongly agree. The relatively high score on this category is not surprising. Students involved in the operation of a restaurant tend to invite family and friends to dine at the restaurant, and sell books to them and the faculty. Nies (1993) indicated that operating a SRR was not only an educational tool but also an opportunity to showcase the hospitality program. Indeed, the researchers saw many university administrators and faculty entertaining outside guests in the restaurant. The SRR serves as a university showcase for potential students and other stakeholders, demonstrating how university students can develop professional competencies via practical experiences.

Ticket Books

Generally patrons who purchased the ticket book showed high, but significantly lower levels of satisfaction with the restaurant. Perhaps, ticket book buyers are satisfied customers of the restaurant from previous semesters, hence their willingness to commit in advance. At the same time, their expectations could be higher. It should be noted that although patrons who didn't purchase books of tickets were less price and value sensitive compared to ticket buyers, they still consider these attributes as important factors for dining out. The university has a campus community of over 30,000, but despite this large local population, the number of ticket books sold, at around 200 a semester, is relatively low. Furthermore, with over 25,000 students, the proportion of student patrons is very low. Aggressive marketing communication directed at students and staff of the university will help tap into this locally available customer base.

Alternative Payment

The desire for multiple payment methods such as credit and debit cards tends to support the contention that consumers regard not only food, but also various other aspects of service as key criteria for choosing restaurants (Koo *et al.*, 1999; Soriano, 2002). The preference for electronic forms of

payment is consistent with national trends in this regard (National Restaurant Association, 2002; ATM Marketplace, 2003). A university SRR should seriously consider adding electronic payment options to attract and retain customers.

Portion Sizes

Large portion size can enhance the price/value perception of customers (Grindy, 1999). Large portion size and loyalty programs could increase their perceived value for money (Grindy, 1999). Consistent with this, more menu choices would allow younger patrons to choose more affordable menu items. An alternative explanation is that mature patrons may be more driven by the overall dining experience, while younger customers are more focused on food, convenience, and value large portion sizes.

It should be noted that the researchers make no claims as to the generalizability of this study to other SRRs in the USA or in other parts of the world. The publication of this study is first and foremost a demonstration of how a study can be conducted at a restaurant to assess various dimensions of quality and yield actionable findings to enhance customer loyalty and increase revenues. It is to be expected that management of other SRRs would have findings unique to their operations and customer base. Restaurants worldwide are encouraged to conduct similar in-depth studies to gain a deeper understanding of their customers. Furthermore, such a survey can become a tracking survey, if conducted periodically, to measure the changing perceptions of customers over time, as the food, service, and consumer expectations change.

CONCLUSIONS

Greater understanding of university affiliated student-run restaurants is of value to all hospitality management programs. The student learning that takes place in these restaurants is unique. More information about the patrons and the attributes that influence their choices will assist faculty as they position their restaurants for optimal support. The maintenance of a healthy customer base is an excellent way to ensure a successful future of these invaluable learning environments. Furthermore, understanding gained by customer feedback, obtained from a data-driven survey, to assess different dimensions of quality in the SRR operations, can be of immense help to the restaurateurs.

LIMITATIONS

This study has limitations in terms of both methodology and application. The study used a non-random convenience sample due to time, access, and budgetary constraints. In addition no attempt was made to sample non-customers and identify barriers to their patronage. Non-customers may be different from the convenience sample both behaviorally and demographically. In addition, the investigation was conducted at one university during one semester. Customers' perceptions may be different at other places and at other times.

REFERENCES

- Arora, R. and Singer, J. (2006) 'Customer satisfaction and value as drivers of business success of fine dining restaurants', *Services Marketing Quarterly*, 28:1, pp. 89-102.
- ATM Marketplace (2003.) 'Electronic payments surpass cash, checks' (online)(cited 30 [Online].. March 2004). Available from<URL: <http://www.atmmarketplace.com/news> >
- Blattbert, R.C., Getz, G. and Thomas, J.S. (2001) *Customer Equity*. Cambridge, MA: Harvard Business School Press.
- Bojanic, D.C., and Rosen, L.D. (1994) 'Measuring service quality in restaurants: An application of the SERVQUAL instrument', *Hospitality Research Journal*, 18:1, pp. 3-14.
- Brady, M.K., Cronin, J.J., and Brand, R.R. (2002) 'Performance-only Measurement of Service Quality: A Replication and Extension', *Journal of Business Research*, 55:1, pp. 17-31.
- Brierley, J., MacDougall, R., and Hill, N. (2003) *How to Measure Customer Satisfaction*, (2nd eds.). Burlington, VT: Gower Publishing, Ltd.
- Breyfogle, F.W., III, Cupello, J.M., and Meadows, B. (2001) *Managing Six Sigma: A Practical Guide to Understanding, Assessing and Implementing the Strategy that Yield Bottom-line Success*. Chicester, NY; John Wiley & Sons, Inc.
- Daly, S.P. (2001) 'Student-operated Internet businesses: True experiential learning in entrepreneurship and retail management', *Journal of Marketing Education*, 23:3, pp.204-215.
- Delwiche, J. (2004) 'The impact of perceptual interactions on perceived flavor', *Food Quality and Preference*, 15:2, pp.137-146.
- Dube, L., Renaghan, L.M., and Miller, J.M. (1994) 'Measuring Customer Satisfaction for Strategic Management', *Cornell Hotel and Restaurant Administration Quarterly*, 35:1, pp.39-47.
- Feinstein, A.H. (2001) 'An assessment of the effectiveness of simulation as an instructional system in foodservice', *Journal of Hospitality & Tourism Research*, 25:4, pp.421-443.
- Fisk, R.P., Brown, S.W., and Bitner, M.J. (1993) 'Tracking the Evolution of the Services Marketing Literature', *Journal of Retailing*, 69:1, pp. 61-103.

- Frei, B.T. (1995) 'The menu as money maker', *Restaurants and Institutions*, 105:6, pp.144-145.
- Fu, Y.Y., and Parks, S.C. (2001) 'The relationship between restaurant service quality and consumer loyalty among the elderly', *Journal of Hospitality & Tourism Research*, 25:3, pp.320-336.
- George, M.L. (2003) *Lean Six Sigma for Service*. New York, NY, McGraw-Hill.
- Grindy, B. (1999) 'Value Judgments' in Restaurants USA (Online) (cited 23 January, 2004). Available from <URL: <http://www.restaurant.org/>>.
- Harris, K.J., and Bonn, M.A. (2000) 'Training techniques and tools: Evidence from the foodservice industry', *Journal of Hospitality & Tourism Research*, 24:3, pp. 320-335.
- Harris, K.J. and Cannon, D.F. (1995) 'Opinions of training methods used in the hospitality industry: A call for review', *International Journal of Hospitality Management*, 14:1, pp. 76-96.
- Hawkins, D.E. and Weiss, B.L. (2004) 'Experiential education in graduate tourism studies: An international consulting practicum', *Journal of Teaching in Travel & Tourism*, 4:3, pp. 1-29.
- Jennings, L. (2005) 'Fine-dining operators' theme nights break routines, boost covers', *Nation's Restaurant News*, 39:31, p. 1-5.
- Johns, N., Tyas, P., Ingold, T., and Hopkinson, S. (1996) 'Investigation of the Perceived Components of the Meal Experience, Using Perceptual Gap Methodology', *International Journal of Tourism Research*, 2:1, pp.15-26.
- Josiam, B.M., Monteiro, P.A. (2003) 'Tandoori tastes: Perceptions of Indian restaurants in America', *Proceedings of the 5th Biennial Conference on Tourism in Asia: Development, Marketing, & Sustainability. May 2002, Hong Kong SAR, PRC. International Journal of Contemporary Hospitality Management*, 16:1, pp.18-26.
- Josiam, B.M., Sohail, S.M., and Monteiro, P.A. (2007) 'Curry Cuisine: Perceptions of Indian restaurants in Malaysia', *Tourism: An International Multidisciplinary Journal of Tourism*, 2:2, pp. 25-37.
- Kant, A.K. and Graubard, B.I. (2004) 'Eating out in America, 1987-2000: Trends and nutritional correlates', *Preventive Medicine*, 38, pp. 243-249.
- Kivela, J., Inbakaran, R., and Reece, J. (1999) 'Consumer research in the restaurant environment, part 1: A conceptual model of dining satisfaction and return patronage', *International Journal of Contemporary Hospitality Management*, 11:5, pp. 205-24.
- Knutson, B.J. and Patton, M.E. (1993) 'Restaurants can find gold among silver hair: Opportunities in the 55+ market', *Journal of hospitality & Leisure Marketing*, 1:3, pp.79-90.
- Koo, L.C., Tao, F.K.C. and Yeung, J.H.C. (1999) 'Preferential segmentation of restaurant attributes through conjoint analysis', *International Journal of Contemporary Hospitality Management*, 11:5, pp.242-250.
- Lewis, R.C. and Pizam, A. (1981) 'Guest surveys: A missed opportunity', *Cornell Hotel and Restaurant Administration Quarterly*, 22, pp.37-44.
- Parasuraman, A., Berry, L. and Zeithaml, V. (1991) 'Refinement and reassessment of the SERVQUAL scale', *Journal of Retailing*, 67:4, pp.420-450.
- Parasuraman, A., Zeithaml, V., and Berry, L. (1988) 'SERVQUAL: Multiple-item scale for measuring consumer perception of service quality', *Journal of Retailing*, 63, pp.12-40.
- Mehta, S. (1999) 'Strategic implications of an emerging cashless society in the US', *Electronic Markets*, 9:1/2, pp.93-103.

72 Assessing Quality of Food

- Moschis, G., Folkman, C., & Bellenger, D. (2003) 'Restaurant selection preferences of mature consumers', *Cornell Hotel and Restaurant Administration Quarterly*, 44:4, pp.51-59.
- National Restaurant Association (1999) 'Diverse diners'(online) (cited 20 January, 2004). Available from <URL: <http://www.restaurant.org/rusa/magArticle.cfm?ArticleID=26>>.
- National Restaurant Association (2002) 'Credit-card ownership increasing' (online) (cited 22 January, 2004). Available from <URL: <http://www.restaurant.org/research/magarticle.cfm?ArticleID=796>>.
- Nies, J.I. (1993) 'The role of student-operated restaurants in the hospitality curriculum', *Hospitality & Tourism Educator*, 5:3, pp.21-24.
- Pew Research Center, Social Trends Report (2006) 'Eating More; Enjoying Less'(online) (cited 1 August 2006). Available from <URL: <http://pewresearch.org/assets/social/pdf/Eating.pdf>>.
- Rojas, R.R. (2000) 'A review of models for measuring organizational effectiveness among for-profit and nonprofit organizations', *Nonprofit Management & Leadership*, 11:1, pp. 97-104.
- Raajpoot, N.A. (2002) 'TANGSERV: A Multiple Item scale for Measuring Tangible Quality in Foodservice Industry', *Journal of Foodservice Business Research*, 5:2, pp.109-127.
- Schall, M. (2003) 'Best practices in the assessment of hotel-guest attitudes', *Cornell Hotel and Restaurant Administration Quarterly*, 44:2, pp.51-65.
- Shank, M.D., and Nahhas, F. (1994) 'Understanding the service requirements of the mature market', *Journal of Restaurant & Foodservice Marketing*, 1:2, pp. 23-43.
- Silver, D. (2000) 'Active Service Restaurants and Institutions' (online) (cited 20 January 2004). Available from<URL: <http://www.rimag.com/004/sr.htm>>.
- Soriano, D.R. (2002) 'Customers' expectations factors in restaurants: The situation in Spain', *The International Journal of Quality & Reliability*, 19:8/9, pp.1055-1068.
- Stevens, P., Knutson, B., and Patton, M. (1995) 'DINESERV: A tool for measuring service quality in restaurants', *Cornell Hotel and Restaurant Administration Quarterly*, 36:2, pp.56-61.
- Sulek, J.M., and Hensley, R.L. (2004) 'The relative importance of food, atmosphere, and fairness of wait: The case of a full-service restaurant', *Cornell Hotel and Restaurant Administration Quarterly*, 45:3, pp. 235-247.
- U.S. Census Bureau (2001) 'Money income in the United States: 2001'(online) (cited 22 January 2004). Available from <URL: <http://www.census.gov/prod/2002pubs/p60-218.pdf>>.
- Wakefield, K.L., and Blodgett, J.G. (1999) 'Customer Response to Intangible and Tangible Service Factors', *Psychology & Marketing*, 16:1, pp..51-68.
- Walker, J.R., and Lundberg, D.E. (2000) *The Restaurant from Concept to Operation* (3rd edn.). New York, NY, John Wiley & Sons, Inc.
- Wardle, J., Haase, A.M., Steptoe, A., Nillapun, M., Jonwutiwes, K., and Bellisle, F. (2004) 'Gender differences in food choice: The contribution of health beliefs and dieting', *The Society of Behavioral Medicine*, 27:2, pp. 107-116.

- West B.M., and Farley, G.A. (1991) 'A cost-effective quantity food lab through the use of shared resources', *Hospitality & Tourism Educator*, 4:1, pp.15-20.
- Yuksel, A., and Yuksel, F. (2002) 'Measurement of tourist satisfaction with restaurant services: A segment-based approach', *Journal of Vacation Marketing*, 9(1), pp.52-68.
- Yuksel, A. (2003) 'Market segmentation based on customers' post-purchase performance evaluation: A case of tourist diners', *Journal of Travel & Tourism Marketing*, 15:1, pp.1-18.
- Zeithaml, V.A. (2000) 'Service quality, profitability, and the economic worth of customers: What we know and what we need to learn', *Journal of Academy of Marketing Science*, 28:1, pp.67-85.

Dr. Bharath M. Josiam is Professor at Hospitality & Tourism Management University of North Texas, Denton, Texas, USA. Email: josiamb@unt.edu.

Rosa Malave, Lecturer and Career Development Coordinator, University of North Texas, Denton, Texas, USA. Email: Rosa.Malave@unt.edu.

Charles Foster, Lecturer and General Manager – Club at Gateway Center, University of North Texas, Denton, Texas, USA. Email: crf0031@gmail.com.

Watson Baldwin, Lecturer and Chef – Club at Gateway Center, University of North Texas, Denton, Texas, USA. Email: watson.baldwin@polyu.edu.hk.

DIMENSIONAL ANALYSIS OF CUSTOMER EXPERIENCE IN CIVIL AVIATION SECTOR

Vinay Chauhan

Deepak Manhas

Creating a superior customer experience has been gaining increased attention in the service sector. The diverse market offerings that stimulate enduring experience, which customers cherish, have competitive edge over most competing products or services. Customer experience acts as an emerging opportunity in this fast-paced highly competitive world, especially in the new horizon of experience economy. Due to an increasing growth rate and diversity of airline passengers, customer experience is emerging as a critical element in civil aviation sector. It is crucial for airlines to offer great experiences to passengers in order to gain a competitive advantage. This paper thus examines the nature and extent of customer experience in civil aviation sector. More specifically, the study explores dimensions of customer experience in civil aviation sector using EFA. The study is based on data of sample size of 1005 respondents from selected airlines namely Air India, Jet Airways and Kingfisher. The results of exploratory factor analysis, hierarchical regression model and ANOVA depict that customer experience is a multidimensional construct. It further suggests that there is a significant impact of experiential dimensions on overall customer experience. and there exists significant difference on the basis of airlines regarding customer experience. The results also reveal that Jet Airways has higher level of customer experience followed by Kingfisher and Air India.

INTRODUCTION

Customer experience acts as an emerging opportunity in this fast-paced highly competitive world especially in the new horizon of experience economy. The notion of customer experience, and its impact on business, is now receiving great attention (Pralhad and Ramaswamy, 2004; Klaus, 2011). Managing the customer experience has become a crucial strategic ingredient for service organizations (Klaus, 2011). Airlines and other stakeholders are beginning to pay attention to customer experience (Graham, 2001) thereby improving customers' air travel experiences. Customer experience originates from a set of interactions between a customer and an organisation, which provoke a reaction. This experience implies that the customer's involvement at different levels is rational, emotional, sensorial, physical, and spiritual (Gentile, Spiller, and Noci, 2007). Customer experience is the difference between what the customer thinks they should be getting and the experience that they receive (Mil-

76 Dimensional Analysis of Customer

lard, 2006). Customer experience is intended at enhancing relationships with customers and builds customer loyalty. Creating superior customer experiences is now seen as a key objective for service organizations (Verhoef *et al.*, 2009) in their efforts to build customer loyalty. The feelings and reactions of customers while consuming a service have recently been recognized as an important part of customer evaluation and satisfaction with service (Otto and Richie, 1995). The concept 'customer experience' was formulated in 1982 by Holbrook and Hirschman as a new experiential approach to consumer behavior. From a managerial point of view, the landmark work by Pine and Gilmore (1998) ignited extensive interest into a new management paradigm which emphasizes the switch from service delivery to experience creation.

The current trend in business world is to create lasting experiences for the customers (Carbone, 1998; Pine and Gilmore, 1998; Rowley, 1999; Berry *et al.*, 2002; Gilmore and Pine, 2002). Differentiating solely on the traditional physical elements such as price, delivery and lead times is no longer an effective business strategy because the new differentiator today is customer experience (Shaw and Ivens, 2002). In the past, companies have primarily focused on the physical aspects of the product, while totally neglecting the emotional and value aspects and hence, losing many customers in the long run (Nunes and Cespedes, 2003). Additionally, Berry *et al.*, (2002) argued that the emotion clues are just as important to the customer experience and work synergistically with functional clues. It is the composite of all the clues that make up the customer's total experience. To compete successfully in this customer experience territory, a growing number of organizations are systematically applying the principles and tools of total customer experience to generate, strengthen and sustain enduring lasting customer loyalty.

According to Pine and Gilmore, the experiences provided are directly related to the business's ability to generate revenue. Consumers develop the recognition of a company, brand, product, or service from the provider after they get experiences from attending activities and being stimulated by them (Schmitt, 1999). Experiences that are stored in consumers' memory are valuable information sources in that they act as internal information for future decision making (Hoch and Deighton, 1989). Pine and Gilmore (1999) opined that the world's economy has changed drastically from ser-

vice based to experience based in the past few years and will continue to change as our needs and societies change. In years past, both research and management practices have focused on quality and productivity, as they are critical in marketing a business' services. However, their concerns are limited in addressing imperative issues like consumer experience. An experience occurs when a company intentionally provides superior services to engage individual customers in a way that creates a memorable event (Pine and Gilmore, 1998). These experiences engage the customers to create memories within them (Gilmore and Pine, 2002). Hence, the diverse market offerings that generate enduring experience that customer cherishes have competitive edge over most competing products or services. This understanding of customer experience necessitates examining and factoring dimensions affecting customer experience in civil aviation sector

REVIEW OF LITERATURE

The subsequent section summarizes the existing literature on service experience research. Researchers like Schembri (2006) believe that the customers' service experience should be the focus of research as it is the key determinant of consumers' service delivery. The "Customer Experience" concept has aroused interest amongst researchers around the world. Providing superior products and excellent service are critical factors in today's business world. Customers are becoming more and more experience-oriented and airline companies have to be aware of the factors that have an influence on customer experience. Frow and Payne (2007), in a research study examined the concept of customer experience and suggested strategies for achieving outstanding customer experience at an affordable cost, leading to customer loyalty. Verhoef *et al.* (2009) examined the customer experience by proposing a conceptual model to discuss the various determinants of customer experience. The results revealed that prior customer experience will influence future customer experiences. Kim, Ritchie and McCormick (2012) developed a valid and reliable measurement scale comprising of seven domains viz., hedonism, refreshment, local culture, meaningfulness, knowledge, involvement, and novelty. Further, Otto and Ritchie (1996) enhanced the understanding of the service experience in tourism by developing and testing a scale across three different tourism industries viz., hotels, airlines and tours and attractions.

78 Dimensional Analysis of Customer

Pareigis *et al.* (2011) identified and described that various dimensions like customer involvement, safety and physical artefacts that are important for the customer experience in the context of public transport travellers. The results showed the importance of interactions with other customers and the physical environment in enhancing the customer's experience. This view point is also supported by Tsiros and Parasuraman (2006) who found that interactions among customers can have profound effects on the service experience. Pentina *et al.* (2011) identified different categories of online shopping experiences and concluded that online shopping experiences increased browser satisfaction and increased sales and traffic to online stores. Klaus and Maklan (2012) empirically validated multiple-item scale for measuring customers' service experience and found that the service experience has a significant impact on customer satisfaction, loyalty and word-of-mouth intentions. Lemke, Clark and Wilson (2010) in their study proposed a conceptual model for customer experience quality and found that customer experience positively influenced customer relationship outcomes. Bel (2005) conducted the research study to integrate key concepts into a comprehensive managerial framework for experience marketing in the airline industry. The framework accounts for the sequential unfolding of the air travel experience and provide a customer-centric perspective of the air travel experience. In another study Grace and Cass (2004) found that the service experience was found to significantly effect feelings, satisfaction and brand attitudes. Moufakkir (2010) empirically examined policy of pay for in-flight food and drinks on travelers' experience. Most travelers did not support this policy and related issues, such as intention to pay, pay arrangement, and desired mode of payment.

Xu and Chan (2010) explored service experience in the context of package tours and decomposed it into four dimensions namely "recognition and escapism", "peace of mind and relaxation", "hedonics" and "involvement", which have direct influence on overall tourist satisfaction and behavioral intention. Jensen (2012) in a research paper investigates how consumers' travel experience and shopping orientation toward travel shopping influences their tendency to shop for travel products on the internet. Using data from 256 respondents, the results revealed that shopping orientation and travel experience both influence travelers' intentions to shop travel products online. Pine and Gilmore (1999) argued that creating

a distinctive customer experience can provide enormous economic value for firms. Ruiping and Yujuan (2006) found that the service delivery system based on customers' experience help the customers obtain the good experiences and improve the profitability of customers. Therefore, what comes out as a synthesis based on the above findings of review of literature is that the customer experience directly influences service quality, customer relationship, customer satisfaction, sales, feelings, satisfaction and brand attitudes, behavioral intention, enormous economic value for firms, and profitability of customers. Marketers today believe that enhancing customer experience and lasting customer loyalty are important for maintaining customer focus and creating customer preference.

Research Gap

A large number of research studies have been conducted dealing with impact of customer experience in context of service organizations. However, most of them have restricted themselves to customer experience outcomes and its impact on the tourist satisfaction (Xu and Chan, 2010; Pentina *et al.*, 2011), customer loyalty (Klaus and Maklan, 2011) and behavioral intentions (Jensen (2012)). Whereas less consideration is given to measure and conduct research on the dimensions of customer experience in Indian civil aviation sector, which necessitates the need and relevance of present study. The study is descriptive, exploratory and comprehensive in nature as it validates the various dimensions of customer experience scale. Therefore, in order to bridge the gap in extant literature, present study is undertaken to investigate the customer experience in Indian civil aviation sector in terms of objectives and hypotheses as discussed below.

OBJECTIVES

The objectives of the study are outlined as :

1. To examine the nature and extent of relevance of customer experience in civil aviation sector.
2. To explore dimensions underlying the customer experience.
3. To investigate the impact of experiential dimensions on overall customer experience.
4. To identify the significant differences in various airlines regarding customer experience.

80 Dimensional Analysis of Customer

HYPOTHESES FORMULATION

1. Customer experience is a multidimensional construct.
2. There is significant impact of experiential dimensions on overall customer experience
3. There exists significant difference on the basis of airline regarding customer experience.

RESEARCH METHODOLOGY

The primary data have been collected with the help of a questionnaire developed after extensive review of literature (Kim *et al.*, 2012; Palmer, 2010; Otto and Ritchie, 1996; Xu and Chan, 2010; Gentile, Spiller and Noci, 2007; Oliver, Rust and Varki, 1997; Pine and Gilmore, 1998; Kim, Ritchie and McCormick, 2010) and discussions with the experts. The primary data was obtained from the respondents travelled in airlines under study through stratified sampling technique (Liu and Liu, 2008; Hsu, 2009). The questionnaire was finalised after conducting a pilot survey to ensure its reliability and validity. There are different qualitative and quantitative technique to measure customer experience. Due to convenience of survey research, its versatility, efficiency, and generalizability, survey method (Otto and Ritchie, 1999; Novak, Hoffman and Yung, 2000) was employed to collect data from respondents in order to measure customer experience. However, discussions with some of the representative sample have also been used as an input, while drawing conclusions and making suggestions. The questionnaire comprised of two sections. Section A, consisted of 6 items relating to respondents' profiling, whereas, section B had 46 items relating to customer experience measurement. One additional item in the form of 47th statement, 'Overall Customer Experience is Memorable' was been incorporated in the questionnaire as an independent measure of overall customer experience. All the statements in the section B were based on 5 points Likert scale ranging from 5 = Strongly Agree and 1 = Strongly Disagree. Cronbach Alpha and split half as a test of reliability (Malhotra, 2008) have been worked on total number of respondents (N=1005). The data have proved quite reliable in terms of split half reliability as mean obtained from both halves of respondents are satisfactory (Group I= 3.72 and Group II= 3.67). Moreover, Cronbach's Alpha value of .869 also proved reliability as it is greater than the threshold value

of .70 (Table1). The Content and Construct Validity was duly assessed through review of literature and discussions with the experts representing both academia and practising managers of representative airlines. Moreover, higher Kaiser-Meyer-Olkin Measures of Sampling Adequacy values (.846) and Bartlett's Test of Sphericity (2948.051) and Variance Explained (71.641%) also represent the construct validity. Convergent Validity has also been satisfied as communalities of all items were above .50 (Field, 2003).

Table 1: Split half Reliability and Cronbach Alpha

Group	Mean & Alpha
Group I	3.72
Group II	3.67
Cronbach's Alpha	.869

For making the study exhaustive and representative the respondents have been surveyed from the five airports of north India viz., Jammu airport, Chandigarh airport, Srinagar airport, Amritsar airport and New Delhi airport; travelling in three major airlines of civil aviation sector. In order to draw proportionate sample for each strata, a sample size of 1005 customers was contacted in five select airports i.e. 201 from each airports viz., Jammu (201); Srinagar (201), Chandigarh (201); Amritsar (201), New Delhi (201). The data after purification through factor analysis was subjected through various statistical tools like ANOVA and regression analysis.

FINDINGS AND DISCUSSIONS

The findings and discussion of the study have been summarised as under:-

The demographic factors of the customers in select airports of India have been discussed in detail on the basis of their respective percentage values, which are as follows:-

Out of the total respondents of 1005, the number of male respondents figured higher 684 (68%) than their female counterparts 321 (32%). More than half of the total respondents were married 603 (60%). The number of respondents 444 (44%) in the age group of 21-40 years is the highest followed by respondents 419 (42%) in the age group of 41-60 years. Majority of the respondents are post graduate 465 (46%) followed by graduate 333 (33%). Majority of the respondents are employed in public sector

82 Dimensional Analysis of Customer

(34%) followed by private sector (31%). Out of the total respondents, 327 (33%) respondents were from Air India, 327 (32%) respondents were from Kingfisher, 351 (35%) respondents were from Jet Airways. This detail is summarized in the Table 2.

Table 2: Customer profiling (Demographics)

Variables	N	%	Variables	N	%
Gender			Occupation		
Male	684	68	Self employed	195	19
Female	321	32	Employed (private sector)	315	31
Marital status			Employed (public sector)	340	34
Single	402	40	Others	155	15
Married	603	60	Airline		
Age			Air India	327	33
Less than 21	55	5	Jet Airways	351	35
21-40	444	44	Kingfisher	327	32
41-60	419	42			
Above 60	87	9			
Qualification					
Up to graduation	333	33			
Post graduation	465	46			
Professional	207	21			

COMPARATIVE ANALYSIS OF CUSTOMER EXPERIENCE AMONG THE SELECT ORGANISATIONS

Customer experience in the civil aviation sector is reflected in the table 3 which shows that the respondents of Jet Airways have rated 'airline has efficient baggage handling mechanism' the highest value(4.68) and 'flight schedules are convenient' the lowest value (2.24). Where as respondents of Kingfisher Airline have rated 'employees show sincere interest in solving problems (flight cancellation, baggage loss, etc.' the highest value (4.25) and 'flight schedules are convenient' the lowest value (2.45). Similarly, respondents of Air have India have rated "I was doing something thrilling" the highest value (4.34) and 'planes are safe from all sorts of threat' the lowest value (2.16). Additionally, respondents of Jet Airways have rated 'I could communicate freely with employees' the highest value (4.47) fol-

lowed by respondents of Kingfisher airline (3.64) and Air India (3.53). Where as respondents of Kingfisher airline have rated 'I felt a sense of cooperation between employee and me' the highest value (3.96) followed by respondents of Air India (3.64) and Jet Airways (3.53).

Additionally, respondents of Kingfisher airline have rated 'Airline provides excellent quality in-flight services' the highest value (3.68) followed by respondents of Air India (3.58) and Jet Airways (2.76). Where as respondents of Jet Airways have rated 'I felt a sense of cooperation between employee and me' the highest value (3.76) followed by respondents of Air India (3.33) and Kingfisher airline (3.23). Where as respondents of Jet Airways have rated 'Airport is safe place against threat of all sorts' the highest value (4.40) followed by respondents of Air India (3.78) and Kingfisher airline (3.67). Where as respondents of Jet Airways have rated 'Airline has efficient baggage handling mechanism' the highest value (4.68) followed by respondents of Air India (2.83) and Kingfisher airline (2.78). However, on the whole, the respondents have accorded the highest mean score to the items, 'Employees show sincere interest in solving problems (flight cancellation, baggage loss, etc)'(4.34), followed by 'I was doing something thrilling'(4.18), followed by 'The air travel felt like a change from routine'(4.15) followed by 'The air travel truly felt like an escape'(4.14), followed by 'Airline staff are interested in customers' well being (4.14), followed by 'I felt like I was on an adventure'(4.11), followed by 'My boredom was alleviated while air travelling' (4.04). However, the respondents assigned lowest mean scores to the items namely 'Flight Schedules are Convenient' (2.34), followed by 'Planes are safe from all sorts of threat' (2.54), followed by 'I was in a different world' (2.64), followed by 'I had a good time because I was able to act on the "spur of the moment"' (2.94), followed by 'I felt really lucky during this travel'(3.15) followed by 'Airline provides modern aircraft for passengers' (3.15).

Therefore, it can interpreted from the above that respective airlines must keep up the good work for all the items with mean values more then 3 on 5 point scale simultaneously improvising on all the variables with mean values less then the mid value of 3 on 5 point scale.

84 Dimensional Analysis of Customer

Table 3: Comparative Analysis of Customer Experience among the Select Organisations

S.No.	Variables	Mean			GM
		JA	KA	AI	
1	Airline makes one feel that one can trust them and have confidence in them	4.26	3.96	4.11	4.11
2	Airline provides modern aircraft for passengers	3.76	3.03	2.66	3.15
3	Planes are safe from all sorts of threat	2.78	2.68	2.16	2.54
4	Employees show sincere interest in solving problems (flight cancellation, baggage loss, etc.	4.60	4.25	4.17	4.34
5	I could communicate freely with employees	4.47	3.64	3.53	3.88
6	I enjoyed being immersed in exciting new products	3.69	3.43	3.47	3.53
7	I felt a sense of personal security	2.79	3.42	3.48	3.23
8	It was a very nice time out	2.59	3.43	3.31	3.11
9	I felt a sense of cooperation between employee and me	3.76	3.96	4.13	3.95
10	The air travel truly felt like an escape	4.19	4.19	4.04	4.14
11	I was doing something thrilling	3.95	4.24	4.34	4.18
12	I was having a once in a lifetime experience	3.09	3.98	3.88	3.65
13	I felt quite relaxed during air travel	3.93	3.11	2.89	3.31
14	I felt like an element of surprise	3.58	3.83	3.75	3.72
15	Airline provides excellent quality in-flight services	2.76	3.68	3.58	3.34
16	I feel my belongings are safe during air travel	3.76	3.23	3.33	3.44
17	I was doing something new and different	2.84	3.76	3.66	3.42
18	Airline has comfortable seats	3.38	3.13	3.18	3.23
19	Airport is safe place against threat of all sorts	4.40	3.67	3.78	3.95

S.No.	Variables	Mean			GM
		JA	KA	AI	
21	I had some choice in the way things were done	2.95	3.65	3.54	3.38
22	The time spent in air travel was truly enjoyable.	3.40	3.55	3.67	3.54
23	I continued to travel, not because I had to, but because I wanted to.	3.26	3.50	3.56	3.44
24	I had a good time because I was able to act on the "spur of the moment."	3.75	2.50	2.57	2.94
25	The air travel felt like a change from routine	4.63	3.96	3.86	4.15
26	I feel extremely safe during air travel	3.82	3.55	3.58	3.65
27	I was in a different world	2.59	2.65	2.68	2.64
28	I was doing something I really like to do	3.49	3.36	3.41	3.42
29	I was being stimulated or challenged in some way	3.18	3.78	3.72	3.56
30	I had a chance to meet interesting people	4.10	3.45	3.52	3.69
31	I felt really lucky during this travel	2.97	3.22	3.26	3.15
32	Airline staff are interested in customers' well being	4.58	3.89	3.95	4.14
33	I felt like I was on an adventure	4.30	3.97	4.06	4.11
34	My boredom was alleviated while air travelling	3.92	4.11	4.09	4.04
35	I feel safe when buying online tickets	3.88	3.56	3.45	3.63
36	Customer can check-in through internet by themselves	3.43	3.48	3.44	3.45
37	Flight Schedules are Convenient	2.24	2.45	2.33	2.34
38	The airline has comfortable waiting lounges.	3.95	3.79	3.75	3.83
39	Customer can book tickets on line easily.	3.74	3.61	3.63	3.66
41	Airline provide Hassle free Check-in	4.07	3.31	3.33	3.57
42	The airline has other travel related partners,(e.g. car rentals, hotels)	3.50	3.55	3.51	3.52

86 Dimensional Analysis of Customer

S.No.	Variables	Mean			GM
		JA	KA	AI	
44	Employees of airline are willing to help passenger	4.35	3.44	3.49	3.76
45	I played a role in or contributed to the service process	3.77	3.11	3.05	3.31
46	During air travel I felt the excitement of the hunt	3.98	3.78	3.82	3.86
47	My overall service experience is memorable	4.67	3.88	3.78	4.11

JA= Jet Airways, KA= Kingfisher Airline, AI= Air India, GM= Grand Mean

Testing of hypotheses

H1: Customer experience is a multidimensional construct.

The multidimensional nature of customer experience has received considerable academic attention in the past few years. But the way the customer experience constructs have been operationalized and the relative contribution of each dimensions on overall customer experience is still shrouded in uncertainty. The present study adopts customer experience as a multi dimensional construct. Also, previous dimensions and research studies were adequately considered before explaining factorial dimensions of customer experience. The technique of exploratory factor analysis has been used through Statistical Package for Social Sciences (SPSS, 17 Version) with Principal component analysis along with varimax rotation for summarisation of the total data in to minimum meaningful factors. The items having factor loading less than 0.5 and Eigen values less than 1 were ignored for the subsequent analysis (Hair *et al.*, 2009). With the application of factor analysis the customer experience measurement scale comprising of total 46 statements was reduced to 35 statements that converged to five factors with 71.641% of variance explained (Table 3).

Table 4 EFA: Customer Experience and Factors Influencing Customer Experience in Airlines Dimensions

	Variables	VM	SD	FL	C	MF	EV	VE	CA	
Hedonism	The air travel truly felt like an escape	4.14	0.93	.976	.960	3.64	8.133	20.572	.973	
	During air travel I felt the excitement of the hunt.	3.86	0.85	.953	.955					
	While travelling, I was able to forget my problems.	3.23	0.74	.921	.951					
	The time spent in air travel was truly enjoyable.	3.54	0.77	.916	.941					
	It was a very nice time out.	3.63	0.56	.877	.923					
	I enjoyed being immersed in exciting new products/service.	3.53	0.73	.853	.916					
	I felt really lucky during this air travel	3.15	0.67	.800	.648					
	I felt like I was on an adventure.	4.11	0.47	.797	.643					
Novelty	I was doing something thrilling	4.18	0.90	.970	.951	3.78	5.962	19.042	.967	
	I was doing something new and different	3.54	0.78	.944	.943					
	I felt like an element of surprise	3.72	0.86	.911	.934					
	The air travel felt like a change from routine	4.15	0.69	.879	.910					
	I was having a once in a lifetime experience	3.65	0.80	.848	.906					
	I felt quite relaxed during air travel	3.31	0.78	.839	.888					
	My boredom was alleviated while air travel	4.04	0.63	.637	.456					
	I had a chance to meet interesting people	3.69	0.84	.636	.474					
Safety	Airport is safe place against threat of all sorts	3.95	0.69	.834	.860	3.39	4.294	12.070	.905	
	Planes are safe from all sorts of threat	2.54	0.72	.811	.854					
	I feel my belongings are safe during air travel	3.44	0.98	.779	.839					
	I feel safe when buying online tickets	3.63	0.74	.745	.657					
	Airline provides modern aircraft.	3.15	0.83	.723	.655					
	I feel extremely safe during air travel	3.65	0.57	.692	.517					
Recognition	Employees show sincere interest in solving problems (flight cancellation, baggage loss, etc.)	4.34	0.73	.861	.781	3.96	2.591	10.780	.875	
	Airline makes you feel that you can trust them and have confidence in them	4.11	0.87	.860	.782					
	I could communicate freely with employees	3.88	0.63	.858	.780					
	I had some choice in the way things were done	3.38	0.83	.730	.605					
	I felt a sense of cooperation between employee and me	3.95	0.53	.728	.602					
	Airline staff are interested in customers' well being.	4.14	0.96	.658	.500					
Comfort	Airline provide hassle free check-in	3.57	0.46	.756	.582	3.51	1.095	8.997	.784	
	The airline has comfortable waiting lounges	3.83	0.89	.732	.542					
	Customer can book tickets on line easily	3.66	0.95	.677	.524					
	The airline has comfortable seats	3.23	0.68	.612	.495					
	Airline provides excellent quality In-flight services	3.34	0.77	.608	.485					
	The airline has other travel related partners,(e.g. car rentals, hotels, travel insurance)	3.52	1.03	.603	.503					
	Airline has efficient baggage handling mechanism	3.43	0.64	.597	.493					
Grand		3.65 (Mean)							71.641 (VE)	

VM= Variable Mean, SD= Standard Deviation, FL= Factor Loadings, C= Commonalities, MF= Mean of Factor, EV= Eigen Values, VE= Variance Explained and CA= Cronbach Alpha

88 Dimensional Analysis of Customer

Customer Experience

The overall mean score of this dimension was 3.65 indicating high level of customer experience being felt by those passengers who travel on airlines under study. The total variance explained for Customer Experience was 71.641. This dimension came up with five factors viz., Hedonism, Novelty, Safety, Recognition, Comfort. These factors are discussed in detail as below:-

Hedonism (F1): The first factor having mean= 3.64 with Eigen value 8.133 comprised of eight items (Table). The item 'the air travel truly felt like an escape' has the highest factor loading (.976) indicating high association with this factor. The item 'felt like an adventure' having the least factor loading (.797) and therefore stands least associated with this factor.

Novelty (F2): The second factor having mean= 3.78 with Eigen value 5.962 comprised of eight statements. The item 'doing something thrilling' has the highest factor loading (.970) and therefore this item stands highly associated with this factor. About 87% of the total respondents felt their boredom was alleviated while traveling by air (4.04) and had a chance to meet interesting people (3.69). The mean values of the items under this factor range from 3.69 to 4.18.

Safety (F3): The third factor having mean= 3.39 with Eigen value 4.294 comprised of six statements. The item 'Airport is safe place against threat of all sorts' has the highest factor loading (.834) and therefore this item stands highly associated with this factor. The item 'feel extremely safe during air travel' has the lowest factor loading (.692) and therefore stands least associated with this factor.

Recognition (F4): The fourth factor having mean= 3.96 with Eigen value 2.591 comprised of six statements. About 84% of the total respondents felt 'a sense of cooperation between employee and me' (3.95) and had some choice in the way things were done (3.38). The mean values of the items under this factor range from 4.14 to 4.34.

Comfort (F5): The fifth factor having mean= 3.51 with Eigen value 1.095 comprised of seven statements. The item 'Airline provide hassle free check-in' has the highest factor loading (.756) and therefore this item stands highly associated with this factor. About 52% of the total respondents observed airline provide hassle free check-in (3.57) and about 51% of the total respondents found customer can book tickets on-line easily (3.66).

Therefore, the results supports the hypothesis “*Customer experience is a multidimensional construct.*”

H2: There is significant impact of experiential dimensions on overall customer experience

Table 5: Regression Analysis: Impact analysis of customer experience dimensions on overall customer experience

Model	R	R2	Adjusted R2	Std. Error of Estimate	F value ANOVA	Sig. level	β	Durbin-Watson
a	.413	.170	.170	.29999	206.065	.000	.394	2.077
b	.566	.320	.319	.27165	236.228	.000	.415	
c	.689	.474	.473	.23903	301.123	.000	.397	
d	.770	.593	.592	.21038	364.580	.000	.349	
e	.829	.687	.685	.18462	438.633	.000	.308	

a. Predictors: (Constant), Safety

b. Predictors: (Constant), Safety, Hedonism

c. Predictors: (Constant), Safety, Hedonism, Novelty

d. Predictors: (Constant), Safety, Hedonism, Novelty, Recognition

e. Predictors: (Constant), Safety, Hedonism, Novelty, Recognition, Comfort

f. Dependent Variable: Overall Customer Experience is Memorable

The regression model equation is as following:

$$OCE = \alpha + \beta_1 F_1 + \beta_2 F_2 + \beta_3 F_3 + \beta_4 F_4 + \beta_5 F_5$$

$$OCE = .242 + .394 H + .415 N + .397 S + .349 R + .308 C$$

Where α = constant, β_1 β_2 β_3 β_4 β_5 represents coefficient of regression for the different independent factors, OCE= Overall Customer Experience, H = Hedonism, N= Novelty, S= Safety, R = Recognition and C = Comfort. When H is increased by one unit, OCE increases by .394. Similarly, when N, S, R, C increases by one unit, OCE increases by .415, .397, .349, .308 respectively. The result of step-wise regression analysis enticed five independent factors as significant in predicting the dependent variable. These were: ‘Safety’, ‘Hedonism’, ‘Novelty’ and ‘Recognition’, ‘Comfort’. The correlation between predictor and outcome is positive with values of R as .413, .566, .689, and .770, .829 which signifies high correlation between predictor and the outcome.

In model ‘a’, R is .413 which indicates 41% association between de-

90 Dimensional Analysis of Customer

pendent and independent variable. R-Square for this model is .170 which means that 17% of variation in overall customer experience can be explained from the independent variable. Adjusted R square (.170) indicates that if anytime another independent variable is added to the model, the R-square will increase. Further beta values reveal significant relationship of independent variables with dependent variable. Similarly in model 'e' R is .829 which indicates 82.9 % association between dependent and independent variables. R-Square for this model is .687 which means that 68.7 % of variation in overall customer experience can be explained from the independent variables namely Safety, Hedonism, Novelty, Recognition and Comfort. Adjusted R square (.685) indicates that if anytime another independent variable is added to model, the R-square will increase, but in the present context since the value is quite close to 0.7 , therefore it rejects the need for inclusion of more variables. *Safety* has emerged as the strongest predictor whereas *Comfort* is found to be the weakest as represented by relative t-values. Change in R-square is also found to be significant with F-values significant at 5% confidence level. Therefore, the aforesaid findings support the hypothesis “*There is significant impact of experiential dimensions on overall customer experience.*”

H3: There exists significant difference among various airlines regarding customer experience

To test third hypothesis, The respondents have been classified into three categories on the basis of airline, viz., Air India (33%), Kingfisher (35%), Jet Airways (32%). To find out the mean difference among different airline groups regarding customer experience measurement, Univariate Analysis of Variance (ANOVA) was applied.

Table 6a ANOVA: Differences in Overall Customer Experience among select airlines

Dimension	Source of variations	Sum of Squares	df	Mean Square	F	Sig.
Overall Customer Experience	Between Groups	2.384	2	1.192	14.342	.000
	Within Groups	83.292	1002	.083		
	Total	85.676	1004			

Table 6b ANOVA: Differences in Dimension wise Customer Experience Among Airlines

Dimensions	Source of variations	Sum of Squares	df	Mean Square	F	Sig.
Hedonism(F1)	Between Groups	.341	2	.171	.364	.695
	Within Groups	469.640	1002	.469		
	Total	469.981	1004			
Novelty(F2)	Between Groups	7.016	2	3.508	7.159	.001
	Within Groups	491.046	1002	.490		
	Total	498.063	1004			
Safety(F3)	Between Groups	3.841	2	1.920	4.173	.016
	Within Groups	461.078	1002	.460		
	Total	464.919	1004			
Recognition(F4)	Between Groups	4.744	2	2.372	6.370	.002
	Within Groups	373.133	1002	.372		
	Total	377.877	1004			
Comfort(F5)	Between Groups	.713	2	.357	1.009	.365
	Within Groups	353.979	1002	.353		
	Total	354.692	1004			
	Total	85.676	1004			

On the whole, ANOVA reveals significant mean difference of customer experience among the respondents belonging to different airline groups ($F=14.342$, $Sig. =.000$, Table 5a). Further, individual factor wise analysis also disclosed significant mean difference in three factors out of five factors, viz., F2(F2: $Sig.=.001$), F3(F3: $Sig.=.0016$), F4(F4: $Sig.=.002$). Only two factors F5 (F5; $Sig. =.365$) and F1 (F1: $Sig. = .695$) had insignificant difference regarding customer experience measurement among respondents belonging to different airline. Further, Post hoc test was applied to examine the significant mean differences of customer experience among respondents belonging to different airline groups. Results revealed significant mean difference between Air India and Jet Airways ($Sig. = 0.000$), kingfisher and Jet Airways ($Sig. = 0.001$) but insignificant mean difference between Air India and kingfisher ($Sig. = 0.058$, Table-5c). Therefore, the results support the hypothesis “*There exists significant difference among various airlines regarding customer experience.*”

92 Dimensional Analysis of Customer

Table-6 (c): POST-HOC Tests

Multiple Comparisons							
Least Significant Difference							
Dependent Variable	(I) AIRLINE	(J) AIRLINE	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Hedonism(F1)	AIR INDIA	KINGFISHER	.01133	.05322	.831	-.0931	.1158
		JET AIRWAYS	-.03198	.05275	.545	-.1355	.0715
	KINGFISHER	AIR INDIA	-.01133	.05322	.831	-.1158	.0931
		JET AIRWAYS	-.04331	.05275	.412	-.1468	.0602
	JET AIRWAYS	AIR INDIA	.03198	.05275	.545	-.0715	.1355
		KINGFISHER	.04331	.05275	.412	-.0602	.1468
Novelty (F2)	AIR INDIA	JET AIRWAYS	-.20247*	.05394	.000	-.3083	-.0966
		AIR INDIA	.12538*	.05442	.021	.0186	.2322
	KINGFISHER	JET AIRWAYS	-.07710	.05394	.153	-.1829	.0287
		AIR INDIA	.20247*	.05394	.000	.0966	.3083
	JET AIRWAYS	KINGFISHER	.07710	.05394	.153	-.0287	.1829
		AIR INDIA	.01893	.05273	.720	-.0845	.1224
Safety(F3)	AIR INDIA	KINGFISHER	-.01893	.05273	.720	-.1224	.0845
		JET AIRWAYS	-.11990*	.05227	.022	-.2225	-.0173
	KINGFISHER	AIR INDIA	-.01893	.05273	.720	-.1224	.0845
		JET AIRWAYS	-.13884*	.05227	.008	-.2414	-.0363
	JET AIRWAYS	AIR INDIA	.11990*	.05227	.022	.0173	.2225
		KINGFISHER	.13884*	.05227	.008	.0363	.2414
Recognition(F4)	AIR INDIA	KINGFISHER	-.08560	.04744	.071	-.1787	.0075
		JET AIRWAYS	-.16782*	.04702	.000	-.2601	-.0756
	KINGFISHER	AIR INDIA	.08560	.04744	.071	-.0075	.1787
		JET AIRWAYS	-.08222	.04702	.081	-.1745	.0100
	JET AIRWAYS	AIR INDIA	.16782*	.04702	.000	.0756	.2601
		KINGFISHER	.08222	.04702	.081	-.0100	.1745
Comfort (F5)	AIR INDIA	KINGFISHER	-.03280	.04620	.478	-.1235	.0579
		JET AIRWAYS	-.06506	.04580	.156	-.1549	.0248
	KINGFISHER	AIR INDIA	.03280	.04620	.478	-.0579	.1235
		JET AIRWAYS	-.03226	.04580	.481	-.1221	.0576
	JET AIRWAYS	AIR INDIA	.06506	.04580	.156	-.0248	.1549
		KINGFISHER	.03226	.04580	.481	-.0576	.1221
Overall Customer Experience	AIR INDIA	KINGFISHER	-.04248	.02241	.058	-.0865	.0015
		JET AIRWAYS	-.11732*	.02221	.000	-.1609	-.0737
	KINGFISHER	AIR INDIA	.04248	.02241	.058	-.0015	.0865
		JET AIRWAYS	-.07484*	.02221	.001	-.1184	-.0312
	JET AIRWAYS	AIR INDIA	.11732*	.02221	.000	.0737	.1609
		KINGFISHER	.07484*	.02221	.001	.0312	.1184

*. The mean difference is significant at the 0.05 level.

RESEARCH CONTRIBUTION

This research study can provide airline marketers with an understanding on how to convert their customer experience into a strategic input for making management strategies more effective. The results are likely to help academicians and marketers to collect information and plan appropriate customer experience enhancement strategies. This is one of the

few studies that have addressed the significance of customer experience in civil aviation sector in the highly competitive service industry. The present research provides theoretical contribution by filling gaps in the extant literature. The outcome of the study will provide useful insight for further research in the area. Creating a superior customer experience has been gaining increasing attention from retailers. However, there has been a dearth of a commensurate level of scholarly research on this topic. The present paper is an attempt to provide a holistic portrayal of the customer experience construct and subsequently, discusses specific determinants of customer experience, highlighting those that are especially in need of further research. This paper offers practical insights for developing and implementing effective experience-based strategies.

MANAGERIAL IMPLICATIONS.

Although there are several aspects that require further research and vindication, the findings of this study provide useful implications for marketing managers. From a managerial perspective, it is important to know that the customer experience must be taken into account by any airline given its positive effects on the customer loyalty. It reveals that delivering memorable customer experience provides an opportunity for managers to create additional value and benefits for consumers. Moreover, it also affirms that by focusing on experiences, organizations can gain a competitive edge (Pine and Gilmore, 1998). This research highlights that experiences that engage the consumer by giving him/her recognition and establish an emotional connection with him/her can create customer loyalty. This paper focuses on possibilities to increase comfort and the potential marginal benefits that the airlines may gain by providing more comfort to passengers, thereby attracting more passengers. This paper also discusses that airline must focus on safety of the travelers as it is an imperative dimension of customer experience. In addition to the delivering superior customer experience, managers should give substantial emphasis on developing the skills of its employees since they interact with customers directly or indirectly, their enthusiasm, passion and commitment have a bearing on the extent of customer engagement and the experience as a whole. The findings of this study also implies that it is vital for organizations to continuously innovate and improve the offering to overcome bore-

94 Dimensional Analysis of Customer

dom and increase novelty (Pine and Gilmore, 2000). Companies should identify and analyze favorable and unfavorable service experiences and thus create a knowledge base for designing services that deliver favorable service experiences as only those companies that deliver the favorable and right experience to customers will succeed in the global marketplace (Seddon and Sant, 2007). The research findings provide some advices for the industry players in drafting various managerial strategies to increase the customer experience, by emphasizing on the different perspectives of customer experience such as hedonism, novelty, safety, recognition and comfort.

SUGGESTIONS AND LIMITATIONS

Airlines are advised to capture rich information across all customer interactions with the service provider to enhance customer experience. It is suggested that airlines should obtain a direct measure of customer experience by conducting periodic surveys by sending questionnaires or make telephone calls to a random sample of their recent customers to find out how they feel about various aspects of the airline's performance. Airlines are advised to be customer-centric and to maximize the ease with which customers can inquire, make suggestions, or complain. There should be no tendency on the part of the airlines to discount the complaints under the assumption that they come from a small percentage of the customers because this minimal number of complaints can become spectacularly more significant because of the word of mouth communication.

Though all efforts have been made to maintain the study exhaustive, objective, reliable and valid, yet it has certain limitations which must be taken care of whenever its findings are considered for implementation. Every effort has been made to keep the objectivity in research but the element of subjectivity cannot be ruled out as response obtained may be actuated by personal likes and dislikes. The element of subjectivity cannot be ruled out as respondents might hide some information though all the efforts have been made for maintaining the objectivity of the research. In addition, Kingfisher's operations are stopped now, hence research study suggests very limited value, however can be useful for its future operations

CONCLUDING REMARKS AND SCOPE FOR FUTURE RESEARCH

- Customer experience is the necessary pre-requisite for building strong customer loyalty and the key driver of customer retention in a service-dominated economy. Consumers indisputably desire superior experiences and more and more businesses are responding by designing and promoting them. Leading-edge airlines will find that the next competitive battleground lies in delivering lasting experiences (Pine and Gilmore, 1998). To realize the full benefit of delivering such lasting customer experiences, businesses must deliberately design appealing experiences in what they produce and offer by combining functional and emotional benefits in their offerings. Emotional bonds between companies and customers are difficult for competitors to imitate. The results of factor analysis, hierarchical regression model and ANOVA revealed that customer experience is a multidimensional construct, *There is significant impact of experiential dimensions on overall customer experience* and there exists significant difference among various airlines regarding customer experience. The results depict that Jet Airways has higher level of customer experience followed by Kingfisher and Air India. The study provides fresh insights into multiple dimensions of customer experience construct. The domain of customer experience offers a rich agenda for future research.
- The present study is based on the perceptions of passengers of three airlines namely Air India, Jet Airways and Kingfisher. Further research thus needs to take in the perceptions of other airlines in the civil aviation sector. This research should encourage researchers to explore the customer experience in different service sectors such as, banking, hospital industry and hotel industry. Comparative study can be done by studying perceptions of the three groups of participants in the air travel market namely: airlines, travel agents, and passengers regarding customer experience.

REFERENCES

- Anderson, J.C., Narus, J.A. and van Rossum, W. (2006) 'Customer value propositions in business markets', *Harvard Business Review*, 84:3, pp. 90-99.
- Berry, L.L., Carbone, L.P. and Haeckel, S.H. (2002) 'Managing the total customer experience', *Sloan Management Review*, 43:3, pp. 85-90.

96 Dimensional Analysis of Customer

- Bettencourt, L.A. and Gwinner, K. (1996) 'Customization of the service experience: the role of the frontline employee', *International Journal of Service Industry Management*, 7:2, pp.3 – 20.
- Bonnie J.K., Jeffrey A. B, Seunghyun K. and Jaemin C.(2009) 'Identifying the Dimensions of the Guest's Hotel Experience', *Cornell Hospitality Quarterly*, 50, pp.44-55.
- Carbone, L.P. (1998) 'Total customer experience drives value', *Management Review*, 87:7, p.62.
- Frow, Pennie and Adrian P.S. (2007) 'Towards the 'Perfect' Customer Experience', *Journal of Brand Management*, 15:2, pp.89–101.
- Gentile, C., Spiller N. and Noci, G. (2007) 'How to Sustain the Customer Experience: An Overview of Experience Components that Cocreate Value with the Customer', *European Management Journal*, 25:5, pp. 395–410.
- Gilmore, J.H. and Pine, J.B. (2002) 'Customer experience places: the new offering frontier', *Strategy and Leadership*, 30:4, pp.4-11.
- Grace, D. and Cass, A. (2004) 'Examining service experiences and post-consumption evaluations', *Journal Of Services Marketing*, 18:6, pp.450-461.
- Graham, A. (2001) *Managing Airports. An International Perspective*, Burlington MA, Butterworth-Heinemann publications.
- Gupta, S. and Vajic, M. (2000) 'The contextual and dialectical nature of experiences' in Fitzsimmons, J.A. and Fitzsimmons, M.J. (2000), *New Service Development: Creating Memorable Experiences*, SAGE Publications, Inc, Thousand Oaks, CA. pp. 33-51.
- Hair, J.F., Black, W.C., Babin, B. J. and Anderson, R. E. (2009) *Multivariate Data Analysis*, (6 edn.), Pearson Prentice Publishers, New Delhi.
- Harris, R., Harris, K. and Baron, S. (2003) 'Theatrical service experiences: dramatic script development with employees', *International Journal of Service Industry Management*, 14:2, pp.184-99.
- Hoch, S., and Deighton, J. (1989) 'Managing what consumers learn from experience', *Journal of Marketing*, 53, pp.1-20.
- Hsu, H.Y. (2009) 'Study of Factors Influencing Online Auction Customer Loyalty, Repurchase Intention, and Positive Word of Mouth: A Case Study of Students from Universities in Taipei, Taiwan' in *Advances in Information Technology*, Berlin Heidelberg, Springer, pp. 202-210.
- Ismail, A.R. (2009) 'Experience marketing: a review and reassessment', *Journal of Marketing Management*, 25:6, pp.167-201.
- Jensen J.M. (2012) ' Shopping Orientation and Online Travel Shopping: the Role of Travel Experience', *International Journal Of Tourism Research*, 14:1, pp.56–70.
- Jones, T.O. and Sasser, E.W. (1995) 'Why satisfied customers defect', *Harvard Business Review*, 73:6, pp. 88-99.
- Jordan L. and Le Bel, J.L. (2005) 'Beyond the friendly skies: an integrative framework for managing the air travel experience', *Managing Service Quality*, 15:5, pp.437 – 451.
- Kim, J.H., Ritchie, J. R. B., and McCormick, B. (2010) 'Development of a Scale to Measure Memorable Tourism Experiences', *Journal of Travel Research*, 51:1, pp. 12–25.
- Klaus, Ph. (2011) 'Quo vadis, customer experience?', in Rusconi, C. (eds), *Beyond CRM: Customer Experience in the Digital Era. Strategies, Best Practices and Future Scenarios in Luxury and Fashion*, Milano, Franco Angeli.

- Klaus, Ph. and Maklan, S. (2011), 'Bridging the gap for destination extreme sports - a model of sports tourism customer experience', *Journal of Marketing Management*, 27:13-14, pp. 1341-65.
- Klaus, P. and Maklan, S. (2012) 'EXQ: a multiple-item scale for assessing service experience', *Journal of Service Management*, 23:1, pp. 5 – 33.
- Lemke, F., Clark, M. and Wilson, H. (2010) 'Customer experience quality: an exploration in business and consumer contexts using repertory grid technique', *Journal of the Academy of Marketing Science Marketing Theory*, 6:3, pp. 381-92.
- Liu, J., and Liu, J. (2008) 'An empirical study on the relationship between service encounter, customer experience and repeat patronage intention in hotel industry' in *Wireless Communications, Networking and Mobile Computing, 2008*. WiCOM'08. 4th International Conference on IEEE, pp. 1-7.
- Malhotra, N. (2008), *Marketing Research, An applied Orientation* (5thedn.), New Delhi, Prentice Hall of India.
- Millard, N. (2006) 'Learning from the wow factor – how to engage customers through the design of effective affective customer experiences', *BT Technology Journal*, 24:1, pp.11-16
- Moufakkir, O. (2010) 'The Pay for In-Flight Food and Drinks Policy and Its Impact on Travelers' Experience', *Tourism Analysis*, 15:1, pp.99-110.
- Novak, T.P., Hoffman, D.L. and Yung, Y.F. (2000) 'Measuring the Customer Experience in Online Environments: A Structural Modeling Approach', *Marketing Science*, 19:1, pp. 22-42.
- Nunes, P.F. and Cespedes, F.V. (2003) 'The customer has escaped', *Harvard Business Review*, 81:1, pp. 96-105.
- Oliver, R.L., Rust, R.T. and Varki, S. (1997) 'Customer delight: foundations, findings, and managerial insight', *Journal of Retailing*. 73:3, pp. 311-36.
- Otto, J.E. and Ritchie, J.R. (1996) 'The service experience in tourism', *Tourism Management*, 17:3, pp. 165–174
- Palmer, A. (2010) 'Customer experience management: a critical review of an emerging idea', *Journal of Services Marketing*, 4:3, pp. 196-208.
- Pareigis, J. Edvardsson, B. and Enquist, B. (2011) 'Exploring the role of the service environment in forming customer's service experience', *International Journal of Quality and Service Sciences*, 3:1, pp.110 – 124.
- Pentina, I., Amialchuk, A. and Taylor, D. G. (2011) 'Exploring effects of online shopping experiences on browser satisfaction and e-tail performance', *International Journal of Retail & Distribution Management*, 39:10, pp.742 – 758.
- Pine, B.J. and Gilmore, J.H. (1999) *The Experience Economy—Work is Theatre and Every Business a Stage*, Boston, Harvard Business School Press.
- Pine, J.B. & Gilmore, J.H. (1998) 'Welcome to the experience economy', *Harvard Business Review*, 76:4, pp. 97-106.
- Popovic, V., Kraal, B. J. and Kirk, P. J. (2009) 'Passenger experience in an airport : an activity-centred approach', IASDR 2009 proceedings. pp. 1-10.
- Prahalad, C. & Ramaswamy, V. (2004), 'Co-creation experiences: the next practice in value creation, *Journal of Interactive Marketing*, vol.18, no.3, pp.5-14.

98 Dimensional Analysis of Customer

- Richards, L.G., (1980) 'On the psychology of passenger comfort', in Osborne, D.J., Levis, J.A. (eds.), *Human Factors in Transport Research*, Academic Press, vol. 2. pp. 15-23.
- Rojas, C, and Camarero, C. (2008) 'Visitors' experience, mood and satisfaction in a heritage context: Evidence from an interpretation center', *Tourism Management*, 29, pp. 525-537.
- Rowley, J. (1999) 'Measuring total customer experience in museums', *International Journal of Contemporary Hospitality Management*, 11:6 , pp. 303-10.
- Ruiping, X. and Yujuan, Z. (2006) 'The Construction of Service-Marketing System Based on Customers' Experience', *Canadian Social Science*, 2:6, pp. 87-92.
- Schembri, S. (2006) 'Rationalizing service logic, or understanding services as experience', *Marketing Theory*, 6:3, pp.381-392
- Schmitt, B. (1999) *Experiential Marketing: How to Get Customers to Sense, Feel, Think, Act and Relate to Your Company and Brands*, New York, Free Press.
- Seddon, J., and Sant, R. (2007) 'Increasing business value through improved customer experiences. E-Perspectives', (online) (cited 22 October 2012). Available from <URL:<http://www.millwardbrown.com>>
- Severt, D., Tesone, D. and Murrmann, S. (2006) 'Prior Experience Satisfaction and Subsequent Fairness Perceptions within the Service Experience', *Journal of Hospitality & Leisure Marketing*, 13:3-4, pp. 121-137.
- Shaw, C. and Ivens, J. (2002) 'Building Great Customer Experiences', Palgrave Macmillan, Basingstoke.
- Klaus, Ph. and Maklan, S. (2011) 'Bridging the gap for destination extreme sports - A model Sports tourism customer experience', *Journal of Marketing Management*, 27:13-14, pp. 1341-65.
- Tsiros, M. and Parasuraman, A. (2006) 'The Anatomy of Service Encounter Evaluations: A Conceptual Framework and Research Propositions', *Asian Journal of Marketing*, 12:1, pp. 4-22.
- Verhoef, P., Lemon, K., Parasuraman, A., Roggeveen, A., Schlesinger, L. and Tsiros, M. (2009) 'Customer experience: determinants, dynamics and management strategies', *Journal of Retailing*, 85:1, pp.31-41.
- Xu, J.B. and Chan, A. (2010), 'Service Experience and Package Tours', *Asia Pacific Journal of Tourism Research*, 15:2, pp. 177-194.

Dr. Vinay Chauhan is Associate Professor, The Business School, University of Jammu, Jammu, India. E-mail: chauhan_vinay1@rediffmail.com.

Deepak Manhas is Research Scholar, The Business School, University of Jammu, Jammu, India. E-mail: manhasdeepak2009@gmail.com.

DIMENSIONS OF RETAIL SERVICE CONVENIENCE IN EMERGING MARKET SETTINGS -A QUALITATIVE INVESTIGATION

Shaphali Gupta

Dinesh Sharma

The existing measures of service convenience, developed and validated in context of developed service economies, do not adequately capture customers' perception of service convenience for retail stores (i.e., stores which offers both goods and services), especially in emerging markets. Current study examines perceptions of and identifies a comprehensive inventory of service convenience for retail stores in emerging market setting, India. Based on convenience literature and three separate qualitative studies, authors proposed retail store service convenience as a multidimensional construct consisting of six dimensions. Both retailers and shoppers were included in the study. Selection and assurance were found as novel dimensions for retail service convenience. Perceived risk of service fairness, resulting in exertion of cognitive energy, is seen as major concern among respondents. Study elucidates the critical role of store staff in building affirmative convenience perception. The present study enhances the understanding of retail service convenience in an emerging market (India) context. Thus, this study expands the domain of service convenience construct by further exploring the dimensions and measures set out by earlier researchers. This study explores new dimensions of convenience and proposes items for developing a measure for retail store service convenience. The implications of proposed dimensions are discussed, both for retailers and future research.

INTRODUCTION

With the several societal trends, such as tremendous socio-economic changes, rapid technological progress, increasing number of women in workforce, more competitive business environment and increased interest towards leisure and self-development activities, there has been seen a significant effect on the consumer's perception about their time and energy usage (Brown, 1990; Berry *et al.*, 2002). With higher disposable incomes, credit cards, familiarity of the western shopping way of life and deep desire of improved living standards, emerging market consumers are ready to spend in an unprecedented manner with huge expectations in terms of value and experience (Indian Retail report, 2011)¹. Indeed, from a retailing perspective, Treadgold, (1999) noted that *'the most compelling [Asian retail] opportunities are at the value end of the market given that consumers in Asia today are . . . much more value*

Journal of Services Research, Volume 14, Number 1 (April - September 2014)

©2014 by Institute for International Management and Technology. All Rights Reserved.

100 Dimensions of Retail Service

conscious than they were in the mid-1990s'. It is suggested that a firm can increase value of their offering either by providing better quality products or services, or by lowering price of the products or services, or by decreasing non-monetary cost incurred by consumers during buying process (Zeithaml and Bitner, 2008). In the domain of consumer behaviour and marketing management, decrease in the expenditure of time and effort expended by consumers in the process of buying, acquiring and consuming products or services, both in or offline environment, is termed as 'convenience'.

Although, term 'convenience', coined by Copeland (1923), has been identified as a significant variable in plethora of studies focused on consumer satisfaction, loyalty and store patronage but few efforts has been taken to understand it as an absolute construct (Farquhar and Rowley, 2009), it is only recently that it has received its long overdue recognition as a multidimensional construct in its own right (Berry *et al.*, 2002; Brown, 1990, Seiders *et al.*, 2000). Which otherwise was neglected and was poorly defined as a uni-dimensional construct. 'Convenience', in an era of service economy, was conceptualized as service convenience defined as 'consumers' time and effort perceptions related to use or buy of a service'. This comprised of five types of service convenience, each one affecting an overall convenience evaluation of a service (Berry *et al.*, 2002). To much of our current knowledge about service convenience construct is based on the studies conducted in developed countries. There is a possibility that existing convenience construct and measures do not adequately capture consumers' perception of service convenience in emerging markets, for example, the in-store phase of the consumer decision journey tends to be longer and more important in emerging markets than in developed ones. Emerging-market consumers have a penchant for visiting multiple stores multiple times and for collecting information methodically, especially when they purchase big-ticket items. These consumers like to test products, and interact with sales reps in-order to collect product information, and negotiate with retailers to get the best deal (Mckinsey, 2012). Also, the shopping context in Asian and other emerging markets often differs from that of developed markets. Emerging market consumers do not necessarily shop in hypermarkets like Wal-Mart and Carrefour. In India, as in small town and rural China, traditional trade still dominates. This re-

sults in a unique dynamics between shopper and seller which can strongly influence consumer choices.

The objective of present study is to examine the perceptions and to explore the dimensions of retail service convenience among Indian consumers. Examining retail service convenience in Indian context is both appropriate and significant in the present economic scenario. Firstly, the Indian growth story over last few years in spite of economic down turn has been encouraging. India has been ranked second fastest growing economy after China, 4th in global purchasing power parity and would be third largest economy in term of GDP in next five years. It has also been considered as one of the lucrative emerging economies by both domestic and international retailers. The retail sector in India is expected to grow by 18.8% and to generate revenues of US\$866 billion by 2010 (Indian Retail Report, 2013)². Secondly, retail literature has frequently cited convenience as an important variable (Huddleston *et al.*, 2004; Schrader and Schrader, 2004; Pan and Zinkhan, 2006; Arnold and Luthra, 2000; Aggarwal, 2000; Sinha and Banerjee, 2004; Grewal *et al.*, 2004; Mohanty and Sikaria, 2011) and recently acknowledged it as a multidimensional construct (Berry *et al.*, 2002; Seiders *et al.*, 2007) in its own right. Though the extant literature is helpful to understand convenience as a construct, however the lack of validation (or partial validation) of service convenience dimensions and scale, instigates further investigation. Convenience being a perceptual phenomenon, is idiosyncratic in nature, thus much work needs to be done to further the understanding of service convenience, in different context (Farquhar and Rowley, 2009), especially in emerging societies.

This paper opens with the review of convenience related literature elucidating the, odyssey of convenience construct from an attribute to a multidimensional construct. Further paper describes the qualitative studies conducted by authors of present study to understand the perception for retail service convenience among Indian consumers. The paper concludes with proposed dimensions and perception items for retail service convenience.

REVIEW OF LITERATURE

There have been two streams of literature which are salient to our study. The first stream focuses on consumer convenience orientation, explain-

102 Dimensions of Retail Service

ing the factors why some consumers are more likely than others to buy convenient goods and services. The second stream focuses on the studies. It has played a significant role in conceptualizing convenience as a multidimensional construct.

Convenience orientation:

Consumer convenience orientation is defined as the value and preference consumers place on convenient goods and services with inherent time and effort saving characteristics (Brown, 1990; Berry *et al.*, 2002) and convenience oriented consumer is characterized as 'one who wish to accomplish a task in the shortest time with the least expenditure of human energy' (Morganosky, 1986). At the outset, Anderson (1969, 1971a, 1971b, 1972) examined convenience and proposed the term convenience oriented consumption. He defined it as: 1) satisfies some immediate want or need and 2) releases time or energy or both for alternative uses. The former part of the definition was influenced by Copeland's (1923) perspective on convenience goods, where convenience deals with ease of acquisition, convenient to purchase and accessible. Second part of the definition recognized the multidimensionality of convenience construct where consumer wants to save their time and effort so that they can invest that time and energy in some other high valued tasks. The latter part of definition opened up the discussion for further scope in convenience literature. Anderson argued about time and energy aspect of convenience which consumer has to forego while using any goods and services, and discussed convenience as an inherent attribute in product and services used by consumers which can reduce their time and energy cost. Literature demonstrates that convenience orientation was mostly dealing with two dimensions: time saving and effort/energy saving, and suggested that understanding expenditure of consumer's time and effort during consumption is an important step in creating buyer's value. Stages in family life cycle, socio-economic status, annual household income, occupation, wife's employment, education and age have been found as significant determinants of convenience orientation (Anderson, 1969, 1971a, 1971b, 1972).

Convenience – An Attribute to a Multidimensional Construct

In conjunction with the above mentioned studies focused on convenience oriented consumption, and which viewed convenience as a product attrib-

ute, few researchers were consistently worked on building convenience, as a rich multidimensional construct, to understand its complex role in consumer buying process. In an effort Yale and Venkatesh (1986) suggested convenience as a crucial concept for marketer and mentioned that the rise of service economy requires the systematic examination of convenience as “primary salient product attribute”. They argued for the multidimensionality of the construct and mentioned that operationalizing convenience with only time saving attribute is wrong understanding of the construct, as many empirical studies viz. Douglas (1976); Reilly (1982); Strober and Weinberg (1977, 1980), have found few significant differences between working women and non-working women, using convenience products. They put forward convenience as a complex and a crucial concept for marketer and suggested that studying convenience issue can help them to recognize and to understand the consumer’s convenience orientation and to find out the demand for the convenience attribute in products. They proposed number of variables and factors which affect the perception or need of convenience among consumers (see table 1) . Though exclusivity of all the factors or classes were questionable, as few of the classes were quite subjective and therefore difficult to measure; also there could be some overlap between the classes mentioned. Nevertheless, contribution of this study was worthy in terms of supporting time and effort aspects of convenience and identifying four convenience classes. This study also emphasized on consumer perspective of convenience, especially as a service rather than the product attribute view.

Although it was acknowledged that convenience consists of several dimensions (Anderson and Shugan, 1991; Sediers, *et al.*, 2000; Reimers and Clulow, 2000, see table 1), there was no agreement on what were these dimensions. For example, Brown (1989, 1990) argued for the attribute classes given by Yale and Venkatesh (1985) and claimed that conceptualization was very ambiguous, was not supported by any theory and it was difficult to measure. Brown (1989, 1990) proposed five dimensions based on utility theory of economics which says that consumer desires for time, place, possession and form utility.

Service Convenience Construct

Rapidly embedding its critical importance in the field of consumer be-

104 Dimensions of Retail Service

behaviour research and business practices, 'convenience', in an era of service economy, was conceptualized as service convenience and had its first conceptual model by Berry, *et al.*(2002). The proposed model was based on the five stages consumer go through during buying process (Engel and Blackwell, 1982) and suggested five convenience types i.e.- decision , access , transaction , post benefit. They mentioned that past works have not adequately explored the complex interrelationships between time and effort in regards to the dynamic processes by which convenience is initiated and sustained, for example, nature and type of services influence customer's sensitivity to time and effort

Researchers took enough efforts to understand this construct conceptually, but literature mostly falls short of empirical support. Post Berry *et al.* (2002) few researchers attempted to develop and validate measurement scales for service convenience in different setting (Chou, 2002; Seiders, *et al.*, 2007; Colwell, 2008). The first empirical study was done by Chou (2002) on scale development of service convenience and testing of the construct. He developed 19-item scale measuring different kinds of service convenience demands. However, Chou's (2002) work evidence is available in form of unpublished master dissertation report, it has not received much recognition. So far, the most recognized scale is the *Servcon*, a 17 items comprehensive instrument for measuring service convenience, developed and validated by Seiders, *et al.* (2007) in context of specialty retail store. Researchers strengthen *Servcon* scale by providing nomological validity, and substantiate it with antecedents and consequences of convenience. The contribution of this study is significant as it exhibits for the first time rigorous empirical inquiry into convenience. However, study displayed some flaws in item generation and statistical process, as was demonstrated by (Farquhar and Rowley (2009), first, the word convenience was used in all three items measuring access convenience dimension, which created a circularity problem in scale development process; and second, study lacked data for final stage of post benefit convenience and provided a statistically derived substitute). Later, another empirical study was done by Colwell, *et al.* (2008), who developed 17 items to psychometrically valid scales for measuring the service convenience in cell phone and internet services. These two studies produced much required empirical investigation into convenience, but lacked generalizability, as

very little work is done to validate the scales. Therefore, there is a possibility that generated convenience items may not be suitable for other service contexts, for example, *Servcon* tested in an Indian setting in context of food and grocery store was found to be only partially validated. This study suggested further investigation on other dimensions to reveal underlined nuances of Indian consumers' perception on expenditure of non-monetary resources, i.e. time, energy and effort (Aagja, *et al.*, 2011). Moreover, it was concluded, that though measures of service convenience for pure service environment and for retail environment are likely to share some common dimensions, measures of retail service convenience must capture additional dimensions, especially in emerging societies where consumers are yet not fully exposed to and acquainted to the kind of retail services developed countries demonstrate..

Table 1: Convenience as a Multidimensional Construct

Author & Year	Contribution to Convenience Literature
Yale and Venkatesh (1986)	<ul style="list-style-type: none"> • Convenience influencing variables: economical/temporal, spatial, psychological, sociological, philosophical, & situational. • Proposed six conveniences classes: Time utility; Accessibility, handiness, Appropriateness, Portability & Avoidance of Unpleasantness.
Lew G. Brown (1990)	Proposed five dimensions of convenience <ul style="list-style-type: none"> ✓ Time: product availability at convenient time ✓ Place : products are available at the place which is convenient to the customers ✓ Acquisition : customers can acquire products or services with less effort ✓ Execution: hiring or getting someone else to do the task for the customer ✓ Use: customer can use the product and services easily
Anderson & Shugan (1991)	Convenience from customization perspective. Value-added convenience

106 Dimensions of Retail Service

Author & Year	Contribution to Convenience Literature
Sediers et al. (2000)	Retail store convenience <ul style="list-style-type: none"> ✓ Access : reach ✓ Search: locating the right product ✓ Possession : acquire the product ✓ Transaction: completion & amendment of transaction
Vaughan Reimers; Dr. Val Clulow (2000)	Shopping convenience for retail stores(temporal, spatial & effort costs): composition, compatibility, concentration, access, parking, trading hours, design, enclosure and shopping services and amenities
Berry, Seiders & Grewal (2002)	A conceptual model of service convenience and introduction to five types of service convenience (with time and effort dimensions), including waiting time perception <ul style="list-style-type: none"> ✓ Decision convenience: during make purchase or use decisions ✓ Access convenience: to initiate service delivery ✓ Transaction convenience: to effect a transaction ✓ Benefit convenience: to experience the service's core benefits ✓ Post benefit convenience: during reinitiating contact with a firm

QUALITATIVE INVESTIGATION - TRIANGULATION APPROACH

For the purpose of understanding underlined nuances of retail service convenience among Indian consumers, we employed, three distinct qualitative techniques- phenomenological interviews, exploratory in-depth interviews and customer tracking through store (adopted from Dabholkar, *et al.*,1996) are discussed below.

Phenomenological Interviewing

Phenomenology, 'as both a philosophy and a methodology has been used in organisational and consumer research in order to develop an understanding of complex issues that may not be immediately implicit in surface responses' (Smith, Flowers and Larkin, 2009). Phenomenology is a qualitative research approach committed to the examination of how people make sense of their major life experience; it is concerned with exploring experience in its own terms (Dabholkar, *et al.*,1996; Smith, *et al.*, 2009). In the context of this study, six phenomenological interviews (including

both organized and unorganized retailers and shoppers) were conducted, to understand 'convenience' as a phenomenon and to assign meaning to the shopping experience as the participant sees it, and not as what the researcher perceives it.

The interview commenced with an introduction by the researcher about themselves and the research study. Respondents were then asked about their background and shopping interest. Gradually the conversations were focused on availability of various retail store categories and on respondents' patronage stores. Respondents were requested to mention their expectations from a retail store and also about what they like in the store which they prefer above other stores. In an attempt to explore their perceptions about convenience in shopping, participants were inquired about their inconveniences during shopping as to understand broader picture of their expectations in terms of services. Later, they were probed about the factors which provide them a feel of comfort and convenience during a shopping trip. They were also requested to narrate incidences of good or bad service experience which had a strong impression on them and which affected their decision of store choice every time they go shopping. In an attempt to explore their perceptions about convenience during shopping, respondents were allowed to mention their aggregate shopping experience regardless of retail type (modern or traditional retail store) and category type (FMCG, durables and apparels). Each interview lasted for 45- 60 minutes and key points of the interview were taken verbatim during the course of discussion and with 24 hour rule by Eisenhardt and Bourgeois (1988), discourse was transcribed immediately after interviews.

This study revealed that shoppers' are most concerned with behaviour of store staff. Respondents said although new formats have everything on display, they needed the store staff to make their shopping easy and mentally comfortable. Availability of well informed and knowledgeable staff makes their shopping process smooth and comfortable. During interviews few respondents mentioned that they are still loyal to few traditional retail stores for the sole reason that the store owner treats them well and thoroughly understands their requirements and taste. To quote one respondent-

'I would like to go to the store where store staff would suggest me about patterns, colours and style which goes well with my personality... that's why I prefer to go to boutiques where I get personalized service

108 Dimensions of Retail Service

and advice of expertiseless efforts at my end...' (Female, 32 years, employed).

Respondents submitted their concern for untrained staff in modern retail stores, where they take long time to answer customer queries and most of the time give unsatisfactory response. As one respondent said-

'When I approached the salesman to get more information about the fabric of the merchandise I was buying (as I always wear 100% cotton and information was not mentioned on tag) that person had no clue about the fabric and the brand....' (Male, 33 years, employed)

Another important attribute mentioned both by retailer and consumers was the assortment and good display of merchandise, consumers expect to find everything they need quickly in the store and therefore, assortment of products in the store is very relevant. More variety provides convenience to shoppers as they get a large set of merchandise to select from, which further save their efforts and time.

'Store should have large variety of merchandise and accessories, with all sizes available, so that I am able to find quickly what I like and what fits me well' (Female, 32, housewife)

Layout of the store too received a significant mention during the interviews, as an important attribute to store convenience. One participant who travels quite frequently mentioned that-

'Planned store layout makes shopping comfortable, it provides easy navigation and I can cover whole store in less timedo not miss anything without getting exerted also if chain of stores have standardized layout policy, then it becomes so easy to locate things....irrespective of the location of the store....in or with in cities'. (Male, 36, self-employed)

Other salient convenience attributes cited by respondents were better proximity of store from home or office, parking area, less travel time to reach, less crowded, one stop shopping and less waiting queues at billing counters. Both by consumers and retailers, home delivery and proximity of store have been seen as most convenient features offered by traditional store.

EXPLORATORY IN-DEPTH INTERVIEW

The second technique employed was in-depth telephonic and personal interviews, to discover relevant determinants of retail service convenience

not yet identified. Respondents were requested to recall their whole shopping trip, leaving from home to end of purchase and were told to mention their expectations with regards to apparel, food and grocery, and durables' shopping, regardless of retail type (modern or traditional retail store) and to comment on factors producing convenience during the shopping process. The definition of convenience was not given to the respondents, in an attempt to explore their perceptions about word convenience in shopping. It was assumed that the more a particular factor related to convenience was cited, the more salient it was in the minds of respondents, and thus the retail service convenience component became more prominent to them. The group of 60 shoppers was interviewed and the method used was non-random convenience sampling. Size of sample population was decided based on 'Concept of Saturation' of Glaser and Strauss (1967), when collection of new data and information does not put any further light on the subject under research. The demographic profile of the shoppers is presented in table 2.

Table 2: Demographic Profile of Respondents

Total Sample	60
Age	Number of Respondents
18-25	14
25-40	25
40-65	19
65 & above	2
Gender	
Female	42
Male	18
Annual Income	
< 5 lac	24
5-10 lac	16
10-15 lac	9
15- 20 lac	7
>20 lac	4

110 Dimensions of Retail Service

Total Sample	60
Occupation	
Employed	32
Self Employed	3
Students	12
Retired	3
Housewife	10

Some of the findings of this study were similar of the phenomenological study for example consumers were concerned about sales people behaviour, proximity of store, product assortment, hassle free exchange procedure, space in store, store layout, parking facility. In addition to this, other significant factors emerged from exploratory in-depth interviews were shoppers' concern for trust and value perceived during the process. Perception of value and trust are a subjective phenomenon and was weighted differentially by different consumers. Some consumers obtain value from all relevant 'get' and 'give' components Zeithaml (1998), whereas others view value as getting product at the lowest price. In the present study, value ratio is proposed as 'give' factors both in terms of monetary and non-monetary cost incurred by consumers and 'get' factors in terms of assurance of quality, trust, dependability and keeping promises given by retail store.

'Once I went to buy some stuff at nearby store, what I saw was so disgusting..... Shopkeeper opened one body lotion bottle and apply it over his dry hands.....and again kept that on the shelf space to sell.....that was so unethical' (Female 26, housewife)

Further, respondents displayed their apprehensions about getting fair deals from retailers; they had a fear of being cheated by the retailer's hard sell marketing strategies. Such kind of selling practices force any shopper to be more judgmental and to spend more of his cognitive and emotional efforts in trying to get a fair deal. Other convenience attributes mentioned by respondents included, less time in locating things in store, extended store hours during weekdays, proper signage and membership cards and discounts. Although discounts and offers were frequently cited

by respondents especially in white goods and food and grocery category buying. Although we recognize discounts and offers as an important component having an impact on store choice, but we view, for the purpose of this study we view it as distinct from the convenience construct.

Tracking the Customer

Finally, 'tracking' was taken as a third technique for qualitative investigation, to observe the thought process and service expectations of consumers during their shopping trip. In tracking method 'researcher unobtrusively monitors the customer experiences in the store, information regarding identified components of the shopping experience and the consumers' interactions with these elements was collected without significant altering the natural flow of the experience' (Dhabolkar, *et al.* 1996). Researcher took the permission from the consumers and followed them through the store for the purpose of the current study. Researcher observed and noted down their experiences as mentioned by them verbally; their interactions with store employees, store services and merchandise; their pleasure and discontentment attached with that particular excursion. Participants gave their comments especially on sales people behaviour, space in the store, layout of the store, waiting queue at billing counter, crowd in store and cleanliness. Participants were also vocal about incorrect labelling of price and offers on merchandise shelves.

Retail Service Convenience - Proposed Definition and Dimension Structure

Adopted from Berry, *et al.* (2002), present study defined retail service convenience as "consumers' perception of their time and effort (physical, cognitive and emotional) required during the course of achieving underlined shopping goal, initiating from problem recognition stage to post purchase stage".

For the purpose of extracting dimension structure of retail service convenience, emerged attributes from qualitative study were subjected for thematic content analysis, done by one PhD student, one retail marketing specialist and one professor, who independently examined and extracted themes for the emerged items and arranged the data into meaningful categories. After doing the thematic content analysis all emerged attributes category wise were put in the pre-set and emergent retail service conveni-

112 Dimensions of Retail Service

ence dimensions. Researcher started with five pre-set service dimensions proposed by Berry, *et al.* (2002) and added few new dimensions as they become apparent through the data. Researcher adjusted the definition of the given dimensions (if required and gave a new name to that dimension) and identified new dimensions to accommodate data that did not fit the existing labels. Analysis represents human interpretation of the themes which emerged from the data; no software package has been used for analysis. Integrating our qualitative study findings with review of convenience literature, we put forward that retail service convenience has a multidimensional structure consisting of six dimensions i.e. information search convenience, access convenience, selection convenience, assurance convenience, transaction convenience and post purchase convenience.

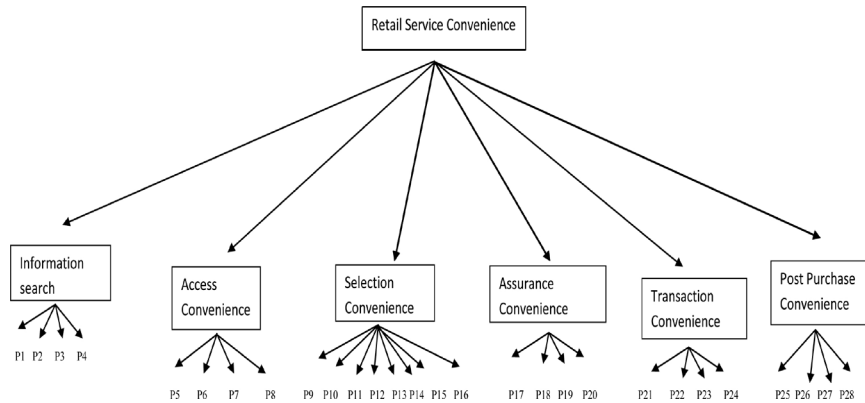


Figure 1: Proposed Dimensional Structure for Retail Service Convenience

The first dimension we propose is '*information search convenience*', which is similar to the Berry, *et al.*'s (2002) decision convenience dimension, except few variations, in terms of information availability of product's offers and surety of getting what consumers are looking for in a particular store. Our depth interview revealed that information about the merchandise that a store possess removes the anxiety regarding the non-availability of products in store in the consumers' mind ('*I don't like hopping from one store to another to get what I want.....it is very irritating*'). Respondents mentioned that advertisement via various channels is an important source for them to get informed. Another variation in this

dimension is the availability of the information regarding on-going offers and schemes a particular store initiates, as phenomenological interview revealed consumers' sensitivity towards money saving deals and offers. These interviews also concluded that lack of such information enhances consumers' cognitive and emotional inconvenience. Thus, it is suggested that retailers should be more careful and alert while forming their communication strategies so that right message and right information is delivered to potential consumers (Berry, *et al.* 2002). We view this dimension of convenience as salient as it takes place prior to the actual service exchange.

Second dimension of convenience is '**access convenience**', which is similar to the Berry, *et al.*'s (2002) access convenience dimension. It can be described as the proximity of the store from home or office, sufficient and safe parking area, less travel time and convenient operating hours. Access convenience is another convenience dimension, which too takes place before initiating actual buying process. Our in-depth interviews revealed that an easy and comfortable access to store stimulates more frequent purchases and occasions to buy from the given store ('*If two stores are providing me same facilities then I will prefer a store which is near to my place*'). Access convenience is more salient in case of inseparable services as compare to separable services, e.g, people shop when store is open (Berry, *et al.*, 2002). Therefore, easy access to the store, parking facilities and comfortable store hours would enhance the perception of convenience among consumers (Seiders, *et al.*, 2000). Access convenience diminishes the physical efforts and serves as time convenience to the shoppers. It plays a more complex role for inseparable services as nothing can happen until consumers' gain access to the service (Berry, *et al.*, 2002). The speed and ease with which consumers can access the service may powerfully influence the choices they make.

The third dimension we propose is '**selection convenience**', which refers to consumers' perceived time and effort expenditure in searching and selecting products in the store. Although this dimension would also involve the consumers' perceived time and effort expenditure to experience the core benefits as explained by benefit convenience dimension of Berry, *et al.*'s (2002), it is specifically related to all those activities which support shoppers to locate things in the store and facilitate him in selecting products of his choice with less time and effort expenditure. The retail shop-

114 Dimensions of Retail Service

ping experience provides consumers with an opportunity to interact with a variety of personal (employees, consumers) and non-personal (products, and decor) elements in the environment (Bitner, 1992), which otherwise is missing in a pure service environment. A significant number of respondents reported that wide range of assortment, well organized display, store layout, knowledgeable store staff, availability of stock and appropriate signage reduced their shopping efforts and saved their time during the selection process.

The rationale of this dimension comes from consumer retail search process (CRSP), a process by which consumers physically search through retail shopping environments (Titus and Everett, 1995). Past research suggests that consumers interact with retail shopping environments for a variety of reasons (Tabuer, 1972). Such interactions generally comprises of either goal oriented pre-purchase search activity or an on-going search activity such as browsing behavior (Bloch, *et al.*, 1986). In any of such case, consumers must find their way through the retail environment. During in-depth interviews behaviour of store staff has emerged as one critical parameter while selecting the products (*'I don't like sales people chasing me in store while looking at things but at the same time I want them to be available as and when their help is required, it helps me in finding right stuff in less time'*). Un-informed sales staff increase time and energy expenditure of shoppers. Sales staff also give a personal touch during shopping trip especially in modern retail stores where shoppers do not know and interact with store owners personally. The inability to locate desired products and information may develop negative feelings of anger and irritation among shoppers. These feelings if severe enough may lead to abandoning of the search effort, or a permanent withdrawal of their patronage (Titus and Everett, 1995).

Fourth novel dimension we propose is '**assurance convenience**', it involves customer expenditure of time and effort for perceiving trust and fairness during the course of buying, from the given retailer. This dimension of retail service convenience deals with the anxiety and fear shoppers have in their mind because of unfair business practices and availability of inferior products in the market. Also new age retail stores lack personal relationship based trust between retailer and shopper, therefore stores need to assure them and require to instil faith in them through their genuine practices throughout the process.

Trust being a key element of social capital, has been considered as an essential component in exchange relations (Mayer, *et al.*, 1995) and is closely related to fundamental outcomes of a firm, i.e. performance, competitive advantage, satisfaction and other economic outcomes like transaction cost (Balasubramanian, *et al.*, 2003; Cummings and Bromiley, 1996; Handy, 1995) and search cost reductions (Gulati, 1995). Gwinner, *et al.* (1998) found that consumers' confidence in service provider's services (reduced anxiety and faith in the trustworthiness of the service provider) is the utmost benefit to consumers for maintaining long term relationship with a service firm. Plank, Reid and Pullins (1999) recognized three elements- sales person, product and company as critical referents to consumer trust and accordingly defined trust as- a buyer's belief that sales personnel, product and company will fulfil their obligations as understood by them. Thus assurance is seen as an important dimension amongst respondents as it reduces their anxiousness, enhances their trust in store and lessens their physical, mental and emotional exertion while buying. Comments included ('*I feel confident about the store where I shop*', '*the behaviour of people enhances my trust every time I visit the store*' and '*I need to be alert and while shopping and transacting with the store*')

The fifth dimension, '**transaction convenience**' comprises of consumers expenditure of time and effort to carry out a transaction to obtain the right of ownership of the given product (merchandise). Transaction convenience in retail store is specifically related with the perception of time and energy spend at waiting in queue at a billing counter, non-functional scanner machine, price code not entered in the system, non-acceptance of credit cards and untrained staff on billing machine. Long waiting queue at billing counter is the most concerning factor during the transaction process ('*I expect a fast check out as soon as I am over with my selection of merchandise*'). The waiting time literature explains the negative after effects for companies that make consumers wait too long to pay (Larson, 1987; Tom and Lucey, 1997). Waiting to pay can be the least rewarding act required of the consumers. Transaction inconvenience is an opportunity cost as consumers whose presence is required in a queue, cannot make a concurrent use of that time. Moreover, consumers tend to perceive waiting time to be longer than they actually are (Hornik, 1984). Transaction inconvenience also can take an emotional toll on consumers who get trapped in

116 Dimensions of Retail Service

the slower line or who question the fairness of the service system (Larson, 1987). The consequences of transaction inconvenience are critical as this is the stage where consumers pay for both non-monetary cost (time and effort) and monetary cost for services before they experience them.

Our sixth dimension, '*post purchase convenience*' is similar to post benefit convenience proposed by Berry, *et al.* (2002), it is related with the expenditure of consumers' time and effort at the time when they want to reconnect with the retailer for any exchanges and to acquire after sale services. Post purchase activities typically include exchange of any defective product, customer's change of mind, any billing error or functional problem within warranty time, etc. Interview data reveals that shoppers' after sale service experience with retail store subsequently affects their repurchase intentions for next shopping trip. Respondents have submitted that most of the Indian stores lack in quick exchange policies and procedures ('*product return is the most difficult stuff to perform as I have to explain so many things to concern store staff*'). Past researches validate the importance of the post purchase experience to the overall consumer satisfaction (Bitner, *et al.*, 1990; Berry and Parasuraman, 1991). With the support of justice theory framework, it was found that perceived convenience of handling complaints increases consumers' satisfaction with the process (Tax, *et al.*, 1998). As Berry, *et al.* (2002) mentioned that consumers spend their time and effort resources to receive benefits and they need more incentive in the form of additional benefits, if they are to spend more of their resources.

Proposed Measures for Retail Service Convenience

Based on the qualitative study data, literature review and existing *Servcon* scale, items were constructed to tap each of the six dimensions of retail store service convenience. The initial item generation process generated pool of 105 items, with an iterative process, which involves systematic reviews, we revised and refined the set of items to articulate items that would be suitable to retail store services. Panel of marketing faculty members and retail store managers then evaluated the items for content and face validity. The members were given the conceptual definitions of retail service convenience along with illustrative quotes from the data, and instructions were given to retain items based on their representation of

convenience domain, clarity of words and subject to modification. Candidate for deletion were items that were not clear and were open to misinterpretation. On the basis of panel's categorization and several follow-up conversations, a substantial number of redundant items were eliminated and several items were modified. This process resulted in 28 convenience measurement items for measuring six dimension of retail store service convenience, including 12 revised items from *Servcon*. Table 3 displays the proposed perceptual items for the retail service convenience construct.

Table 3: Proposed item Descriptions for Retail Service Convenience Dimensions

SERVCON Dimension	Retail Service Convenience Dimension	Perception Item
Decision	Information Search	P1. Prior to shopping, I can easily determine whether store will offer what I need
(NI)	Information Search	P2. I can quickly get information about product availability in store (via Internet, newspaper, television or radio advertisement)
(NI)	Information Search	P3. Store updates me regularly about special schemes offered by the store.
Decision	Information Search	P4. Deciding to shop at this store is quick and easy
Access	Access	P5. I am able to get to store quickly
Access	Access	P6. I am able to reach store easily
(NI)	Access	P7. Store offers suitable store hours
(NI)	Access	P8. Store provides easy parking
Benefit	Selection	P9. Store has well organized layout
Benefit	Selection	P10. Store is spacious enough for comfortable movement in between aisles
(NI)	Selection	P11. Store has appropriate sign boards
(NI)	Selection	P12. Store offers wide variety of offering.
Benefit	Selection	P13. It is easy to get information related with product specifications, quality and price
(NI)	Selection	P14. It is easy to locate things; I am looking for in store.

118 Dimensions of Retail Service

SERVCON Dimension	Retail Service Convenience Dimension	Perception Item
(NI)	Selection	P15. It is easy to locate staff for assistance
(NI)	Selection	P16. It is easy to get store staff advice while selecting the product
(NI)	Assurance	P17. I feel safe while doing transactions with store
(NI)	Assurance	P18. I don't feel cheated in the store
(NI)	Assurance	P19. I find it safe & secure shopping in the store
(NI)	Assurance	P20. I have a faith in the management of the store
Transaction	Transaction	P21. I do not have to wait for long at billing counter to pay.
Transaction	Transaction	P22. I am able to complete my purchase transaction quickly.
Transaction	Transaction	P23. It takes little time to pay for my purchase
(NI)	Transaction	P24. Store accepts all major cards and coupons and they are processed easily
Post Benefit	Post purchase	P25. It is easy to process returns and exchanges at retail store.
Post Benefit	Post purchase	P26. Store takes care of product exchanges and returns promptly.
Post Benefit	Post purchase	P27. Any after-purchase problems I experience are quickly resolved.
(NI)	Post purchase	P28. Store provides home delivery of purchased product, If required

Note: the items are labeled P to denote perceptions. (NI) = Item is not included in SERVCON

DISCUSSIONS

Theoretical Contribution

Our main objective of this research was to investigate service convenience construct in a retail environment, in the context of emerging market, India. This study was an effort also to address the literature call of conducting an exploratory qualitative study to understand the nuances of service convenience in the Indian context, so that a service convenience construct and a scale grounded in an Indian context can be developed (Aagja, *et al.*, 2011).

We proposed retail service convenience as a multi-dimensional construct consisting of six dimensions i.e. information search, access, selection, assurance, transaction and post purchase convenience. We found that in emerging retail market situation assurance has emerged as an important dimension for retail store service convenience, due to the perceived risk of fairness and 'ages long' trust between traditional retailer and consumers. Our research also suggests that interaction with store staff is a crucial element for consumers during buying process, especially in the markets where organized retailing is still in its nascent stage and dominated by traditional retailing model where personal relationship between customer and retailer plays an important role. Qualitative research displayed a critical importance of store staff in up surging trust and assurance among consumers for the given store.

MANAGERIAL IMPLICATIONS

As the discussion in the preceding section illustrates, the theoretical contribution of this study is in terms of exploring convenience perception among Indian consumers, the findings from this study contains a number of implications for retailers as well. First, an understanding of role of convenience construct in consumer decision making process is useful for retailers in constructing better services and implementing specific convenience oriented actions to enhance consumer value and loyalty. Retailers could use the proposed convenience dimensions to investigate the direction and strength of convenience needed among their current consumers. Further, the retailers would be well positioned to assess convenience strength of different shopper groups and could foster tailored convenience strategies to serve them better. For example, a shopper with hedonic motive is likely to perceive higher service convenience as compared to a utilitarian shopper, who would perceive convenience differently. The retailer could focus on one or all of the convenience dimensions in investigations of mean levels of convenience across consumers groups based on age, race/ethnicity, gender and even profitability. Such findings would help retailers focus on those critical issues in the store which would enhance shoppers' convenience perception and to eliminate the trivial ones.

DIRECTIONS FOR FUTURE RESEARCH

This research article provides a conceptual framework designed to stimu-

120 Dimensions of Retail Service

late further research in the domain of retail service convenience. This study offers avenues for further research for conducting an empirical research to assess and to validate the six dimensions of retail service convenience in various contexts. This research represents the first step of expanding domain of service convenience in an emerging market context, because as Berry, Seiders and Grewal, (2002) suggest that service convenience is an uncharted territory and requires further investigation in order to increase understanding of this phenomenon’.

END NOTE

1. India Retail Report , 2011, research by Images Retail Intelligence Services (IRIS).
2. India Retail Report , 2013, research by Images Retail Intelligence Services (IRIS).

REFERENCES

- Aagja, J.P., Mammen, T., and Saraswat, A. (2011) ‘Validating Service Convenience Scale and Profiling Customers: A Study in the Indian Retail Context’, *VIKALPA*, 36:4, pp.25.
- Aggarwal, A. (2000) ‘Current Issues in Indian Retailing’, *European Retail Digest*, 25, pp.70-71.
- Anderson, W.T. (1971a) ‘The Convenience Oriented Consumer’, Austin, TX: Bureau of Business Research, Graduate School of Business, University of Texas at Austin.
- Anderson, W.T., (1969) ‘An Analysis of the Correlates of Convenience-Oriented Consumer Behavior: With Special Emphasis on Selected Convenience Foods and Durable Goods’. *Unpublished doctoral dissertation*, Michigan State University, East Lansing, Mich.
- Anderson, W.T., Jr. (1971b) ‘Identifying the Convenience-Oriented Consumer’, *Journal of Marketing Research*, 8:May, pp.179-183.
- Anderson, W. Thomas, Jr. (1972) ‘Convenience-Oriented and Consumption Behaviour’, *Journal of Retailing*, 48:3, pp.49-71.
- Arnold, S.J., and Luthra, M.N. (2000) ‘Market entry effects of large format retailers: a stakeholder analysis’, *International Journal of Retail & Distribution Management*, 28:4/5, pp.139-154.
- Balasubramanian, S., Konana, P., Menon, N.M. (2003) ‘Customer satisfaction in virtual environments: a study of online investing’, *Management Science* 49:7, pp.871–889.
- Berry, L.L, Seiders, K. and Grewal, D. (2002) ‘Understanding Service Convenience,’ *Journal of Marketing*, 66:7, pp.1-17.
- Berry, L.L., Parasuraman, A. (1991), *Marketing Services: Competing Through Quality*. New York: The Free Press.
- Bitner, M.J. (1992). Servicescapes: the impact of physical surroundings on customers and employees. *The Journal of Marketing*, 56:April, pp.57-71.
- Bitner, M.J., Booms, B. H., and Tetrault, M. S. (1990) ‘The service encounter: Diagnosing favourable and unfavorable incidents’, *Journal of Marketing*, 54:1, pp.71–84.

- Brown, Lew G., (1989) 'The Strategic and Tactical Implications of Convenience in Consumer Product Marketing,' *Journal of Consumer Marketing*, 6:3, pp.13-19.
- Brown, L.G. (1990) 'Convenience in Services Marketing', *The Journal of Services Marketing*, 4:1, pp.53-59
- Carmon, Z.J., Shanthikumar, G. and Carmon, T.F. (1995) 'A Psychological Perspective on Service Segmentation Models: The Significance of Accounting for Consumers' Perceptions of Waiting and Service,' *Management Science*, 42:11, pp.1806-15.
- Colwell, S.R., Aung, M., Kanetkar, V., Holden, A.L. (2008) 'Toward a measure of service convenience: multiple-item scale development and empirical test', *Journal of Services Marketing*, 22:2, pp.160-169.
- Copeland, M.T. (1923) 'Relation of Consumers Buying Habits to Marketing Methods', *Harvard Business Review*, 1:4, pp.282-289.
- Cummings, L.L. and Bromiley, P. (1996) 'The Organizational Trust Inventory (OTI): development and validation', R.M. Karamer, T.R. Tyler (eds.), *Trust in Organizations: Frontiers of Theory and Research*, CA, Sage, Thousand Oaks, pp. 302-320.
- Dabholkar, P.A., Thorpe, A.I and Rentz, J.O. (1996) 'A measure of service quality for retail stores: Scale development and validation', *Journal of the Academy of Marketing Science*, 24:1, pp.3-16.
- Eisenhardt, K. and Bourgeois, L. (1988) 'Politics of strategic decision making in high velocity environments: towards mid range theories', *Academy of management*, 31:4, pp.737-70.
- Farquhar, J.D. and Rowley, J (2009) 'Convenience: A services perspective', *Marketing Theory*, 9, pp.425.
- Glaser, B., and Strauss, A. (1967) *The discovery of grounded theory: Strategies of qualitative research*. London, Wiedenfeld and Nicholson.
- Grewal, D., Levy, M., and Lehmann, D.R. (2004) 'Retail branding and customer loyalty: an overview', *Journal of Retailing*, 80:4, pp.ix-xii.
- Gulati R., (1995) 'Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances', *Academy of Management Journal*, 38:1, pp.85-112.
- Gwinner, K.P., Gremler, D.D., and Bitner, M.J. (1998) 'Relational benefits in services industries: the customer's perspective', *Journal of the Academy of Marketing Science*, 26:2, pp.101-114.
- Handy, C. (1995) 'Trust and the virtual organization', *Harvard Business Review*, 73:3, pp.40-50.
- Hornik, J. (1984) 'Subjective vs. Objective Time Measures: A Note on the Perception of Time in Consumer Behavior,' *Journal of Consumer Research*, 11:6, pp.615-18.
- Huddleston, P., Whipple, J., VanAuken, A. (2004) 'Food store loyalty: Application of a consumer loyalty framework', *Journal of Targeting, Measurement and Analysis for Marketing*, 12:3/2, pp.213-230.
- Larson, R.C. (1987) 'Perspectives on Queues: Social Justice and the Psychology of Queuing', *Operations Research*, 35:11/12, pp.895-904.
- Mayer R.C., Davis J.H., Schoorman F.D. (1995) 'An integrative model of organizational trust' *Academy of Management Review*, 20:3, pp.709-734.
- Atsmon, Y., Kuentz, J.F. and Seong, J. (2012) 'Building brands in emerging markets', *McKinsey Quarterly* (online) (cited September, 2012). Available from < URL: http://www.mckinsey.com/insights/winning_in_emerging_markets/building_brands_in_emerging_markets>.

122 Dimensions of Retail Service

- Mohanty, S., Sikaria, C. (2011) 'Creating a Difference –The Store Ambience in Modern Day Retailing', *Global Journal of Management and Business Research* , 11:3, pp.1-9.
- Pan, Y., & Zinkhan, G. M. (2006) 'Determinants of retail patronage: A meta-analytical perspective', *Journal of Retailing*,82:3, pp.229–243.
- Plank, R.E. , Reid, D.A. , Pullins, E.B. (1999) 'Perceived trust in business-tobusiness sales: a new measure', *The Journal of Personal Selling & Sales Management* ,19:3, pp.61–71.
- Reimers, V., Clulow, Dr Val, (2000) 'Shopping and Convenience: A Model for Retail Centers', *ANZMAC 2000 Visionary Marketing for the 21st Century: Facing the Challenge*.
- Schrader, T.J. and Schrader,W.R, (2004) 'Consumer Patronage of Four Types of Food Outlets: The Impact of Retail Image Attributes', *Journal of Food Products Marketing*, 10:1, pp.25-46.
- Seiders, K. and Larry G., (2000) 'Attention Retailers: How Convenient is your Convenience Strategy,' *Sloan Management Review*, 49:3, pp.79-90.
- Seiders, K., Voss, G.B, Godfrey, A.L , Grewal, D. (2007) 'SERVCON: development and validation of a multidimensional service convenience scale,' *Academy of Marketing Science Journal*, 35:1, pp.144.
- Sinha, P.K., Banerjee. A., (2004) 'Store choice behaviour in an evolving market', *International Journal of Retail & Distribution Management*, 32:10, pp.482-494.
- Smith, J.A, Flowers, P. and Larkin, M. (2009) '*Interpretative Phenomenological Analysis-theory, method and research*', London, Sage publication.
- Tax, S.S., and Chandrashekar. M. (1998) 'Customer Evaluations of Service Complaint Experiences: Implications for Relationship Marketing,' *Journal of Marketing*, 62:4, pp.60-76.
- Titus, P.A., and Everett, P.B. (1995) 'The consumer retail search process: a conceptual model and research agenda' *Journal of the Academy of Marketing Science*, 23:2, pp.106-119.
- Treadgold, A. (1999) 'The Outlook for Asian Retailing', *Discount Merchandiser*, 39:5, pp.45–46.
- Yale, L. and Venkatesh, A. (1986) 'Toward the Construct of Convenience in Consumer Research' *Advance in Consumer Research*, 13, pp.403-408.
- Zeithaml, V.A., (1998) 'Consumer perceptions of price, quality and value: a means- end model and synthesis of evidence,' *Journal of Marketing*, 53:7, pp.2-22.
- Zeithaml, V.A., Bitner, M.J., (2008). *Services Marketing: Integrating Customer Focus Across the Firm*, (4th edn), New Delhi, India, Tata McGraw-Hill.

Shaphali Gupta is Doctoral Student at SJMSOM, IIT Bombay, Mumbai, Maharashtra, India. Email: shaphalivishal@gmail.com.

Dr. Dinesh Sharma is Assistant Professor at SJMSOM, IIT Bombay, Mumbai, Maharashtra, India. Email: dineshpa@gmail.com.

DECODING THE STRATEGIC GROWTH CHALLENGES FACED BY THE INDIAN HOSPITALITY SECTOR

Durgamohan Musunuri

Sonia Bharwani

The purpose of this paper is to decode the strategic growth challenges facing the Indian hospitality industry and formulate a plausible strategy in the form of recommendations to successfully face these challenges. The paper reviews the strategic growth challenges delineated by various authors, and identifies the key challenges. This is supplemented with primary data gathered through semi-structured interviews conducted with hospitality professionals to ascertain the specific challenges that hold the key to the future of the industry. The research points out that the key growth challenges of the Indian hospitality industry tend to be external in nature like: regulatory framework, real estate prices, intense competition, image of the country, customer expectations, etc.

INTRODUCTION

The unshackling of the Indian economy in 1991, and the changes that have occurred in the world economy since, along with the increasing momentum of globalization, catapulted Indian economy into an exclusive league of nations which were experiencing double digit or near double digit growth. This unprecedented economic growth combined with progressive liberalization and integration of the Indian economy into the global economy has had an impact on every sphere of economic activity in India. The Indian hospitality industry is no exception to this phenomenon of sustained growth and liberalization. It, too, has witnessed accelerated growth in the last ten years that which is clearly attributable to accelerated economic activity in India.

The total market size of the tourism and hospitality sector is US\$ 117.7 billion and is estimated to be US\$ 418.9 by 2022. The foreign direct investment in the hotel and tourism sector is US\$ 6.75 billion from April 2000 to July 2013 (IBEF, 2013). The direct contribution of the travel and tourism industry to India's GDP amounts to INR1, 919.7 billion i.e., 2.0% of the GDP in 2012 and is expected to grow to INR4, 360.6 billion by 2023 amounting to 2.1% of the GDP. Travel and tourism includes hotels, restaurants, travel agents, airlines, and other passenger transportation services, excluding commuter services (World Travel and Tourism Council, 2013). According to the Economic Survey 2012-13 of the Union Finance Ministry, Government of India the hotel industry recorded a sales growth

124 Decoding the Strategic Growth

of 9.2 % during 2011-12 and is estimated to grow at 9.5% in 2012-13 and 11% in 2013-14. The profit after tax (PAT) is expected to grow at 36.2 percent and 26.4 percent in 2011-12 and 2012-13 respectively. As per the Economic Survey of India (2012), there were 2895 classified hotels with a total capacity of 129,606 rooms in the country on 31st December 2011, as compared to 1593 classified hotels with a capacity of 95,087 rooms during the year 2010-11. This shows a growth of 36% in room capacity over the period 2010-11 to 2011-12.

Several studies have identified a demand-supply gap in hotel rooms in India estimated at 150,000 rooms, out of which 100,000 are in the budget category (Economic Survey of India, 2011). According to the report “Hotel Industry in India 2011” by Netscribes (India), as quoted by Bararia (2011), the demand for the number of room nights grew between 15 % and 30 % across India in 2010-11, the occupancy was at 68% and the revenue per available room (REVPAR) grew by 10.7%.

The Indian economy has been experiencing unprecedented growth in the range of 10 per cent since 2005-06, except for two years 2008-09 and 2011-12, where it dipped to around 7 per cent (Economic Survey, 2011-12). The potential of the Indian market is obvious from the above figures and from the existence of a demand-supply gap of 150,000 rooms in the country. Indian Hotels Limited, owners of Taj group of hotels, will be setting up 43 properties in the next three years and will be adding one hotel every month starting with the year 2011. For Carlson and Starwood, India is also the most important market at this juncture (Bararia,, 2011).

The foreign tourist arrivals in India grew by 8.8 percent compared to 4.4 per cent growth worldwide in the calendar year 2011 despite of the various natural, social and economic factors, like civil unrest in the Arab world, the earthquake in Japan, the present economic crisis in the European Union, etc affecting the world economy (ICRA, 2012).

Another factor that is worth considering is that India is the 5th most popular tourist destination according to the World Travel and Tourism Council (2009). This is further exemplified by the fact that in the calendar year 2011 there were 740 million domestic tourists and around 6.3 million foreign tourist arrivals (FTA). Even in the present world economic scenario, India is considered as the most lucrative market after China in the world (ICRA, 2012).

The Indian Hotel Industry is expected to grow at a healthy CAGR of 12.2 % and reach US\$ 3.84 billion (Rs. 230 billion converted @ INR60/1USD) by the year 2015. It is expected that there will be an investment of INR 448 billion flowing into the hospitality industry in the next five years (Reuters, 2011). Despite this promising scenario, there are several challenges that confront the hospitality industry in India. Most of these challenges are strategic in nature and impact the growth of the Indian hospitality industry.

The purpose of this paper is to identify and decode these strategic growth challenges, otherwise called strategic issues and further suggest a plausible strategy to successfully face these challenges. This will help the global hospitality organizations to effectively take advantage of the unexploited potential of the Indian market and formulate strategies keeping in mind these issues and challenges.

METHODOLOGY

This paper is based on data gathered using qualitative research methodology. An in-depth review of relevant academic articles and other sources of secondary data, such as reports of consultancy companies and industry reports were used to ascertain the salient strategic growth challenges that the hospitality sector faces with particular reference to Indian hotels.

Primary data was collected through semi-structured interviews with select hospitality professionals. The sample was chosen based on convenience sampling of a cross-section of senior hospitality practitioners including vice presidents, general managers and directors of leading hospitality organizations in India such as the Taj Group of Hotels, ITC-Welcomgroup, The Oberoi Hotels and Resorts, The Leela Hotels and Resorts as well as international hospitality players such as Starwood and IHG who have a presence in the Indian market. The primary data gathered helped to ascertain their perspective and to zero down on the specific challenges that hold the key to the future of the industry.

STRATEGIC GROWTH CHALLENGES

Strategic challenges are those challenges, which an industry faces in general a company faces in particular, that exert a decisive influence on an organization's possibility of future success. An organization's future competitive position relative to its competitors, i.e., providers of similar

126 Decoding the Strategic Growth

products or services, is driven by these challenges. Strategic challenges are both external and internal in nature; however the external strategic challenges have an impact on and shape the internal strategic challenges, they are uncontrollable and given, which makes them all the more important and significant. External strategic challenges generally relate to market needs and expectations, governmental framework for the industry, financial issues, and societal environment. Internal strategic challenges are largely confined to organizations capabilities, human resources, supply chain, etc. (Baldrige, 2011).

Strategic issues are fundamental policy questions or critical challenges that affect an organization's mandates, mission and values; product or service level and mix; clients, users, or payers, or; cost, financing, organization or management. (Bryson,1995). Even though the terms strategic challenges and strategic issues are similar in meaning, for the purpose of this paper strategic challenge as a nomenclature is used.

The hospitality industry in India faces many challenges on multiple fronts. "Many of the issues facing the Indian hospitality industry are global issues: viz. the introduction of new technologies, sustainability initiatives, and improving guest experiences. What makes India special is the tremendous growth that the country will see in the next decade," (Denison, 2012).

The challenges as delineated from various studies on, 'the challenges and issues facing the Indian hospitality industry', carried out in the recent past are as follows:

Jauhari (2012) identified various challenges the Indian hospitality industry is facing and categorised them into strategic challenges, marketing challenges, HR challenges and, technology, financial and destination management challenges. The strategic challenges delineated were land prices, cost of project funding, complex approval process for land, human resources, technology, finding viable new locations for expansion, etc.

HVS Hospitality Services (2011) identified the following:

- The hospitality industry which comes under the jurisdiction of the Ministry of Tourism; Government of India, does not have executive powers to overhaul the system.
- Tourism being a subject in the State List has led to a fragmented and piecemeal approach to address the needs of the sector.
- Hotels are not considered as infrastructure projects and only some

- states have accorded industry status to them.
- There is a high cost of debt for hotel development. Hotels are not permitted to raise finances through the External Commercial Borrowings (ECB) and / or Foreign Currency Convertible Bonds (FCCB) routes. There are hardly enough fiscal incentives provided by the government to attract investment into the capital intensive hospitality sector.
 - The licensing system is not transparent resulting in delay in grant of the requisite licenses by the authorities. This results in delays in execution of projects leading to cost escalation.
 - The laws governing the operations of hotels are outmoded.

Cushman and Wakefield (2009) point out that “a typical hospitality project requires numerous regulatory approvals, through imperious bureaucratic layers and multiple window clearances with each approval consuming enormous amount of time.” It takes anywhere from couple of months to years to acquire land and land conversions. Also, getting suitable and adequate land at strategic locations at affordable rates, and having a clear title are major challenges. There are variations in regulations across the different states of India making the entry especially difficult for new players in the hospitality sector.

- Land costs account for 30–50 % of the total development cost as compared to about 15 – 20 % internationally.
- They need to obtain numerous licenses, permits, and authorizations, like land-use permits, building and zoning permits, environmental and safety permits, liquor licenses, etc. Compliance with a number of regulations concerning preparation and sale of food and beverages, regulations and statutes governing employee relationships is also necessary.
- Intense competition with the entry of new players, new products and new systems.
- The lack of quality workforce and high turnover among skilled professionals (Hospitality India, 2010).

The Ministry of Tourism (2010-11) has identified that there are constraints faced by the hotel industry in the form of multiple clearances/approvals from the Central and State Government agencies which are needed for setting up hotel projects apart from the capital intensive nature of the industry and limited availability of land. Even though the number of clearances/approvals required by hotel projects varies from state to state, they

128 Decoding the Strategic Growth

can be as many as 65 or more resulting in delay in the implementation of the project and consequent cost escalation.

Muthe (2010) has recognized the challenges of Tourism and Hotel Industry in India and grouped them as poor infrastructure, low security, and lack of trained professionals, language and cultural barriers, and problem of easy access.

Corporate Catalyst India (2012) survey titled "Tourism and Hotel in Industry in India" earmarks poor domestic tourism infrastructure, terrorist strikes, riots, epidemics, political uncertainty, slowdown in reforms, destruction of local ecology, increase in pollution and the entry of new players leading to increase in competitive intensity as the key challenges facing Indian hospitality sector.

Infrastructure, regulations, availability of product bouquet, rising inflation, intercultural differences are the key challenges that the Indian hospitality industry faces today. The shortage of skilled manpower is another important challenge (Khanna, 2012).

The above has also been confirmed by ICRA (2012) in its quarterly review of Indian Hotels Industry that bureaucratic red tape, corruption, multiple licenses, complex approval procedures, exorbitant land cost are the challenges the hotel industry faces in India. These factors lead to longer gestation periods for projects to takeoff, which is anywhere between 0.5 years to 1 year longer than that for the Asia pacific region. The longer gestation period results in cost escalation vis-à-vis other countries of Asia pacific region.

Some of the key recommendations of a roundtable discussion for the Indian hospitality and tourism industry are: establishment of a single point access clearance system for hospitality projects; developing international collaborations; investing in training; and need to have close working relationship between government, industry and educational institutions (Jauhari, 2009).

Primary data was also gathered from premiere hospitality chains operating in the luxury segment in Delhi NCR. Semi-structured interviews were conducted with selected professionals from the industry including vice presidents, general managers and directors of leading hotel chains to gain an understanding of their perspectives on the strategic challenges, operational issues and ground realities they face in context of operating hotels in the Indian environment.

Amongst the external challenges the economic cycles emerged as the foremost challenge mainly due to the inelasticity of supply of hotel rooms in the short run. This makes it difficult for hospitality organisations to vary their rooms' inventory in response to the volatility in demand resulting from the ups and downs in the business cycles. This makes the industry vulnerable to changes in its economic environment. Cost of borrowing was also a challenge which daunted Indian hoteliers due to capital-intensive and asset-rich nature of the industry which leads to long gestation periods.

As regards the regulatory challenges, complying with legal and statutory requirements was identified as the most important challenge given the bureaucracy and red tape involved in getting clearances and licenses for setting up new hospitality businesses as well as running the day-to-day operations. This was followed by the challenges posed by the multiplicity and frequent changes in the rates of the various taxes and levies (such as luxury tax, service tax and so on) which are imposed on different hospitality products. These taxes vary from state to state within the country and are much higher than those levied in competitive tourist destinations such as Singapore, Thailand, etc. and therefore have a retrogressive effect on the hospitality industry in India as a whole. Other issues which were identified by Indian hoteliers related to environmental law compliance due the increasing emphasis being placed on "green practices" including energy conservation, pollution control, appropriate waste disposal methods, etc. in all the spheres of activity in hospitality operations.

In terms of the strategic challenges related to the internal operations of hotels, the long-standing challenge of manpower shortage both in terms of quality and quantity was unanimously identified as the top challenge. Attraction and retention of talent is considered to be a strategic growth challenge by hospitality professionals due to people-centric nature of the industry. This makes it highly dependent on its employees due to the key role they perform in delivering quality service. This was followed by the challenge of having to deal with the volatility related to the operating cost of the hotels which could have a direct and significant impact on the bottom line of the business.

FINDINGS

For ease of analysis, the challenges identified from secondary data and primary data have been categorized under three different heads - External

130 Decoding the Strategic Growth

Strategic Challenges, Internal Strategic Challenges and Regulatory Challenges

The findings from the secondary sources are tabulated as per the above categories:

Table 1: Challenges faced by Indian Hospitality Sector

External Strategic Challenge	Internal Strategic Challenges	Regulatory Challenges
<ul style="list-style-type: none"> • High cost of debt • Rising inflation • Economic cycles • Intense competition • Poor infrastructure • High cost of land • Corruption • Language and cultural barriers • Ministry of Tourism, Government of India does not executive powers • Tourism is a state subject as per the Constitution of India • Lack of industry status for hospitality sector • Multiplicity of taxes and levies – frequent changes to them • Terrorism & security issues 	<ul style="list-style-type: none"> • Shortage of skilled manpower • High rates of attrition • Volatility of operating costs • Long gestation periods 	<ul style="list-style-type: none"> • Licensing system and laws governing hotels are outmoded • Variations in regulations across states • Multiple clearances • Bureaucratic red tape • Compliance with environmental laws • Pollution control, waste disposal methods

From the above table it is evident that the Indian hospitality industry faces strategic challenges which originate within the organisation and outside the organisation including those which emanate from the regulatory environment in which it operates. A glance at the table suggests that external challenges are many in number compared to internal and regulatory challenges. However, it would be erroneous to conclude that it is only the external challenges that are important. External challenges need to be addressed at the individual firm level as well as at the industry level, as, by their very nature, they are uncontrollable to a large extent. Multiple agencies have to be involved in tackling these challenges. On the other hand, even though regulatory challenges are also external in nature, they

have been treated separately, as the governments at both the central and state level are involved and influence the regulatory challenges. Also, the regulatory challenges are domestic in nature and international events have a minor role to play here. As regards the internal challenges, they are intrinsic to the industry and the individual firm and are far more controllable. The approach adopted here is to put all the three challenges on the same platform to further analyze their implications for hospitality organizations as well as the industry as a whole.

External Strategic Challenges

The high cost of debt, inflation, economic cycles, multiplicity of taxes, and high cost of land are economic challenges. Economic cycles are a global phenomenon, so are terrorism and security issues. These challenges have their impact on every sector of the economy both at the country level and global level. Whereas high cost of debt, high cost of land, and inflation are peculiar to Indian Hospitality Industry and are usually at the country level. In this context the other external challenges have an impact here. As the hospitality industry is not recognized as industry by many states, access to cheap funds is automatically denied, thereby increasing the cost of borrowing. Also, hotel industry has not been given infrastructure status, which again results in high cost of borrowing.

Corruption, language and cultural barriers are social challenges, where the societal culture plays an important role. Societal culture does not change rapidly and even if it changes, the core remains intact; thereby these challenges exist and one needs to have effective strategies to deal with them (as detailed in the recommendations). Tourism is a state subject and thus the Ministry of Tourism has only an advisory role. These challenges are political in nature and give rise to other challenges that are regulatory in nature. However, the interplay of these challenges makes the issues arising from these challenges complicated.

Internal Strategic Challenges

At the outset as these are internal in nature, they are controllable and individual firms need to have a concrete plan of action in place to deal with these challenges. Here also, shortage of skilled manpower, high attrition rates, employee health and security are challenges for Human Resource Management (HRM), that need to be addressed as per the human resource

132 Decoding the Strategic Growth

policies of individual firms and when necessary the policies need to be modified to effectively deal with these challenges.

Volatility of operation costs and long gestation periods leading to higher investment and subsequent higher break-even point are economic in nature. The volatility of operational costs is related to rate of inflation in an economy, an external challenge. The long gestation periods are related to the multiple clearances needed to set up a hotel, bureaucratic red tape, and outmoded laws governing hotels, which are regulatory challenges.

Regulatory Challenges

These challenges emanate from the rules and regulations laid down by the Government and its agencies. For setting up a hotel and commence operations one needs to obtain around 100 approvals, licences, permits, which again vary from state to state (Regulatory issues impact hospitality sector, 2013).

The various laws that govern hospitality industry could be divided into three sets. The first governs the construction and commissioning of hotels, restaurants, guest houses, etc, the second governs operation, maintenance, and management of establishments and the health and safety of occupants, and the third governs taxation, employment and other contractual relationships.

The first set includes the Foreign Exchange Management Act (FEMA), the industrial licensing policy, the Transfer of Property Act and the other development and control orders issued by the central government, state governments and the municipal bodies.

The second set governs operation, maintenance and management of establishments and the health and safety of occupants, which includes the Indian Contract act, Health and Safety laws, insurance laws – notably public liability insurance, fire safety and hygiene regulations. The various licences to be obtained are liquor licence, dance licence, lodging house licence, eating house licence, police permissions, a licence under the Shop and Establishment Act, a licence under the Food and Drug Administration Act, which are granted on an annual basis. This means that establishments have to get these licences every year.

The third set includes laws on income tax, service tax, expenditure tax, excise and customs duty, luxury tax, entertainment / amusement tax,

and laws on pension, gratuity, provident funds, and other employment laws (Goel and Pimpalkhute, 2007).

Specifically for restaurants they need to get at least 13 licences to start operations. These licences are tabulated as follows:

Table 2: Licences Required for Operation of a Restaurant

Nature of Licence	Issuing Authority	Mandatory / Optional
Food Safety License	FSSAI	Mandatory
Health / Trade License	Municipal Corporation / Health Department of the concerned state	Mandatory
Eating House License	Police Commissioner - Licensing	Mandatory
Liquor License L-4 (L-17 as per new Excise Rule)	Excise Commissioner	Mandatory for service of Liquor in the Restaurant otherwise not
Approval /Re-approval of Restaurants	Department of Tourism of Government of India in the State concerned	Mandatory – only for obtaining L-4 License
Playing of Music in restaurants - License	Phonographic Performance Limited / Indian Performing Right Society	Mandatory, when recorded / live music of the copyright holders is played in the restaurant
Environmental Clearance	Concerned authority in the state	Mandatory
No Objection Certificate from Fire Department	Fire Department of the Concerned State	Mandatory
Lift License	Concerned authority	If lift is to be installed
Insurance to be taken - Public Liability - Product Liability - Fire Policy - Building & assets	Any insurance company	Mandatory Mandatory Mandatory Mandatory

134 Decoding the Strategic Growth

Nature of Licence	Issuing Authority	Mandatory / Optional
Nominations under Prevention of Food Adulteration Act 1954, Section 17(2) and Rule 12 B of the Rules 1955	Director Prevention of Food Adulteration of the concerned state	Mandatory
Shop and Establishment Act	As prescribed in the Act and as applicable to the state	Mandatory
Signage License	Municipal Committee / Corporation of the City	Mandatory

There are also issues like bureaucratic red tape, resulting from the numerous permissions and licences required from various authorities and the numerous laws that govern the hospitality sector as well as the work culture that exists within the government and its bodies. Many of the regulatory challenges find their roots in the fact that tourism is a state subject and the Ministry of Tourism, Government of India has an advisory role only. These regulatory challenges also cause delays in implementing hotel projects and increase the cost of setting up and operating a hotel.

In order to comprehend the nature of the challenges and their impact, the industry should take a holistic perspective; so that the relationships between these challenges are understood and effective measures are taken to overcome these challenges.

RECOMMENDATIONS

The Ministry of Tourism, (2010-11) has recognized some of these challenges and has already initiated some steps in the right direction. One of the initiatives is the setting up of the Hospitality Development and Promotion Board (HDPB) for hotel projects with the core function of monitoring and facilitating the clearances and approvals of hotel projects both at the Central and the State Government level. This initiative of the Ministry of Tourism will to an extent alleviate the influence of the challenges that the Indian hospitality industry is facing today. However the Board will not supersede the statutory clearances of other agencies. The industry needs to impress upon the Ministry to come out with a comprehensive and uniform code for clearances to be adopted by all the state governments, as there are

a plethora of clearances, (as listed earlier) to be taken by the hospitality industry, which differ from state to state. This will to a large extent mitigate the problems and the delays encountered by the hospitality industry in setting up new units.

There are three contexts of the hospitality business: *the industry context, the corporate context and the venue context*. These are necessary for understanding the hospitality business (Slattery, 2002). The recommendations will comprehensively cover all the three contexts.

The recommendation to include Tourism as a subject in the concurrent list of the Constitution of India, so that tourism comes under the domains of both central and state governments, is laudable (HVS, 2009). However, this is for the Central Government and various State Governments to consider. This calls for a strong political will and in the present state of politics in India, where coalition governments are a rule rather than an exception, it becomes difficult. Here again the industry needs to take proactive steps and lobby with the government to change this.

As regards the *regulatory challenges*, Indian companies are better placed than multinational and global companies (foreign companies); as they are well-versed with the system, have the wherewithal to successfully navigate through the maze of regulations. As far as getting clearances for acquisition of land and construction of hotels, the Indian real estate companies would be the most suitable partners for the foreign companies and also large Indian hospitality companies to tie up with, whereby these Indian real estate companies build the properties. These properties will in turn be managed by these hospitality companies. For example: IHG has taken a 24 % stake in Duet India Hotels Group to build 19 Holiday Inn Express hotels over the next five years. Carlson bought out its local development partner RHW Hotel Services, Hilton Worldwide has tied up with Eros Resorts & Hotels, etc (ICRA, 2012). Thus the hospitality industry with its technical knowhow and expertise in managing the hotels will be leveraging its strengths and the real estate companies leveraging its strengths resulting in synergy and a win-win situation.

The industry also, through its apex associations needs to focus on other regulatory challenges pertaining to policies. It needs to create adequate pressure on the government to come out with industry-friendly policies. This is achievable as the ministry of tourism is aware of the challenges and

136 Decoding the Strategic Growth

some steps have already been taken by the ministry. At the individual firm level, the firm has to constantly scan the environment in order to identify the signs and indications of change even before a change occurs, so that the firm is very well prepared to face the challenges resulting from the change.

With reference to *the human resource challenges* – shortage of skilled manpower and high attrition rates, the hospitality firms should look at non-traditional sources of manpower. India has a huge pool of educated but unemployed youth (graduates and above), who are not technically qualified to take up positions in the hotels. This pool needs to be tapped by companies by selecting candidates with the appropriate attitude to work in the hospitality industry. These candidates should be trained in areas where there is a shortage of manpower and deployed after successful completion of training. The cost of training can be recovered by using the time-tested bond to serve the company for a minimum period of time. These training initiatives can be taken in partnership with Non-governmental Organizations, who are active in skill development. The focus of recruitment is small cities and towns, where the levels of unemployment are high due to paucity of employment opportunities.

In order to overcome the language and cultural barriers, each property needs to analyze its existing customer base, based on the cultural/regional perspective and identify customer groups with similar or same culture and rank them on the basis of importance (revenue earned from each group). This analysis should also identify the languages of the important customer groups. Then cultural profiling of those employees who have a customer facing role should be carried out to ascertain the cultural fit. Those who are compatible can man the customer facing positions without any training and others need to undergo cross-cultural training. The objective of this training is to make the employees culturally savvy. Customer feedback is another starting point for identifying the cross-cultural training need. In the light of this periodical review of the work from a cultural perspective becomes necessary. This will largely eliminate the cultural barriers.

The United States of America and the United Kingdom contribute 24% of the overall demand and thereby are the largest international markets for the Indian hospitality sector (FH&RA India, 2012). This translates into a major need for English speaking personnel. Language challenges do

exist, even with regard to English language in India, due to strong regional accents and influence of regional languages on the English language and even use of the regional language along with English, which becomes a hybrid language. An acute need is to neutralize the accents of those employees with a critical customer facing role, so that they are able to effectively communicate in English. As far as other languages are concerned, individual hotel properties need to analyse the customer profile and focus on the languages of those customers who form a sizeable percentage. Training in other languages hence needs to be selective.

As regards the *challenges in the realm of pollution control and waste disposal* methods, compliance with the local laws and regulations is necessary. However, the best practices of the hospitality industry worldwide in these domains need to be adopted right from the beginning of the project, thereby making compliance with the government regulation easy and cost effective.

REFERENCES

- Baldrige Glossary (2011) *Strategic Challenges*. (online) (cited on 10 January 2012) Available from <URL: http://www.baldrige21.com/BALDRIGE_GLOSSARY/BN/Strategic_Challenges.htm>.
- Bararia, A. (2011) *2011: The year that was for Indian Hospitality*. (online) (cited on 12 February 2012) Available from <URL: <http://www.indiahospitalityreview.com/features/2011-year-was-indian-hospitality>>.
- Bryson, J.M. (1995) *Strategic Planning for Public and Non-profit Organizations: A Guide to Strengthening and Sustaining Achievement*. San Francisco: Jossey-Bass.
- Businesswire (2012) *Research and Markets: Hotel Industry Report* (online) (cited on 12 February 2012) Available from <URL: <http://www.businesswire.com/news/home/20110705005319/en/Research-Markets-Hotel-Industry-Report---2015>>.
- Corporate Catalyst India (2012) *Tourism and Hotel Industry in India* (online) (cited on 12 February 2012) Available from <URL: <http://www.cci.in/pdf/surveys-reports/tourism-hotel-industry.pdf>>.
- Cushman & Wakefield (2009), *India Report, The Voyage: An Exploration of the Key Hospitality Markets in India*, Cushman & Wakefield, Mumbai
- Denison, J. (2012) proceedings of the Cornell International Hospitality Summit India (online) (cited on 12 February 2012) Available from <URL: <http://www.hospitalitynet.org/news/4054735.html>>.
- Express Hospitality (2012) *Challenges Facing Indian Hospitality* (online) (cited on 12 February 2012) Available from <URL: <http://www.expresshospitality.com/20090315/management07.shtml>>.

138 Decoding the Strategic Growth

- FH&RA India (2012) *Indian Hotel Industry Survey 2011-2012*, Federation of Hotels and Restaurants Association of India, New Delhi.
- Goel, V., & Pimpalkhute, H (2007) Indian hospitality: the industry, regulations and incentives, *The In-House Lawyer December 2007 / January 2008*, pp.80-82.
- HVS Hospitality Services (2011) *Critical Issues Facing Indian Hospitality – An HVS White Paper* (online) (cited on 27 January 2012) Available from<URL: <http://www.hvs.com/Content/2755.pdf>>.
- IBEF (2012) *Tourism and Hospitality* (online) (cited on 12 October 2012) Available from<URL: <http://www.ibef.org/industry/tourismhospitality.aspx>>.
- ICRA (2012) *Hotels in India to finish FY12 on a weaker note* (online) (cited on 27 January 2012) Available from<URL: <http://www.moneycontrol.com/news/icra-reports/hotels-industry-to-finish-fy12-onweaker-note-icra-686734.html>>.
- Javalgi, R.G., & White, D.S. (2002). Strategically challenges for the marketing of services internationally. *International Marketing Review*, 19:6, pp.563-581.
- Jauhari, V. (2012), Summing up key challenges faced by the hospitality industry in India, *Worldwide Hospitality and Tourism Themes* 4:2, pp.203-211.
- Jauhari, V. (2009), The hospitality and tourism industry in India: conclusions and solutions, *Worldwide Hospitality and Tourism Themes* 1:1, pp.75-80.
- Khanna, M. (2012) *Indian hotel industry – current and emerging trends*. (online) (cited on 15 March 2012) Available from<URL: <http://www.expresshospitality.com/20111215/management03.shtml>>.
- Licensing Updates (2013) National Restaurant Association of India (online) (cited on 16 November 2013) Available from<URL: http://www.nrai.org/ind_updates.asp?id=4>.
- Ministry of Finance, Government of India (2013) *Economic Survey 2012-2013 Services Sector* (online) (cited on 22 August 2013) Available from <URL:<http://indiabudget.nic.in/es2012-13/echap-10.pdf>>.
- Ministry of Finance, Government of India (2012) *Economic Survey 2011-2012 Services Sector* (online) (cited on 20 January 2012) Available from <URL:<http://indiabudget.nic.in/es2011-12/echap-10.pdf>>.
- Ministry Tourism, Government of India (2011) *Annual Report 2010-11* (online) (cited on 12 January 2012) Available from< URL: <http://tourism.gov.in/writereaddata/uploaded/tender/053120110313488.pdf>>.
- Muthe, P.R. (2010), 'Global Recession: Challenges and Opportunities for Indian Tourism Industry' *Research Analysis and Evaluation* issue: 8.
- Regulatory issues impact hospitality sector (online) (cited on 14 November 2013) Available from<URL: <http://www.indiahospitalityreview.com/news/regulatory-issues-impact-hospitality-sector-fhrai/9871>>.
- Reuters (2011) *Research and Markets: Hotel Industry Report* (online) (cited on 12 January 2012) Available from <URL:<http://www.reuters.com/article/2011/07/05/idUS96855+05-Jul-2011+BW20110705>>.

Slattery, P (2012) Findings the Hospitality, *Journal of Hospitality, Leisure, Sport & Tourism Education* 1:1, pp.19-28

Technopak (2009) *Indian Hospitality Industry Outlook* (online) (cited on 10 June 2012). Available from <URL: <http://www.technopak.com/resources/hospitality/report.pdf>>.

World Travel and Tourism Council (2013) *Economic Impact 2013 India*, (online) (cited on 6 November 2013). Available from <URL: http://www.wttc.org/site_media/uploads/downloads/india2013_1.pdf>.

Dr. Durgamohan Musunuri is Professor and Program Director at Institute for International Management and Technology, Gurgaon, India. Email: durgamohan27@yahoo.com.

Sonia Bharwani is Visiting Faculty at Institute for International Management and Technology, Gurgaon, India. Email: sondav100@gmail.com.

PURSUING SUCCESS IN SERVICE RECOVERY: A CONCEPTUAL FRAMEWORK OF SALESPERSON'S POWER IN SELLING CENTRE

Prabakar Kothandaraman
Rebecca E. Dingus

Raj Agnihotri

In this paper, we theoretically explore the nature of socio-structural ties that exist among selling centre members in helping a salesperson perform better in managing customers, especially during the service recovery phase while dealing with their major accounts. Drawing on literature from service recovery, social network analysis, and sales management, we propose a conceptual model involving a salesperson's power within the selling centre network structure. We also outline some key personal and structural variables that would influence a salesperson's power. Propositions outlining the relationship between salesperson's power and service recovery success are developed. Implications for practice are also discussed.

INTRODUCTION

The traditional selling approach has resulted in a new era of relational selling where salespeople are bound to perform novel job activities that include “solving problems when service failure occurs” (Chang, 2006, p. 203). Scholars emphasize this changing face of the sales force and call upon researchers to expand the scope of sales research beyond the salesperson's traditional sales functions (derived from the panel discussion on *New and Underexplored Topics in Sales* by Ahearne, Lee, and Marshall at *National Conference in Sales Management, 2011*). Responding to the call, this research focuses on the role played by the salesperson in implementing the internal value-creating functions that in turn create superior customer experience by solving problems in the event of a service failure. More specifically, we seek to theoretically explore a salesperson's influence derived from his/her ability to develop and maintain socio-structural ties within the selling organisation.

It is common knowledge that salespeople need to activate from time to time a plethora of support systems within their own organisation to be effective in developing and maintaining customer relationships. Studying salespeople's behaviours within their own organisations has gained attention of scholars considering that “a better understanding of the intra-organ-

isational behaviour of salespeople might assist in explaining incremental variance in sales performance across salespeople” (Plouffe and Barclay, 2007, p. 528). Increasingly, researchers are attempting to decipher the role of salespeople’s social networks within their own organisations and its effect on various individual and organizational level outcomes (e.g., Flaherty et al., 2012; Ahearne et al., 2013).

Findings from inter-organisational and intra-organisational relationship literature also point to the central role played by the salesperson in coordinating an organisation’s activities in its interactions with customers (Tellefsen and Eyuboglu, 2002). Salespeople’s task of coordination is made more complex as they are often compelled to face conflicts within the selling organisation because of the nature of goals that govern the individual functioning of different departments. For example, a salesperson who sold a complex computer aided design (CAD) system to a client needs to, at the post-purchase service stage, work with the support team to keep customers happy. Since what is reasonable and what is not is a matter of interpretation, a salesperson who knows how decisions are made within her own selling organisation has a better chance of doing more toward satisfying both potential and ongoing customer relationships. The above illustration draws attention to the nature of interactions between the salesperson and other functions to deliver value and superior customer service in customer relationships that have been briefly touched upon in literature (e.g., Workman, Homburg, and Jensen, 2003).

Salespeople often need certain power and influence within the selling organisation to deliver value in customer relationships. Steeped in the emerging tradition of researching the link between inter- and intra-organisational relationships (e.g., Kothandaraman and Wilson, 2000), recent studies have started looking into how salespeople manage their internal relationships within the selling organisation to maintain consistency in external relationships (Tellefsen and Eyuboglu, 2002). In a study of salespeople responsible for major account management, Sengupta, Krapfel, and Pusateri (2000) allude to the importance of informal influence that the salesperson acquires and exerts within the firm. In another study, Workman, Homburg, and Jensen (2003) reinforce the importance of an intra-organisational dimension to gain effectiveness in key account management.

This is perhaps more true in the case of service failure as it has the

potential to negatively affect the loyalty intentions of customers (Miller, Craighead, and Karwan, 2000). Offering a positive service experience is considered a key step to gain repeat customers. Customer-serving roles are primarily played better by people who are adaptive to social learning processes through which they learn how resources can be obtained and utilized (Lam, Kraus, and Ahearne, 2010). Salespeople should have better knowledge of informal networks that exist within the buying organisation, and they should also deal with the network structure within their own organisation to obtain the required resources in order to succeed in the service recovery process.

Thus, this study poses and seeks to answer the following research questions:

1. What factors may help us understand why some salespeople are better than the others in dealing with informal networks within the selling centre?
2. How can salesperson power result in service recovery success?

The remaining paper is organised as follows. Firstly, we will outline some of the theoretical bases for this research from service recovery, social networks and personal selling and sales management. Secondly, we introduce a conceptual framework involving antecedents and consequences of salesperson's power within sales organisation, our focal construct, with a set of tentative propositions. Finally, we conclude by discussing the potential importance of this research for theory and practice.

Salesperson's Power

The salesperson needs vital organisational resources to perform a variety of customer related tasks (Bradford and Weitz, 2012). Each task could range from pre-sales support to negotiation, post-sales order fulfillment, after-sales service, etc. Marketing literature has focused mostly on the organisational needs to coordinate marketing and other functions and minimize inter-departmental conflicts to implement marketing strategies (Smith, 2011). There has been some emerging interest in the role of salesperson in coordinating such activities (Tellefsen and Eyuboglu, 2002) and taking initiatives to offer services to customers (Sengupta, Krapfel, and Pusateri, 2000). Recently, Plouffe and colleagues (2010) utilized the construct of power as a *predictor* of a salesperson's internally-directed selling

behaviours, which further led to enhanced sales performance. However, to our knowledge, there is no systematic inquiry to date that has addressed the *source* of a salesperson's power in affecting such coordination that spans across functional areas.

Power has been viewed as a multi-level concept (Brass, 1984; Brass et al., 2004), and empirical research on power and influence has typically followed two distinct patterns: structural and individual (Salancik and Pfeffer, 1977). Sociological theories of power (Pfeffer, 1981) posit that power is first and foremost a structural phenomenon. McCall (1979, p. 189) points to the importance of "being in the right place." However, recent literature highlights the limitation of structural analysis of individual power (e.g., performance, political skills) beyond the concept of hierarchical authority (Treadway et al., 2011).

Although we concede that there are limits to an individual's ability to exercise individual power and that within the organisation those limits are prescribed by the hierarchical position an individual occupies, we argue, in this study, that personal attributes and strategies may have an effect on power acquisition. We further argue that a salesperson who acquires power within his/her own selling organisation will be able to influence events in a fashion that results in maximum customer satisfaction. In order to describe salesperson power, we turn to social psychology and social network literatures.

To understand the variability that may exist among an individual salesperson's power, we once again draw on network studies that have investigated the social networks within organisations. The reading of that literature presents us with two distinct sources of potential variability. The first one deals with the social position of the individual in her formal and informal network within the organisation. The social structure of an organisation is defined by its pattern of social network and inherent relationships (Brass et al., 2004). Considering the changing patterns of informal structures in organisations, it is likely that salespeople's positions in such networks are constant over time and therefore it is useful to include them as part of our study into salesperson's power.

Further, it is a basic premise of all sociological thinking that the opportunities for and circumstances of social interaction are not random but, instead, are distributed according to the patterns defined by the social

structure (Casciaro, 1998). Thus, a salesperson with a favorable network position will have better knowledge of who is friends with whom and who goes to whom for advice, etc. These multidimensional relationships, which emphasize friendship and sharing advice, have been found to influence salesperson performance (Claro, Gonzalez, and Claro, 2012). More explicitly, a salesperson’s position in an organisation’s social structure may be related to her overall knowledge because it is a major influence in determining what information the salesperson is exposed to. A salesperson’s structural position may provide her with the knowledge on who, from sales, has the ears of the manager that allocates support persons to post-purchase situations. This knowledge will ultimately enable her to get the particular support person for service recovery efforts.

The conceptual framework for the study is given in Figure 1. In the next section, we investigate two sets of antecedents of salesperson power based on the structural and personal characteristics of the salesperson.

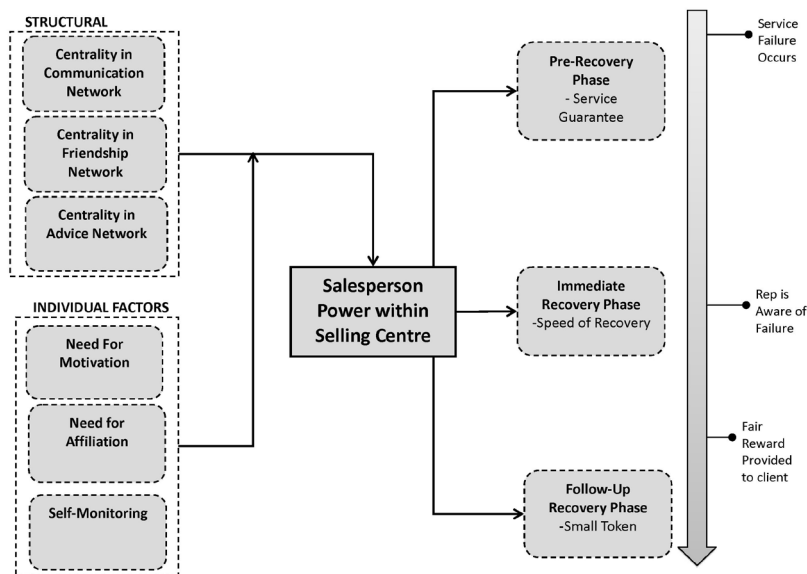


Figure 1: Conceptual Framework

Model Development

The depiction of “getting things done” based on a salesperson’s knowl-

edge of informal networks can be better appreciated if we consider organisations as political economies where internal sociopolitical structure is characterized by power-dependent relations between actors (Zald, 1970; Stern and Reve, 1980). Given that the salesperson's position in the informal social structure of the organisation may provide him with knowledge of such relations (Bradford and Weitz, 2012), it can be deduced that the salesperson's position in the informal network within her selling organisation is likely to influence her power.

For the current research, we use social network measures to capture a salesperson's social structural position aligned with industrial marketing literature that views customer-facing executives as social actors and marketing organisations as having patterned, repeated interaction among these social actors (Hutt and Walker, 2006). Exchanges between organisational actors have been studied as "flows" between actors in the network (i.e., exchange of goods, exchange of information and ideas, and affect or liking) (Tichy, Tushman, and Fombrun, 1979; Inkpen and Tsang, 2005).

In a study of differences in individual positions within networks, Brass (1984) used the (1) work flow network, (2) communication network, and (3) friendship network that viewed actors who occupied central positions in their social networks as potentially powerful because of their greater access to, and possible control over, relevant resources. Consequently, we use the network construct of centrality (Bulte and Wuyts, 2007) to assess a salesperson's structural position and argue that high network centrality will be associated with greater power.

A salesperson's social structural position can be used to explain her ability to influence decisions in a selling centre with respect to associated accounts and her ability to map the selling centre organisation accurately. A salesperson's primary source of power may be derived indirectly from her structural position within the communication network of her selling centre. Relationships and work networks within the organization are instrumental for creating solutions for customers (Üstüner and Iacobucci, 2012). In the key account management literature, there is also mention of salespeople using their personal friendships within their organisations to manage and serve key accounts (Sengupta, Krapfel, and Pusateri, 2000). Consequently, it is reasonable to expect that a salesperson's centrality in friendship networks will play a role in explaining her power. Further, a

salesperson may also benefit from knowing who goes to whom for advice on work-related matters. Such interactions are characterized by advice networks (Casciaro, 1998), and a salesperson's centrality in such a network is also likely to be positively associated with her power.

Communication Network

Membership and position in communication networks facilitate individuals to exchange information. Sales literature on salesperson's dealings with buying centres and key accounts also suggests that controlling relevant information leads to a position of influence (Claro, Neto, and Claro, 2013; Workman, Homburg, and Jensen, 2003). It has been argued that sales executives who are connected to diverse constituencies and who are able to smooth the information communication across the network will be more effective in performing their duties (Flaherty et al., 2012). In line with that logic, it is reasonable to propose that salespeople who are central to the selling centre's communication network are better able to influence decisions regarding their accounts. Further, their central position in the network also enables them to accurately perceive the interaction patterns among other members of the selling centre. Therefore, a salesperson's high centrality in their communication network is associated with high power. Formally stated,

P1: A salesperson's centrality in a selling centre's communication network will be positively associated with her power in terms of influencing decisions associated with customer service.

Friendship Network

Literature on social network has asserted that centrality in friendship networks is positively associated with a better and more accurate understanding of networks (Casciaro, 1998). Often success in a sales organisation is attributed to being part of, or well integrated into, an internal social network (Ahearne et al., 2013). It has been argued that friendships can provide salespeople with access to information and people and even be construed as a basis for effectiveness (Bulte and Wuyts, 2007). More recently, Claro and colleagues (2013) posited that "friends' ties can provide the salesperson with a stronger voice within their firm, via relationship commitments, resulting in their business interests being more highly prioritized by net-

148 Pursuing Success in Service

work members” (p. 163). Similarly, salespeople who are integrated well into elaborate friendship networks within their selling teams will be able to influence their organisation’s decisions and behaviours toward their key accounts. Further, their knowledge of the presence or absence of friendship among other team members will be influenced by their ability to occupy central positions in their friendship network. Formally stated,

P2: A salesperson’s centrality in a selling centre’s friendship network will be positively associated with her power in terms of influencing decisions associated with customer service.

Advice Network

Another important network that cuts across formal hierarchies in an organisation is the advice network. Recent marketing literature that focuses on in-degree centrality in the advice network of a sales manager suggests that high in-degree centrality will result in two vital gains: “information access” and “high visibility and prestige in the group” (Ahearne et al., 2013). In case a salesperson is able to be a central figure in such advice networks, she will be able to acquire power as more people depend on her for advice. In our earlier CAD system selling illustration, a marketing person who wants to come up with bundled products to influence demand may have to get advice from the technical personnel to ensure that the final bundle is indeed viable. In these cases, personnel may go to other individuals for work-related advice (Joshi, 2010). If more members of the selling centre depend on the salesperson for advice, this makes her central to the network and thereby more powerful.

We argue that the salesperson who is high on centrality in advice networks will be better able to influence the selling centre’s decisions with respect to her accounts. Further, by virtue of being in a position to give advice, the salesperson also has the opportunity to get to know the market share of other members of the advice network and to know which constituents seek whom for advice. A salesperson that is able to utilize the advice network links will be better able to preempt any objection for her agenda of better customer management and superior customer experience. Formally stated,

P3: A salesperson’s centrality in a selling centre’s advice network will be positively associated with her power in terms of influencing decisions associated with customer service.

Need for Achievement and Need for Affiliation

Psychological capacities of an individual are considered to play an important role even if that individual enjoys a network centrality. For example, Reinholt, Pedersen, and Foss (2011) argued that an employee may not explore the opportunities that emerge from network centrality because of the “possible psychological and social costs associated with requesting help from a colleague” (p. 1280). Therefore, need for achievement, which can be defined as the need to strive for success or to accomplish difficult tasks (Jones and Melcher, 1982; Bell and Blakeney, 1977), will influence the link between network centrality and power.

It is intuitive that the salesperson with a high need for achievement will strive to obtain positive evaluations of her performance. To this end, the salesperson is likely to focus both on the source of evaluation and the means of achieving goals. Focusing on the source suggests a strong relationship and informal influence motive that would lead to the salesperson’s attention to the overall friendship network surrounding her. The salesperson might also perceive a need to be abreast of the evaluation process and signal qualities important for positive evaluation by having access to the right people who are well connected within the organisation. In order to achieve this, the salesperson is likely to be attentive to the informal network ties that connect powerful individuals within the selling organisation. Salespeople’s focus on the means to achieve their goals would make them anxious to get sound advice in order to get there. This will motivate a salesperson to seek out the ‘right’ people for advice on activities to be undertaken in order to succeed. Since knowledge of such an advice network is power (Krackhardt, 1990), a salesperson will seek to manage them so as to obtain power to achieve her goals. Formally stated, *P4: In managing communication, friendship, and advice networks, power will be higher for salespeople with a strong need for achievement compared to salespeople with a weak need for achievement.*

Need for affiliation is defined as a need to secure and maintain friendly associations (Jones and Melcher, 1982; Bell and Blakeney, 1977). A strong need for affiliation is likely to motivate a salesperson to attend to the informal friendship network within the selling centre. Such salespeople are likely to devote much of their behavioural efforts and energy to

150 Pursuing Success in Service

managing the informal relationships within their selling centre. Formally stated,

P5: In managing communication, friendship, and advice networks, power will be higher for salespeople with a strong need for affiliation compared to salespeople with a weak need for affiliation.

Motivation Based On Self-Monitoring

Self-monitoring is defined as an individual's tendency toward self-observation and self-control, guided by situational cues to social appropriateness (Snyder, 1974). In sales literature, self-monitoring salespeople have been credited with more instances of adaptive selling (Agnihotri and Rapp, 2010). Salespeople high in self-monitoring tend to be better aware of their social environment in the workplace (Flaherty et al., 2012). Consequently, they tend to be motivated to understand the web of relationships that connect individuals in their selling centres, which could lead to better management of network structures surrounding them. Although their motivation to be attentive stems from a desire to comply with social norms, managing their network is likely to follow as a by-product of attentive monitoring of the social environment (Casciaro, 1998). Formally stated,

P6: In managing communication, friendship, and advice networks, power will be higher for salespeople with high self-monitoring compared to salespeople with low self-monitoring.

Salesperson Power and Service Recovery Success

When a service failure occurs, salespeople's networks within their own organisations play an important role in service recovery, as much value can be garnered from a salesperson's network involvement. A salesperson who can effectively navigate through network structures of the selling organisation members in general, and service support members in particular, has the ability to influence major decisions involving her current and potential key customers (Plouffe, Sridharan, and Barclay, 2010).

Salespeople who have developed strong networks are more familiar with the network structures—formal as well as informal—of their own organisations. When a service failure occurs, salespeople who are well-connected within their own organisation will have increased knowledge of how to most appropriately address the issue because of their familiarity of intraorganisational workings (Chang, 2006). In addition to familiarity

with procedures across the firm, they also have an insider perspective of the true responsibilities and skills of the employees in their networks. This knowledge is powerful, and such accessibility is learned best through the fostering of strong interpersonal relationships and well-developed understandings of the firm's networks.

When salespeople establish and maintain these intraorganisational relationships in a positive manner, both parties feel a commitment to each other. With well-developed network relationships comes a willingness to reach out and help salespeople when assistance is needed. The stronger and broader their relationships are across different networks, the more astute they will be at "getting things done" and resolving problems in the most efficient and effective ways possible. However, salespeople who do not maintain these relationships will have to ask for favors from other employees in the firm. From time to time, this may not be a problem. However, over time, the salesperson will likely receive dwindling support from those who feel they are being nagged only when they are needed.

Familiarity with the full sales process, awareness of the firm's inner workings, and knowing the best people to help whenever a problem arises is a clear advantage for salespeople who have spent time developing networks and establishing their power within a firm. When a service failure occurs, salespeople with strong network ties can immediately engage in beginning the recovery phase—and this timeliness is one of the key reasons for responding to and maintaining positive relationships with customers (Miller, Craighead, and Karwan, 2000). Naylor and Frank (2000) have found that customers have much higher perceptions when salespeople are more responsive.

To return to our CAD system example, consider a situation when the customer experiences significant problems in connecting the system with manufacturing machinery on the shop floor. This results in production delays. Clearly, this is a service failure, as connectivity to machining is crucial to the effectiveness of CAD systems. Salespeople with the strongest ties within their firms will be able to identify and address the problem best. They know where to start, and often who to approach, to identify the root of the service failure. In this example where blame games involving hardware, software and training experts could potentially escalate tension with the customer, a well-networked and powerful salesperson would succeed

152 Pursuing Success in Service

better at recovery than others, as she would know which individuals from hardware and software groups should be asked to engage the customer. More importantly, for a socially-immersed salesperson, this would be a natural starting point in the service recovery process.

Once a service failure has been recognized, salespeople who are power players within their firm can promptly notify their customers of the situation and let the customers know what initiatives are already in place to begin to rectify the problem. When a service failure occurs, customers appreciate prompt communications (McCollough, Berry, and Yadav, 2000). Informed salespeople can do their best to promptly uphold and fulfill all promises made to customers and be most accommodating to the customers when fixing problems.

Because salespeople who are successful at maintaining strong network ties within their organisation are also likely to have strong ties with their customers, this should encourage them to maintain contact with the customer throughout the service failure. At the pre-recovery phase, well-networked salespeople will be able to clearly communicate with the customer that a problem arose but they are honoring their service guarantee. Because of the well-developed network that a salesperson with power in the selling centre will have, the recovery phase will be relatively short as an efficient recovery effort is made. However, powerful salespeople realize that not only must they resolve the problem, but they will also need to accommodate the customer for the mishap. Some research finds that strong recoveries can “create more goodwill than if things had gone smoothly in the first place” (Hart, Heskett, and Sasser, 1990, p. 148). Whether through a small token or gift, a salesperson with strong relationships and power should be able to gauge the situation to determine what constitutes a fair reward for the client.

Thus,

P7: In the event of a service failure, salespeople who have higher power within selling centre are more likely to bring about a higher level of customer satisfaction with the service recovery than salespeople who have less power.

DISCUSSION AND IMPLICATIONS

Sales research needs to align with the evolving sales practices to add value

to our intellectual sales knowledge (Williams and Plouffe, 2007). For this purpose, academic research has to explore the different perspectives on salesperson role (Moncrief and Marshall, 2005). Salesperson's intraorganisational abilities and behaviours is one such area that is important (Weitz and Bradford, 1999) yet under-researched (Plouffe and Barclay, 2007). To address this issue, we bring together theoretical viewpoints from sociology, social networks, and personal selling and sales management. Specifically, we proposed a theoretical model of salesperson's power, its antecedents, and its consequences. Our research significantly mirrors the challenges faced by today's salespeople who are expected to operate as product experts (Agnihotri, Rapp, and Trainor, 2009), consultants (Anderson and Dubinsky, 2004), and service managers for customers (Bagozzi, 2006; Palmatier et al., 2006).

In this research, we have argued that the importance of salesperson power is based on the premise that it enhances a salesperson's abilities to influence the service recovery process. In industrial marketing studies that use a network approach, the influence construct has been defined as the extent to which as a person's communication inputs are perceived to impact the final outcome (Bristor, 1993). A salesperson with greater power may be in a better position to have her inputs incorporated into service decisions related to her customers. Salesperson power is critical for the salesperson to make any meaningful contribution to job activities (Plouffe, Sridharan, and Barclay, 2010). Further, salespeople are likely to exhibit better satisfaction with their jobs if they are able to exert influence on decisions related to their customers.

Salespeople increase their network capabilities by broadening and strengthening relationships with other members of their organisations. Salespeople who maintain strong intraorganisational networks have a more comprehensive knowledge of the selling process than those whose expertise exists only within their product offerings. This knowledge helps these salespeople to confidently assure their customers of service levels and guarantees. However, if something does go awry in a transaction, well-networked salespeople should be better suited to overcome service failures because of their extensive know-how and power across the organisation.

Across an organization, different people strive for different objectives, which may affect network formation as well as service. Sales goals

may be externally oriented (e.g., customer satisfaction), while engineering and design goals may be internally focused (e.g., cost reduction). Further, organisations' technical personnel resources are limited and, frequently, a salesperson who taps into the right contact within the organisation may get the requested task completed in a timely fashion. For example, in large and complex business exchanges, customers may be more demanding and, many times, the few extra hours that they get to spend with the technical people may impact their intentions for repeat business with the particular organisation.

This means that the salesperson needs to obtain additional resources from an organisational system that is typically designed to address the average customer needs. Sometimes a potential buyer might ask the salesperson for a technical appraisal of her needs, although there may be no immediate proposal to buy the system. A salesperson with the knowledge of the prospect's future buying plans may see it as a reasonable request. However, the support staff may not agree. Our research propositions lay out the groundwork for salespeople to systematically prepare to utilize the selling organisation to their distinct sales advantage.

Marketers have long sought to understand how to deal with the multiple influences of buying centres (Bristor, 1993; Johnston and Bonoma, 1981). There have also been attempts to systematically study groups within the seller organisation, such as selling centres that help salespeople deliver value to their key customers (Moon and Gupta, 1997). However, understanding the role played by salespeople in an organisation's important initiatives with respect to key accounts such as customer relationship management requires that we investigate salespeople's grasp of the selling organisation's socio-structural knowledge in the context of their ability to influence customer-related decisions and the consequent performance in customer relationship management (Agrawal, 2003).

This exploration has important implications for theory development in service management. First, it builds on the attempts in literature to match the sales and service goals (Moon and Armstrong, 1994). Second, we return the focus to salespeople as important coordinators of initiatives such as service recovery. Finally, we provide a useful vantage point to build a stream of research that enables us to simultaneously view multiple member influences in the decision-making of seller organisations, as well as their probable consequences for customer relationship management. Also,

the current framework extends the emerging sales research stream that focuses on the intra-organisational dimension of the sales force (Plouffe, Sridharan, and Barclay, 2010; Plouffe and Barclay, 2007).

FUTURE RESEARCH DIRECTIONS

Our theoretical exploration and proposed framework open several avenues for future research. Below we outline some of the fruitful areas for future research. First, this is theoretical research, and it lacks the primary data to bring in empirical support. We do consider this as a limitation. One of the key reasons for sticking to a theoretical approach is that the idea of salesperson power and its role in service recovery is still in an early stage. The major contribution lies in the framework and associated propositions that lay the groundwork for future empirical research. We believe our approach is aligned with the sales, service, and network literature and adds to the existing stock of knowledge. We understand that data analysis to test the model may offer a better assessment, and we encourage scholars to test the offered propositions with empirical data.

Although the proposed framework provides the basis for doing empirical research on the topic of salesperson power and centrality, we are still posed with the following issues: (i) Should we consider centrality within the salesperson's immediate workgroup, within departments or divisions, or within the entire organisation? (ii) In terms of acquiring power, is it important for the salesperson to control communication flow within her immediate workgroup or within her department? (iii) Is it necessary for the salesperson to have access to everyone in the organisation? (iv) Is centrality within a particular group of individuals, for instance the selling centre or selling team, sufficient?

In this research, we have argued that salespeople with greater power are more likely to serve their customers well. However, further research is needed to explore factors that would motivate salespeople to use their socio-structural knowledge to further their customer management goals. From a managerial perspective, it is especially important to understand the impact of such organisational factors as culture, training initiatives, motivational systems, and reward structures on salespeople's effort toward managing network structure. Such scholarly research might benefit salespeople, their customers, and their companies in very practical and measurable ways.

The proposed framework and outlined propositions attempt to consider the impact of a salesperson's power on the service recovery process. While this idea contributes to existing knowledge, researchers should also study the impact of a salesperson's centrality and power within a selling centre on other customer-centric processes such as relational information process (Jayachandran et al., 2005).

We theorize that salesperson power has a strategic importance that will be useful during the service recovery process. While this is a new and valuable approach, researchers should also recognize that salesperson power can have its dark side too. Recent sales literature (e.g., Rapp, Agnihotri, and Baker, 2011) discusses the risks that accompany the salesperson's enhanced knowledge of customers and competitors outside of their organization. Similarly, knowing people and being aware of the political economy of an organization may have its dark side. Future studies should aim to explore that venue.

Many other productive areas of investigation of the relationship between salespeople's network centrality and power may be explored. For example, an interesting question is whether maintaining the centrality in different networks demands different personal skills at the salesperson level. Another question is whether there is a core personal skill or emotional capacity needed for building such internal networks, as these skills are considered critical for building external relationships with customers (Agnihotri, Krush, and Singh, 2012).

REFERENCES

- Agnihotri, R., Rapp, A. and Trainor, K. (2009) 'Understanding the role of information communication in the buyer-seller exchange process: antecedents and outcomes', *Journal of Business and Industrial Marketing*, 24:7, 474-486.
- Agnihotri, R. and Rapp, A. (2010) *Effective sales force automation and customer relationship management: a focus on selection and implementation*. New York, Business Expert Press.
- Agnihotri, R., Krush, M., and Singh, R. K. (2012) 'Understanding the mechanism linking interpersonal traits to pro-social behaviors among salespeople: lessons from India' *Journal of Business and Industrial Marketing*, 27:3, 211-227.
- Agrawal, M.L. (2003), 'Customer relationship management (CRM) & corporate renaissance', *Journal of Services Research*, 3:2, 149-171.
- Ahearne, M., Lee, N., and Marshall G.,W. (2011) 'New and underexplored topics in sales', panel discussion at *National Conference in Sales Management* March 30-April 2, Orlando.
- Ahearne, M., Lam, S. K., Hayati, B., and Kraus, F. (2013) 'Intrafunctional competitive intelligence and sales performance: a social network perspective', *Journal of Marketing*, online access. doi: 10.1509/jm.11.0217

- Anderson, R.E. and Dubinsky, A.J. (2004) *Personal Selling: Achieving Customer Satisfaction and Loyalty*, Boston, Houghton Mifflin.
- Bagozzi, R.P. (2006) 'The role of social and self-conscious emotions in the regulation of business-to-business relationships in salesperson-customer interactions', *Journal of Business and Industrial Marketing*, 21:7, 453-456.
- Bell, E.C. and Blakeney, R.N. (1977) 'Personality correlates of conflict resolution modes', *Human Relations*, 30:9, 849-857.
- Bradford, K. and Weitz, B.A. (2012) 'Salesperson Effectiveness' in Lilien, G.L. and Grewal, R. (eds), *Handbook on Business to Business Marketing*, Northampton, MA, Edward Elgar Publishing Limited, pp. 417-432.
- Brass, D.J. (1984) 'Being in the right place: a structural analysis of individual influence in an organisation', *Administrative Science Quarterly*, 29, 518-539.
- Brass, D. J., Galaskiewicz, J., Greve, H. R., and Tsai, W. (2004) 'Taking stock of networks and organizations: A multilevel perspective', *Academy of management journal*, 47:6, 795-817.
- Bristor, J.M. (1993) 'Influence strategies in organisational buying: The importance of connections to right people in the right places', *Journal of Business-to-Business Marketing*, 1:1, 63-97.
- Bulte, C. van den and Wuyts, S.H.K. (2007), 'Social networks in marketing', *Marketing Science Institute*, Tilburg University.
- Casciaro, T. (1998) 'Seeing things clearly: social structure, personality, and accuracy in social network perception', *Social Networks*, 20, 331-351.
- Chang, C. (2006) 'When service fails: the role of the salesperson and the customer', *Psychology and Marketing*, 23:3, 203-224.
- Claro, D.P., Gonzalez, G.R. and Claro, P.B.R. (2012) 'Network centrality and multiplexity: a study of sales performance', *Journal on Chain and Network Science*, 12:1, 85-94.
- Claro, D.P., Neto, S.A.L. and Claro, P.B.O. (2013) 'The enhancing impact of friendship networks on sales managers' performance', *BAR - Brazilian Administration Review* 10:2, April/June (online), 158-175 (cited 21 June 2013). Available from <URL: http://www.scielo.br/scielo.php?pid=S1807-76922013000200004&script=sci_arttext&tlng=pt>.
- Flaherty, K., Lam, S. K., Lee, N., Mulki, J. P., and Dixon, A. L. (2012) 'Social network theory and the sales manager role: Engineering the right relationship flows', *Journal of Personal Selling and Sales Management*, 32:1, 29-40.
- Hart, C.W.L., Heskett, J.L. and Sasser, E.W., Jr. (1990) 'The profitable art of service recovery', *Harvard Business Review*, 68 (July-August), 148-156.
- Hutt, M.D., and Walker, B.A. (2006) 'A network perspective of account manager performance', *Journal of Business and Industrial Marketing*, 21:7, 466-473.
- Inkpen, A.C., and Tsang, E.W. (2005) 'Social capital, networks, and knowledge transfer', *Academy of Management Review*, 30:1, 146-165.
- Jayachandran, S., Sharma, S., Kaufman, P., and Raman, P. (2005) 'The role of relational information processes and technology use in customer relationship management', *Journal of Marketing*, 69:4, 177-192.
- Johnston, W.J. and Bonoma, T.V. (1981) 'The buyer centre: structure and interaction patterns', *Journal of Marketing*, 45:3, 143-156.

158 Pursuing Success in Service

- Jones, R.E. and Melcher, B.H. (1982) 'Personality and the preference for modes of conflict resolution', *Human Relations*, 35:8, 649-658.
- Joshi, A.W. (2010) 'Salesperson influence on product development: insights from a study of small manufacturing organizations,' *Journal of Marketing*, 74:1, 94-107.
- Kothandaraman, P. and Wilson, D.T. (2000) 'Implementing buyer-seller relationships', *Industrial Marketing Management*, 29, 339-349.
- Krackhardt, D. (1990) 'Assessing the political landscape: structure, cognition, and power in organisation', *Administrative Science Quarterly*, 35, 342-369.
- Lam, S. K., Kraus, F., and Ahearne, M. (2010) 'The diffusion of market orientation throughout the organization: a social learning theory perspective', *Journal of Marketing*, 74, 61-79.
- McCall, M.W. (1979) 'Power, authority, and influence', in Kerr, S. (ed), *Organisational Behaviour*, Columbus, OH, Grid, pp.185-206.
- McCullough, M.A., Berry, L.L. and Yadav, M.S. (2000) 'An empirical investigation of customer satisfaction after service failure and recovery', *Journal of Service Research*, 3:2, 121-137.
- Miller, J.L., Craighead, C.W. and Karwan K.R. (2000) 'Service recovery: a framework and empirical investigation', *Journal of Operations Management*, 18, 387-400.
- Moncrief, W.C. and Marshall, G.W. (2005) 'The evolution of the seven steps of selling', *Industrial Marketing Management*, 34:1, 13-22.
- Moon, M.A. and Armstrong, G. (1994) 'Selling teams: a conceptual framework and research agenda', *Journal of Personal Selling and Sales Management*, 14:1, 17-30.
- Moon, M.A. and Gupta, S.F. (1997) 'Examining the formation of selling centres: a conceptual framework', *Journal of Personal Selling & Sales Management*, 17:2, 31-41.
- Naylor, G. and Frank, K.E. (2000) 'The impact of retail sales force responsiveness on consumers' perceptions of value', *Journal of Services Marketing*, 14:4, 310-322.
- Palmatier, R.W., Dant, R.P., Grewal, D. and Evans, K.R. (2006) 'Factors influencing the effectiveness of relationship marketing: a meta-analysis', *Journal of Marketing*, 70:4, 136-153.
- Pfeffer, J. (1981) *Power in Organisations*, Boston, Pitman.
- Plouffe, C.R., and Barclay, D.W. (2007) 'Salesperson navigation: the intraorganisational dimension of the sales role', *Industrial Marketing Management*, 36:4, 528-539.
- Plouffe, C.R., Sridharan, S. and Barclay, D.W. (2010) 'Exploratory navigation and salesperson performance: investigating selected antecedents and boundary conditions in high-technology and financial services contexts', *Industrial Marketing Management*, 39:4, 538-550.
- Rapp, A., Agnihotri, R. and Baker, T. L. (2011) 'Conceptualizing salesperson competitive intelligence: An individual-level perspective', *Journal of Personal Selling and Sales Management*, 31:2, 141-156.
- Reinholt, M., Pedersen, T. and Foss, N. J. (2011) 'Why a central network position isn't enough: the role of motivation and ability for knowledge sharing in employee networks', *Academy of Management Journal*, 54:6, 1277-1297.
- Salancik, G.R. and Pfeffer, J. (1977) 'Who gets power and how they hold onto it: a strategic-contingency model of power', *Organisational Dynamics*, 5, 3-21.

- Sengupta, S., Krapfel, R.E. and Pusateri, M.A. (2000) 'An empirical investigation of key account salesperson effectiveness', *Journal of Personal Selling & Sales Management*, 20:4, 253-272.
- Smith, B.D. (2011) 'Turf wars: What the intraorganisational conflict literature may contribute to our understanding of marketing strategy implementation', *Journal of Strategic Marketing*, 19:1, 25-42.
- Snyder M. (1974) 'Self-monitoring of expressive behaviour', *Journal of Personality and Social Psychology*, 30:4, 526-537.
- Stern, L.W. and Reve, T. (1980) 'Distribution channels as political economies: a framework for comparative analysis', *Journal of Marketing*, 44:3, 52-64.
- Tellefsen, T. and Eyuboglu, N. (2002) 'The impact of salesperson's in-house conflicts and influence attempts on buyer commitment', *Journal of Personal Selling & Sales Management*, 22:3, 157-173.
- Tichy, N.M., Tushman, M.L. and Fombrun, C. (1979) 'Social network analysis for organisations', *Academy of Management Review*, 4, 507-519.
- Treadway, D. C., Breland, J. W., Williams, L. M., Cho, J., Yang, J. and Ferris, G. R. (2011) 'Social influence and interpersonal power in organizations: roles of performance and political skill in two studies', *Journal of Management*, 20:10, 1-25.
- Üstüner, T. and Iacobucci, D. (2012) 'Does intraorganizational network embeddedness improve salespeople's effectiveness? A task contingency perspective', *Journal of Personal Selling and Sales Management*, 32:2, 187-205.
- Weitz, B.A. and Bradford, K.D. (1999) 'Personal selling and sales management: a relationship marketing perspective', *Journal of the Academy of Marketing Science*, 27:2, 241-254.
- Williams, B.C. and Plouffe, C.R. (2007) 'Assessing the evolution of sales knowledge: a 20-year content analysis', *Industrial Marketing Management*, 36:4, 408-419.
- Workman Jr., J.P., Homburg, C. and Jensen, O. (2003) 'Intraorganisational determinants of key account management effectiveness', *Journal of the Academy of Marketing Science*, 31:1, 3-21.
- Zald, M.N. (1970) 'Political economy: a framework for comparative analysis', in *Power in Organisations*, Zald, M.N. (ed), Nashville, TN, Vanderbilt University Press.

Dr. Prabakar Kothandaraman is Associate Professor at, William Paterson University, Wayne, New Jersey, USA. Email: kothandaramanp@wpunj.edu.

Dr. Raj Agnihotri is Chair, Marketing Department, Ohio University, Athens, USA. Email: agnihotr@ohio.edu.

Rebecca E. Dingus is Doctoral Candidate, Kent State University, Kent, USA. Email: rdingus@kent.edu.

CONSUMER ADVOCACY'S IMPACT ON SATISFACTION AND LOYALTY

Sanjit Kumar Roy

Abdolreza Eshghi

Ali Quazi

This paper empirically examines the impact of consumer advocacy on consumer satisfaction, trust and loyalty in the context of telecommunication services. Using structural equation modeling (SEM), data from four Indian cities were analyzed to test the theoretical model. The results reveal a positive and significant impact of consumer advocacy on consumers' trust and a positive and significant impact of consumers' trust on 'consumer advocacy' for the company. These findings suggest that if a company advocates for its consumers, the customers would then reciprocate with their trust, positive word-of-mouth and patronage behavior. A key contribution of this study is to broaden and deepen our understanding of the consumer advocacy paradigm and its relationship with consumer satisfaction and loyalty in the context of telecommunication services.

INTRODUCTION

Recently, consumer advocacy has emerged as an effective means to empower consumers and gain their trust. When practiced by the consumers, consumer advocacy reflects a tendency to offer enthusiastic referral for a brand or a firm (Chelminisky and Coulter, 2011). From the firm's perspective, consumer advocacy entails a consumer-centric organizational approach to empower consumers in the marketplace by providing transparent and unbiased information about its offerings (Lawer and Knox, 2006). Focusing on the latter aspect for the purpose of this paper, it is argued that if a firm serves the best interests of its consumers, the consumers will reciprocate with their trust and enduring loyalty (Urban, 2005). Given the conventional consumer relationship management (CRM) practices have largely failed to deliver the desired goals (Maklan *et al.*, 2011) a strong case can be made for advocacy marketing to gain consumer trust and loyalty. While it is not denying the fact that sophisticated CRM technologies help firms to streamline business processes and achieve greater efficiencies in targeting consumers (Fournier and Avery, 2011), such efficiency gains typically come at the expense of consumers' dissatisfaction and disenchantment leading to declining consumer satisfaction scores across a wide range of industries, and the consequent loss of consumer trust and loyalty. To reverse this trend, forward-looking companies

162 Consumer Advocacy's Impact

are moving beyond current CRM practices to establish an effective dialogue with their consumers and advocate for their best interest.

While the concept of consumer advocacy sounds very appealing on a conceptual level, very little empirical evidence exists to show if in fact company's advocacy for their consumers leads to stronger loyalty and consumers' reciprocity in advocating for the company. Against this backdrop, this research was designed to provide a deeper and comprehensive empirical understanding of the relationship between consumer advocacy, consumer satisfaction, loyalty as well as perceived quality and trust.

LITERATURE REVIEW

Consumer advocacy

In response to increasing consumer power, many firms are utilizing advanced information systems with powerful platforms (e.g., content sharing sites, wikis, blogs, social networking, etc.). This enables consumers to share consumption experiences and exchange market information with their peers. Such approaches tend to serve the best interest of consumers, but at the same time they are instrumental for the development of firm's reputation, profits generation as well as their survival in the market (Kietzmann, *et al.*, 2011). Urban (2005) identified eight major correlates of trust as the key pillars of an advocacy strategy: transparency, product/service quality, alignment of incentives, partnering, cooperative design, caliber of supply chain partners, and the infusion of consumer advocacy paradigm across all divisions of the organization.

As stated earlier, empirical evidence linking consumer advocacy with key consumer-oriented performance indicators of satisfaction and loyalty is lacking. This paper aims to shed light on this unexplored but vital aspect of consumer advocacy

Below we present an overview of research findings on the major constructs of the study, the hypothesis that we developed on the basis of research evidence and the conceptual framework that guided the present research. We begin by reviewing research evidence on consumer satisfaction.

Consumer satisfaction

As the most commonly used consumer-oriented metric (Gupta and Zeithaml, 2006; Johnson and Fornell, 1991; Zeithaml *et al.*, 2006), con-

sumer satisfaction is widely regarded by scholars and practitioners alike as an important predictor of consumer loyalty (Turel and Serenko, 2006; Yang and Peterson, 2004). It is conceptualized as an attitude like judgment following a purchase act or a series of consumer-product interactions (Yi, 1989) that measure the extent to which a product or service meets or falls short of expectations (Oliver, 1996; Yi, 1989) based on an overall evaluation of consumption experience with a good or service over time" (Anderson *et al.*, 1994; Fornell *et al.*, 1996; and Johnson *et al.*, 2001; Gupta and Zeithaml, 2006). Therefore, consumer expectation appears to be an important determinant of consumer satisfaction.

There are two broad conceptualizations of consumer expectation. First, "expectations are viewed as predictions made by consumers about what is likely to happen during an impending transaction or exchange" (Zeithaml *et al.*, 1993). Such predictions are based on what consumers ideally want i.e. the normative expectations in terms of what the consumers expect from a product or a service provider (Miller, 1977; Zeithaml *et al.*, 1993).

A significant body of research in the context of the national consumer satisfaction index models (Fornell *et al.*, 1996; Eklöf, 2000) has indicated that served markets' consumption experience is positively related to overall consumer satisfaction. Similarly, served markets' expectations, driven by prior consumption experiences, advertisements and word-of-mouth is positively related to overall satisfaction, perceived quality and perceived value. Finally, perceived value is positively related to overall satisfaction (Hsieh and Yuan, 2012). Based on the above arguments we propose the following hypotheses:

H1: Consumer expectation has a positive impact on perceived service quality.

H2: Consumer expectation has a positive impact on consumer satisfaction.

H3: Perceived service quality has a positive impact on consumer satisfaction.

Consumer loyalty

Consumer loyalty has been defined and measured in terms of repeated purchase behavior as well as consumers' attitude and feelings toward the purchased brand (Bandopadhyay and Martell, 2007). Behavioral loy-

164 Consumer Advocacy's Impact

alty, by definition, is reflected in the proportion of purchase, probability of purchase, probability of repurchases, purchase sequence and purchase frequency of a brand over time (Ehrenberg *et al.*, 1990 and Kahn *et al.*, 1986). Attitudinal loyalty reflects consumers' psychological disposition towards the brand and includes preference and commitment towards the brand (Jacoby and Chestnut, 1978; Dick and Basu, 1994; Chaudhuri and Holbrook, 2001). It is preceded by extensive problem-solving behavior involving brand and attributes comparisons, leading to strong brand preference (Rundle-Thiele and Bennet, 2001). As such, building attitudinal loyalty involves more than transactional marketing incentives; it involves cultivating positive attitudes toward the firm and its brands over a long period of time (Kumar and Shah, 2004). While repeat purchases of a brand over time indicate consumer loyalty from a behavioral point of view, it is an insufficient measure of loyalty unless it is accompanied with a positive attitude towards the purchased brand (Amine, 1998; Reinartz and Kumar, 2002). Many researchers have used behavioral measures in studying consumer loyalty (Dekimpe *et al.*, 1997; Sharp and Sharp, 1997; Sharp *et al.*, 2002), but there is widespread support for inclusion of both behavioral and attitudinal measures in loyalty studies (Ball *et al.*, 2004; Baldinger and Rubinson, 1996; Day, 1969; Dick and Basu, 1994; Jacoby and Chestnut, 1978).

Research findings also suggest that perception of service quality influences consumers' attitude towards a service provider which, in turn, may encourage or discourage switching intentions (Cronin *et al.*, 2000 and Carrillat *et al.*, 2009). The evidence suggests that consumers with a positive service experience are more likely to prefer their existing service provider over low-cost alternatives (Bagozzi, 1992; Brady *et al.*, 2001; Jha *et al.* 2013). Hence we propose the following hypotheses:

H4: Perceived service quality has a positive impact on attitudinal loyalty.

H5: Perceived service quality has a positive impact on behavioral loyalty.

As stated earlier, advocating for the consumer's best interests gains consumers' trust which prompts consumers to advocate for the company. It also enhances consumers' perception of service quality. The following hypotheses reflect these relationships:

H6: Advocacy for consumers is positively related to consumer trust.

H7: Advocacy for consumers is positively related to perceived service quality.

H8: Consumer trust is positively related to consumer advocacy for the company.

Consumer trust

The impact of trust on consumer loyalty has received a fair amount of attention in literature (Ball *et al.*, 2004; Aydin and Ozer, 2005; Siredeshmukh *et al.*, 2002). Social exchange theory suggests that there exist a causal relationship between trust and affective commitment. For example, Gounaris (2005) and Chaudhuri and Holbrook (2001) and Shainesh (2012) found support for a significant association between brand trust and attitudinal loyalty. Furthermore, committed consumers tend to advocate for the service provider (Morgan and Hunt, 1994; Price and Arnold, 1999; Gremler and Gwinner, 2000). Conversely, consumers who feel trapped and dependent on their relational partners are unlikely to act as advocates on behalf of the partner (Fournier *et al.*, 1998; Harrison-Walker, 2001). Therefore, it logically follows that there would be a negative relationship between consumers' behavioral loyalty and advocacy. Therefore, consumer advocacy can be regarded as an outgrowth consumer's positive attitude toward the firm. These relationships can be expressed as follows:

H9: Trust has a positive and significant impact on attitudinal loyalty.

H10: Attitudinal loyalty is positively related to consumer advocacy for the company.

H11: Behavioral loyalty has a negative impact on consumer advocacy for the company.

A significant body of research evidence suggests that attitudes are strong predictors of future consumer behavior (Ajzen and Fishbein, 2000; Glasman and Albarracin, 2006; Dick and Basu, 1994; Jaiswal and Niraj, 2011). Hence, the following hypothesis:

H12: Attitudinal loyalty has a positive impact on behavioral loyalty.

Finally, there is ample research evidence for a positive relationship between consumer satisfaction and behavioral loyalty (Fornell *et al.*, 1996; Eklöf, 2000; Aydin and Ozer, 2005; Kim *et al.*, 2004; Jaiswal and Niraj, 2011). However, few studies have investigated the relationship between

166 Consumer Advocacy's Impact

consumer satisfaction and attitudinal loyalty. Therefore, we propose:

H13: Consumer satisfaction is positively related to attitudinal loyalty.

H14: Consumer satisfaction is positively related to behavioral loyalty.

The hypothesized relationships discussed above are depicted in a conceptual model shown in Figure 1 below.

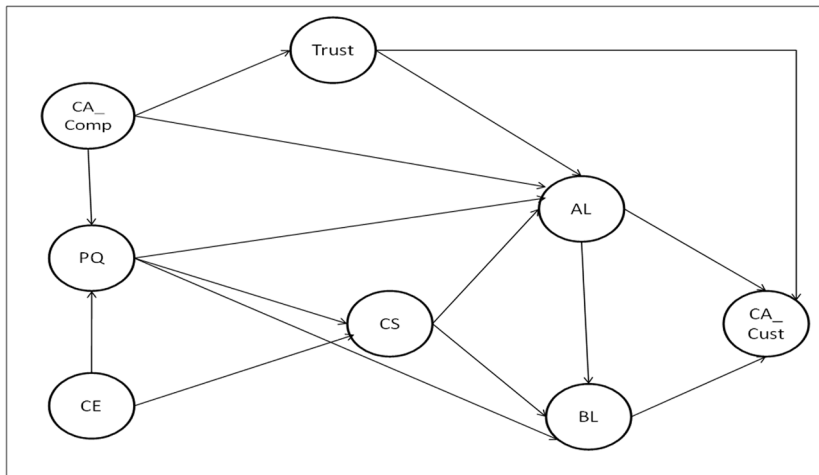


Figure 1: Conceptual Model

CA_Comp: Consumer Advocacy (by the company)

PQ: Perceived Quality

CE: Consumer Expectation

Trust: Consumer Trust

CS: Consumer Satisfaction

AL: Attitudinal Loyalty

BL: Behavioral Loyalty

CA_Cust: Consumer Advocacy (by the consumer)

METHODOLOGY

Measurement instrument

The survey instrument used in the study contained previously validated measure for constructs in the model. Measurement items for customer satisfaction and customer expectations were adopted from Bayol *et al.* (2000), Fornell *et al.*, (1996) and Turkyilmaz and Ozkan (2007). Measures of 'consumer advocacy by the company' was constructed using standard

scale development method (Churchill, 1979). An inductive approach was adopted to develop multi-item measure for customer advocacy as there is no existing scale for measuring customer advocacy. Scale items for 'consumer advocacy by the company' were generated from previous academic, expert consultation (both practitioners and fellow academics) and researcher intuition. We conducted focus groups followed by in-depth interviews with each group to gain finer details to support the operationalization of the construct. This resulted in a list of seven items measuring customer advocacy. Results of factor analysis on the seven measurement items for customer advocacy revealed that four out of seven items loaded onto one dimension of customer advocacy. Based on the iterative process three measurement items were deleted.

Consumer advocacy for the company was measured by a three item scale adopted from Fullerton (2003) and Ganesh *et al.* (2000). Scales for the perceived service quality were adopted from Aydin and Ozer (2005), Johnson and Sirikit (2002), Bayol *et al.* (2000) and Turkyilmaz and Ozkan (2007). A three-item scale was adopted from Doney *et al.* (2007), Morgan and Hunt (1994) and Aydin and Ozer (2005) to measure consumer trust. Attitudinal loyalty was measured using a four-item scale derived from Bennet and Thiele (2000), Evanschitzky *et al.* (2006), Fullerton (2003) and Biernacki *et al.* (2003). Finally, behavioral loyalty was measured using a three-item scale adopted from the Aydin and Ozer (2005), Bayol *et al.* (2000), Johnson and Sirikit (2002), and Turkyilmaz and Ozkan (2007). The survey instrument is shown in Table 1.

Table 1: Measurement Instrument

Consumer Satisfaction (CS)

- X1. Overall I am satisfied with the service provider
- X2. I am delighted with the value added services
- X3. My present mobile phone service provider is very close to my ideal mobile phone service provider

Perceived Quality (PQ)

- X10. My mobile phone service provider always delivers excellent overall service
- X11. My mobile phone service is reliable, consistent, and dependable
- X12. Based on my experience, the network quality of my mobile phone service provider is one of the best
- X13. The range of value added services (for example, SMS, MMS, downloading ringtones, downloading games, etc.) provided is comprehensive and competitive

168 Consumer Advocacy's Impact

Consumer Expectations (CE)

X14. I had high expectations of the quality of my mobile phone service at the time I became a consumer of this provider

X15. My mobile phone operator provides services and products that meet my personal requirements

X16. The services of the service provider are close to my expectations
Trust

X17. Overall I trust my service provider

X18. I believe that at times the service provider is not honest with me*

X19. I trust the billing system of my mobile phone service provider

Behavioural Loyalty (BL)

X20. If you would need to choose a new mobile phone provider how likely is it that you would choose "your provider" again?

X21. I expect to stay with this service provider for a long period of time

X22. I would do more business with my service provider in future

Attitudinal Loyalty (AL)

X23. I will prefer my present mobile phone service provider over others in future

X24. I am happy with the efforts of my service provider to serve me and stay in touch with me

X25. I feel a strong sense of identification with this service provider

X26. I like my service provider

Consumer Advocacy for the Company (CA_CUST)

X27. I would recommend my service provider to someone who seeks my advice

X28. I encourage friends and relatives to take the service of my service provider

X29. I say positive things about my service provider to other people

Advocacy for Consumers by the Company (CA_COMP)

X30. My service provider provides unbiased advice that helps me to choose its services and products

X31. My service provider gives honest and open information and advice about their services and products and competitors' services/products

X32. My service provider keeps my best interests in mind

*Note: * Negatively worded statement*

Sample and Data Collection

Data were collected between June and November 2009 in four metro cities in India: Kolkata, Delhi, Mumbai and Chennai. Considering high penetration of mobile phone services in India, snowball sampling strategy was chosen as a compromise between efficiency and representativeness (Frankwick *et al.*, 1994; Zinkhan *et al.*, 1983). In all 1500 surveys were distributed among mobile phone users which yielded 895 responses out of which 682 were complete. Attention was paid to obtain sufficient variety in geographic, age, and gender distribution. The demographic profile of

the total sample, presented in Table 2 below, compares favorably with the demographic profile of major metropolitan cities in India (Census, 2011).

Table 2: Demographic Profile of the Sample

Income Distribution			
Code	Category Definition	No. of Respondents	Percentage
1	Less than Rs. 1,00,000/year	110	16.2
2	Between Rs. 1,00,000/-3,00,000/year	190	27.9
3	Between Rs. 3,00,000-5,00,000/year	188	27.6
4	More than Rs. 5,00,000/year	193	28.3
	Total	681	100.00

Level of Education			
Code	Category	No. of Respondents	Percentage
1	Upto Higher Secondary	5	0.8
2	Completed Bachelors	328	48.1
3	Completed Masters	306	44.9
4	Others	42	6.3

Age Distribution			
Code	Category	No. of Respondents	Percentage
1	Less Than 20 years	11	1.7
2	20-29 years	502	73.5
3	30-39 years	116	17.0
4	40-49 years	30	4.6
5	50-59 years	19	2.8
6	More Than 60 years	3	0.5

Gender Distribution			
Code	Category	No. of Respondents	Percentage
1	Male	453	65.5
2	Female	228	33.5

Note: The demographic profile of the sample compares favorably with the demographic profile of major metropolitan cities in India, except males are over-represented in our sample compared with overall male/female ratios in India as well as the cities where we collected our data. As per the Census (2011) of India on an average for every 1000 males there are 940 females. For Kolkata sex ratio is 1000 males to 928 females; For Delhi: sex ratio is 1000 males/868 females; For Mumbai: 1000 males/861 females; and For Chennai: 1000 males/ 981 females.

170 Consumer Advocacy's Impact

The respondents were requested to answer the survey questions with reference to their most frequently used mobile phone service provider on an eleven-point Likert scale from “strongly disagree” to “strongly agree.” The eleven-point scale was used in this study because research has shown that the use of an eleven-point scale results in a higher variance (relative to the mean score) compared to a five-point scale (Dawes, 2002). Dawes (2002) highlights that the rationale for this is that the eleven-point scale provides a wider range of responses and hence produces more dispersion in responses. In this regard Cummins and Gullone (2000) state that five-point and seven point scales are hardly likely to exploit the discriminative capacity of most respondents which further supports the use of eleven-point scale in this study.

Respondents were also requested to provide data about their mobile phone usage related to the type of plan used, the name of the service provider, the length of relationship with the service provider, the monthly expenditure on mobile services, and mobile services availed by them. The last part of the questionnaire elicited respondents' demographic information.

DATA ANALYSIS AND RESULTS

We used the two step method of Anderson and Gerbing (1988) in evaluating the structural model. In the first step the reliability and validity of the constructs in the measurement model were established using confirmatory factor analysis with AMOS 16.0 software. The second step entailed the testing of hypotheses using structural equation modeling (SEM).

The unidimensionality of the constructs used in this study were examined by exploratory factor analysis (Tenehaus *et al.*, 2005). Principal component analysis with varimax rotation was used. We retained factor loadings greater than 0.4 for further analysis. Zaltman and Burger (1975) argued that factor analysis should use certain criteria viz. (1) each eigen value should be greater than 1.0, (2) the factor loadings after varimax rotation are greater than 0.3, and (3) no measurement variable has significant loadings on more than one factor.

Results of the factor analyses and Cronbach's alpha values for all the constructs are shown in Table 3.

Table 3: Factor Analysis Results

Constructs	Measurement Variables	Factor Loadings	% Variance Explained	Cronbach's Alpha
Consumer Satisfaction	Overall satisfaction with service provider	0.890	76	0.84
	I am delighted with the value added services	0.847		
	Close to my ideal service provider	0.885		
Perceived Quality	My SP delivers excellent overall service	0.910	75.4	0.90
	The service is reliable consistent and dependable	0.903		
	My experience of network quality best	0.856		
	Range of value added services	0.830		
Consumer Expectation	I had high expectations of my mobile phone service	0.749	70	0.78
	My SP meets my personal requirements	0.877		
	The services are close to my expectations	0.883		
Trust	Overall I trust my SP	0.867	72	0.72
	I trust the billing system of my SP	0.853		
Behavioral Loyalty	I would choose my present service provider	0.874	78	0.88
	I expect to stay with this SP for a long time	0.910		
	I would do more business with my service provider in future	0.899		
Attitudinal Loyalty	I will prefer this SP over others in future	0.877	73	0.91
	I am happy with the efforts of my SP	0.924		
	I like my SP	0.938		
	I feel a strong sense of identification	0.876		
	I will not switch just to try another SP	0.683		
Consumer Advocacy (by consumers)	I would recommend my SP to anyone who seeks my advice	0.953	90	0.95
	I encourage friends and relatives to take the service of my SP	0.958		
	I say positive things about my SP	0.946		
Consumer Advocacy (by company)	My SP provides unbiased advice to choose its services	0.919	83	0.92
	My SP gives honest information about its competitors services	0.904		
	My SP keeps my best interests in mind	0.927		
	My SP is a customer advocate	0.90		

172 Consumer Advocacy's Impact

Results of the factor analysis revealed that the constructs are unidimensional because the items measuring the constructs loaded on respective constructs. Also the Cronbach's alpha values of all the constructs are greater than 0.7 which is acceptable (Hair *et al.*, 2006). Three items with low factor loading and reliability criterion were deleted from the factor analyses.

Confirmatory factor analysis

Using AMOS 16.0, we performed confirmatory factor analysis to check for the reliability and validity of the measurement model. The measurement model indicated an adequate model fit with the data i.e. $\chi^2 = 1006.22$, $df = 235$; CFI = 0.94, NFI = 0.930, TLI = 0.935, GFI = 0.90 and RMSEA = 0.06.

The fit indices are acceptable and indicate a reasonable fit of the measurement model with the data (Byrne, 2001). In addition, all the indicators loaded significantly on the latent constructs. In short, the confirmatory factor analyses confirm the factor structure of the measurement instrument.

Reliability of the measurement model

We examined the reliability of the measurement variables by calculating the squared multiple correlations (SMC). As shown in Table 4 the SMC values of all the indicators are greater than or equal to 0.50 except X14, X23 and X34. Hence, these were removed from the subsequent analysis. The composite reliability of the constructs are also reported here because it is generally acknowledged that composite reliability is a better measure of scale reliability than Cronbach's alpha coefficient (Bagozzi and Yi, 1988). As shown in Table 4, the composite reliability values of all the constructs are greater than or equal to 0.6 which further strengthens the assessment of reliability of the constructs.

Table 4: Reliability of the Constructs

Constructs	Measurement Items	Standardized Loadings	SMC	Composite Reliability
Consumer Satisfaction	X1	0.838	0.702	0.89
	X2	0.685	0.530	
	X3	0.820	0.673	

Constructs	Measurement Items	Standardized Loadings	SMC	Composite Reliability
Perceived Quality	X11	0.758	0.768	0.86
	X12	0.765	0.585	
	X13	0.877	0.575	
Consumer Expectations	X14	0.539	0.290	0.92
	X15	0.854	0.686	
	X16	0.828	0.729	
Trust	X17	0.892	0.796	0.72
	X19	0.566	0.510	
Behavioral Loyalty	X26	0.810	0.656	0.91
	X28	0.810	0.656	
	X29	0.849	0.720	
Attitudinal Loyalty	X30	0.832	0.692	0.94
	X31	0.878	0.770	
	X32	0.924	0.855	
	X33	0.814	0.662	
	X34	0.593	0.258	
Consumer Advocacy (for the company)	X35	0.894	0.800	0.92
	X36	0.924	0.854	
	X37	0.903	0.816	
Consumer Advocacy (by the company)	X38	0.854	0.729	0.95
	X39	0.795	0.633	
	X40	0.882	0.778	

Note: All the factor loadings are significant at 0.1 % level of significance. All the p-values are of the factor loadings are less than 0.001.

Validity of the measurement model

The face validity of the measurement items was examined by two subject experts in the field of services marketing. Their suggestions were incorporated in the final version of the survey instrument. We examined the convergent and discriminant validity by calculating the average variance extracted for each of the twelve constructs related to consumer metrics. As shown in Table 5, all variables had significant loadings (at $p < 0.001$) on the respective latent constructs. The loadings ranged between 0.57 and

174 Consumer Advocacy's Impact

0.924, indicating that the standardized factor loadings are high and significant and hence they reflect the convergent validity of the consumer metrics. Table 5 also shows that average variance extracted (AVE) for each construct was equal to or greater than 0.50 indicating that the shared variance accounted for by all the constructs is 50% or more of the total variance. Therefore, we concluded that the constructs satisfy the convergent validity criterion as suggested by Fornell and Larcker (1981). Since all the AVE values in Table 5 are greater than the squared inter-construct correlations, discriminant validity of the constructs is also established (Fornell and Larcker, 1981). In short, the measurement model in this study reflects adequate construct reliability and validity.

Table 5: Discriminant Validity

	AL	BL	CA_COMP	CA_CUST	CE	CS	PQ	Trust
AL	0.89							
BL	0.63	0.88						
CA_COMP	0.65	0.66	0.89					
CA_CUST	0.66	0.74	0.55	0.93				
CE	0.62	0.66	0.61	0.67	0.92			
CS	0.52	0.66	0.58	0.69	0.67	0.86		
PQ	0.53	0.66	0.63	0.68	0.64	0.69	0.78	
Trust	0.53	0.67	0.62	0.69	0.70	0.67	0.69	0.71

Note: Diagonal elements are the AVE values. Off-diagonal elements are square of inter-construct correlations.

Test of Hypotheses

The hypotheses were tested by SEM. The results indicated an adequate fit between the data and the model with $\chi^2 = 1006.22$, $df = 235$; CFI = 0.94, NFI = 0.930, TLI = 0.935, GFI = 0.90 and RMSEA = 0.06. As shown in Table 6, the path coefficients of the structural equation model along with their p-values provided direct evidence of acceptance/rejection of the hypotheses. The path coefficients between consumer expectation and perceived quality (coefficient (c) = 0.931, $p < 0.001$); consumer expectation and consumer satisfaction (c = 0.449, $p < 0.001$) is significant; between perceived

service quality and consumer satisfaction ($c = 0.491$, $p < 0.001$); between perceived service quality and attitudinal ($c = 0.444$, $p < 0.001$) and between perceived service quality and behavioral loyalty ($c = 0.159$, $p < 0.05$) supporting hypotheses H1, H2, H3, H4 and H5.

The impact of 'consumer advocacy by the company' i.e. 'advocacy for the consumers' on trust ($c = 0.956$, $p < 0.001$) and perceived service quality ($c = 0.312$, $p < 0.001$) are significant which supports H6 and H7. The impact of trust on 'consumer advocacy for the company' ($c = 0.250$, $p < 0.001$) and on attitudinal loyalty ($c = 0.669$, $p < 0.001$) are significant which supports H8 and H9. The impact of attitudinal loyalty on 'consumer advocacy for the company' ($c = 0.567$, $p < 0.001$) is significant whereas the impact of behavioral loyalty on 'consumer advocacy for the company' ($c = 0.101$, Non-significant) is insignificant. Hence H10 is accepted and H11 is rejected.

Attitudinal loyalty has a significant impact on behavioral loyalty ($c = 0.933$, $p < 0.001$) which supports H12. Finally consumer satisfaction impacts consumer's attitudinal loyalty ($c = 0.287$, $p < 0.001$) and behavioral loyalty ($c = 0.153$, $P < 0.05$) significantly. Hence, H13 and H14 are rejected.

Table 6: Hypothesis Testing Results

Hypothesized Paths	Standardized Loadings	p-values	Result Accepted/Rejected
CE→PSQ	0.931	***	H1 Accepted
CE→CS	0.449	***	H2 Accepted
PSQ→CS	0.491	***	H3 Accepted
PSQ→AL	0.444	***	H4 Accepted
PSQ→BL	0.159	**	H5 Accepted
CA_COMP→TRUST	0.956	***	H6 Accepted
CA_COMP→PSQ	0.312	***	H7 Accepted
TRUST→CA_CUST	0.250	***	H8 Accepted
TRUST→AL	0.669	***	H9 Accepted
AL→CA_CUST	0.567	***	H10 Accepted
BL→CA_CUST	0.101	NS	H11 Rejected
AL→BL	0.933	***	H12 Accepted

176 Consumer Advocacy's Impact

Hypothesized Paths	Standardized Loadings	p-values	Result Accepted/Rejected
CS→AL	0.287	***	H13 Accepted
CS→BL	0.153	**	H14 Accepted

Note: *** indicates that the path coefficients are significant at $p < 0.001$ and ** indicates that the path coefficient is significant at $p < 0.05$; NS indicates that the path coefficients are insignificant

DISCUSSION AND MANAGERIAL IMPLICATIONS

A key finding of this study is the positive and significant impact of *consumer advocacy by the company* on consumers' trust and a positive and significant impact of consumers' trust on *consumer advocacy for the company* which provides strong empirical support for Urban's (2005) proposition that if a company advocates for the best interests of its consumers, they would reciprocate with their trust, positive word-of-mouth and patronage behavior. Furthermore, the significant and positive impact of trust on consumers' attitudinal loyalty which, in turn, has a positive and significant impact on consumer advocacy for the company highlights the critical role of trust in shaping consumers' attitudinal loyalty and their propensity to spread positive word-of-mouth.

The positive relationship between attitudinal loyalty and consumer advocacy for the company found in this research confirms previous findings in the literature (Morgan and Hunt, 1994; Gremler and Gwinner, 2000). However, we found behavioral loyalty to be unrelated to consumer advocacy for the company which is inconsistent with existing research evidence (Dick and Basu, 1994; de Matos and Rossi, 2008). A possible explanation might be that consumers are typically locked into a contract for their mobile phone service and, hence, their continued relationship with the service provider is not necessarily indicative of a happy relationship. In other words, while behavioral loyalty is a necessary condition, it is not sufficient for a satisfying relationship. It must be complemented by attitudinal loyalty which is shaped by the extent to which consumers trust the service provider, a fact that is supported by a positive relationship between attitudinal and behavioral loyalty in the present research as well as findings from previous research (Dick and Basu, 1994). Interestingly, the industry's current practice of locking consumers into annual or two-year contracts flies in the face of building consumer trust and the underlying premise of consumer advocacy. Firms would be well-advised to shift

their resources to build trust rather than forcing consumers into contractual agreements and its consequent administrative hassles and costs of enforcing contracts.

Another important finding of this study is the positive impact of perceived service quality on consumer's behavioral loyalty. Thus if consumers cognitive evaluations of service is positive they would be more likely to stay with the service provider for a longer duration (Brady *et al.*, 2002). Again, annual contracts ensure consumer patronage for the duration of the contract, but they do not guarantee continued patronage once the contract expires. Our data suggests that improving service quality would be more effective in increasing consumer retention.

Findings presented in Table 6 also provide additional empirical evidence for previously-tested relationships in the literature. First, we note that consumer expectation has a significant positive impact on perceived service quality and consumer satisfaction as noted in previous research (Anderson *et al.*, 1994, Eklöf, 2000 and Fornell *et al.*, 1996). Therefore, mobile service providers would be advised to design service offerings to reduce the gap between the consumers' expectations and service performance. It is also noted that the study finds a positive and significant impact of perceived service quality on consumer's attitudinal loyalty, which is consistent with previous research findings (Bell *et al.*, 2005; Wong and Sohal, 2003). While it is tempting to suggest that firms' service offering must exceed consumer expectation in an attempt to build an emotional connection (attitudinal loyalty) with the consumers. However, this approach may lead to "wasted time and effort, and costly giveaways" (Dixon *et al.*, 2010, p. 118). Instead companies would be better off by focusing on solving consumer problems in order to enhance relationship with consumers through enhancing their level of satisfaction.

Our findings confirm significant and positive relationship between the two dimensions of consumer loyalty and consumer satisfaction that had been found in previous research (Day, 1969; Disk and Basu, 1994). A practical implication of this finding is that enhancing consumer satisfaction fosters an emotional connection with the consumers. Since behavioral loyalty is easy to dislodge as a result of more attractive competitive offerings (Amine, 1998), service providers would be well advised to focus on attitudinal loyalty to ensure an enduring relationship.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The finding reported in this paper should be viewed in light of several limitations. First, since we focused on a single service sector and in one country, readers should be cautious in generalizing the findings across other industry sectors or countries. Second, given the snowball sampling method used, sample representativeness has been compromised (Heckathorn, 1997; Biernacki and Waldorf, 1981). Third, the study is cross-sectional in nature and the relationships amongst the constructs examined in this study can be better understood using a longitudinal research design.

Future research may consider replicating this study in other service sectors and other countries to provide further evidence of the external validity of the model proposed and tested in this study. Future research using a probability sampling technique would eliminate the selection bias inherent in the snowball sampling method used in this study. Third, with larger sample size, the relationships proposed and examined in this research can be tested at the company level using the multi-group structural equation modeling approach. Finally, future researchers would be well advised to examine the non-linear relationships between some of the constructs such as between consumer satisfaction and attitudinal loyalty and behavioral loyalty; perceived value and consumer satisfaction; and perceived service quality and perceived value, in line with the suggestions of Agustin and Singh (2005). These can identify other facets of these relationships in the service industries.

REFERENCES

- Agustin, C. and Singh, J. (2005) 'Curvilinear effects of consumer loyalty determinants in relational exchanges', *Journal of Marketing*, 42:1, pp. 96-108.
- Ajzen, I. and Fishbein, M. (2000) 'Attitudes and the attitudes-behavior relation: reasoned and automatic processes', *European Review of Social Psychology*, 11:1, pp. 30.
- Amine, A. (1998) 'Consumers' true brand loyalty: the central role of commitment', *Journal of Strategic Marketing*, 6:3, pp.305-319.
- Anderson, E.W., Fornell, C.C. and Lehman, D.R. (1994) 'Consumer satisfaction, market share and profitability: Findings from Sweden', *Journal of Marketing*, 58: July, pp.53-68.
- Anderson, J.C. and Gerbing, D.W. (1988) 'Structural equation modeling in practice: a review and recommended two-step approach', *Psychological Bulletin*, 103:3, pp.411-23.
- Aydin, S. and Özer, G. (2005) 'The analysis of the antecedents of consumer loyalty in Turkish mobile telecommunication market', *European Journal of Marketing*, 39 :7/8, pp. 910-925.

- Bagozzi, R.P. and Yi, Y. (1988) 'On the evaluation of structural equation models', *Journal of the Academy of Marketing Science*, 16 :1, pp.74-94.
- Bagozzi, R.P. (1992) 'The self-regulation of attitudes, intentions, and behavior', *Social Psychology Quarterly*, 55:2, pp.178-204.
- Baldinger, A.L. and Rubinson, J. (1996) 'Brand loyalty: the link between attitude and behavior', *Journal of Advertising Research*, 36 :1, pp.22-34.
- Ball, D., Coelho, P.S., and Machás, A. (2004) 'The role of communication and trust in explaining consumer loyalty', *European Journal of Marketing*, 38 :9/10, pp.1272-93.
- Bayol, M.P., Foye1, A., Tellier, Tenenhaus, M., and Cisia-Ceresta, M. (2000) 'Use of PLS path modeling to estimate the European consumer satisfaction index (ECSI) model', *Statistica Applicata*, 12 :3, pp.361-375.
- Bell, S.J., Auh, S. and Smalley, K. (2005) 'Consumer relationship dynamics: service quality and consumer loyalty in the context of varying levels of consumer expertise and switching costs', *Journal of the Academy of Marketing Science*, 33:2, pp.169-183.
- Bennett, R. and Rundle-Thiele, R. (2000) 'Attitudinal brand loyalty: personality trait or brand specific?', *Australia New Zealand Marketing Academy Conference Proceedings*, Gold Coast, Australia.
- Biernacki, P. and Waldorf, D. (1981) 'Snowball sampling: problems and techniques of chain referral sampling', *Sociological Methods and Research*, 10:2, pp.141-163.
- Brady, M.K., Cronin, J.J. and Brand, R.R. (2001) 'Performance-only measurement of service quality: A replication and extension', *Journal of Business Research*, 55:1, pp.17-31.
- Carrillat, F.A., Jaramillo, F., and Mulki, J.P. (2009) 'Examining the impact of service quality: a meta-analysis of empirical evidence', *Journal of Marketing Theory and Practice*, 17: 2, pp.95-110.
- Chaudhuri, A. and Holbrook, M.B. (2001) 'The chain effects from brand trust and brand effect to brand performance: the role of brand loyalty', *Journal of Marketing*, 65:1, pp.31-93.
- Census (2011) Population Census 2011 (online) (cited 8 June 2013). Available from <URL: <http://www.census2011.co.in/>>
- Chelminisky, P. and Coulter, R., A. (2011) 'An examination of consumer advocacy and complaining behavior in the context of service failure', *Journal of Services Marketing*, 25:5, pp. 361-370.
- Churchill (jr), G.A. (1979) 'A paradigm for developing better measures of marketing Constructs', *Journal of Marketing Research*, 16:February, pp.64-73.
- Cronin (jr), J.J., Brady, M.K. and Hult, G.T.M. (2000) 'Assessing the effects of quality, value, and consumer satisfaction on consumer behavioral intentions in service environments', *Journal of Retailing*, 76:2, pp.193-218.
- Cummins, R., A. and Gullone, E. (2000) 'Why we should not use 5-point Likert scales: The case for subjective quality of life measurement', *Proceedings, Second International Conference on Quality of Life in Cities*, (pp. 74-93), Singapore: National University of Singapore.
- Dawes, J. (2002) 'Five Point vs. Eleven Point Scales: Does It Make A Difference To Data Characteristics?', *Australasian Journal of Market Research*, 10:1, pp.1-17.
- De Matos, C.A. and Rossi, C.A.V. (2008) 'Word-of-mouth communications in marketing: a meta-analytic review of the antecedents and moderators', *Journal of the Academy of Marketing Science*, 36:4, pp.578-596.

180 Consumer Advocacy's Impact

- Dekimpe, M.G., Steenkamp, J.B., Mellens, M.M. and Abeele, P.V. (1997) 'Decline and variability in brand loyalty', *International Journal of Research in Marketing*, 14:5, pp.405-420.
- Dick, A.S. and Basu, K. (1994) 'Consumer loyalty: toward an integrated conceptual framework', *Journal of the Academy of Marketing Science*, 22:2, pp.99-103.
- Dixon, M., Freeman, K. and Toman, N. (2010) 'Stop trying to delight your consumers', *Harvard Business Review*, July-August, pp.116-122.
- Doney, P.M., Barry, J.M. and Abratt, R.R. (2007) 'Trust determinants and outcomes in global B2B services', *European Journal of Marketing*, 41:9/10, pp.1096-1116.
- Ehrenberg, A.S.C., Goodhardt, G.J. and Barwise, T.P. (1990) 'Double jeopardy revisited', *Journal of Marketing*, 54:3, pp.82-91.
- Eklöf, J. A. (2000) 'European consumer satisfaction index pan-European telecommunication sector report based on the pilot studies 1999', Stockholm, Sweden, European Organization for Quality and European Foundation for Quality Management.
- Evanschitzky, H., Iyer, G., R., Plassmann, H., Niessing, J. and Meffert, H. (2006) 'The relative strength of affective commitment in securing loyalty in service relationships', *Journal of Service Research*, 59:12, pp.1207-1213.
- Fornell, C. and Larcker, D.F. (1981) 'Evaluating structural equation models with unobservable variables and measure', *Journal of Marketing Research*, 18:1, pp.39-50.
- Fornell, C., Johnson, M.D., Anderson, E.W., Cha, J. and Bryant, B.E. (1996) 'The American consumer satisfaction index: nature, purpose and findings', *Journal of Marketing*, 60:4, pp.7-18.
- Fournier, S. and Avery, J. (2011) 'Putting the 'Relationship' Back Into CRM', *MIT Sloan Management Review*, April, pp.1-12.
- Fournier, S., Dobscha, S. and Mick, D.G. (1998) 'Preventing the premature death of relationship marketing', *Harvard Business Review*, January-February, pp.42-51.
- Frankwick, G.L., Ward, J.C., Hutt, M.D. and Reingen, P.H. (1994) 'Evolving patterns of organisational beliefs in the formation of strategy', *Journal of Marketing*, 58:April, pp.96-110.
- Fullerton, G. (2003) 'When does commitment lead to loyalty?', *Journal of Service Research*, 5:4, pp.333-344.
- Glasman, L.R. and Albarracín, D. (2006) 'Forming attitudes that predict future behavior: a meta-analysis of the attitude-behavior relation', *Psychological Bulletin*, 132:5, pp.778-822.
- Gounaris, S.P., (2005) 'Trust and commitment influences on consumer retention: insights from business-to-business services', *Journal of Business Research*, 58:2, pp.126-140.
- Gremler, D., Gwinner, K.P. and Brown, S.W. (2000) 'Generating positive word-of-mouth communication through consumer-employee relationships', *International Journal of Service Industry Management*, 12:1, pp.44-59.
- Gupta, S. and Zeithaml, V. (2006) 'Consumer metrics and their impact of financial performance', *Marketing Science*, 25:6, pp.718-739.
- Hair, J.F., Black, B., Babin, B. and Anderson, R.E. (2006) *Multivariate Data Analysis* (6th edn), Englewood Cliffs NJ, Pearson.
- Harrison-Walker, L.J. (2001) 'The measurement of word-of-mouth communication and an investigation of service quality and consumer commitment as potential antecedents', *Journal of Service Research*, 4:1, pp.60-75.

- Heckathorn, Douglas, D. (1997) 'Respondent-driven sampling: a new approach to the study of hidden populations', *Social Problems*, 44:2, pp.174-199.
- Hsieh, Y.H. and Yuan, S.T. (2012) 'The roles of customer expectations and emotion in service experience', *AMCIS 2012 Proceedings*, Paper 4, (online)(cited 8 June 2013). Available from <URL: <http://aisel.aisnet.org/amcis2012/proceedings/EBusiness/4>>
- Jacoby, J. and Chestnut, R.W. (1978) *Brand Loyalty Measurement and Management*, New York: Wiley.
- Jaiswal, A.K. and Niraj, R. (2011) 'Examining the mediating role of attitudinal loyalty and non-linear effects in satisfaction-behavioral intentions relationship', *Journal of Services Marketing*, 25:3, pp.165-175
- Jha, S., Deitz, G.D., Babakus, E., and Yavas, U. (2013) 'The role of corporate image for quality in the formation of attitudinal service loyalty', *Journal of Service Research* 16:2, pp.155-170.
- Johnson, W.C., and Sirikit, A. (2002) 'Service quality in the Thai telecommunication industry: a tool for achieving a sustainable competitive advantage', *Management Decision*, 40:7, pp.693-701.
- Kahn, B.E., Kalwani, M.U. and Morrison, D.G. (1986) 'Measuring variety seeking and reinforcement behaviors using panel data' *Journal of Marketing Research*, 23:May, pp.89-100.
- Kietzmann, J.H., Hermkens, K., McCarthy, I.P. and Silvestre, B.S. (2011) 'Social media? Get serious! understanding the functional building blocks of social media', *Business Horizon*, 54:3, pp. 241-251.
- Kim, M.K., Cheol, M. and Jeong, D.H. (2004) 'The effects of consumer satisfaction and switching barrier on consumer loyalty in Korean mobile telecommunication services', *Telecommunications Policy*, 28:2, pp.145-159.
- Kumar, V. and Shah, D. (2004) 'Building and sustaining profitable consumer loyalty for the 21st century', *Journal of Retailing*, 80:4, pp.317-329.
- Lawer, C. and Knox, S. (2006) 'Consumer advocacy and brand development', *Journal of Product and Brand management*, 15:2, pp.121-129.
- Maklan, S., Knox, S. and Peppard, J. (2011) 'Why CRM fails- and how to fix it', *MIT Sloan Management Review*, July, pp.77-85.
- Miller, J.A. (1977) 'Studying satisfaction, modifying models, eliciting expectations, posing problems, and making meaningful measurements' in Hunt, H.K. (ed.) *Conceptualization and Measurement of Consumer Satisfaction and Dissatisfaction*, Bloomington, IN, School of Business, Indiana University, pp.72-91.
- Morgan, R.M. and Hunt, S.D. (1994) 'The commitment-trust theory of relationship marketing', *Journal of Marketing*, 58:3, pp.20-38.
- Oliver, R.L. (1996) *Satisfaction: A Behavioral Perspective on the Consumer*, New York, McGraw Hill.
- Price, L.L. and Arnould, E.J. (1999) 'Commercial friendships: service provider-client relationships in context', *Journal of Marketing*, 63:4, pp.38-56.
- Reinartz, W. and Kumar, V. (2002) 'The mismanagement of loyalty', *Harvard Business Review*, July, pp.4-12.
- Rundle-Thiele, S. and Bennett, R. (2001) 'A brand for all seasons? A discussion of brand loyalty approaches and their applicability for different markets', *Journal of Product and Brand Management*, 10:1, pp. 25-37.

182 Consumer Advocacy's Impact

- Shainesh, G. (2012) 'Effects of trustworthiness and trust on loyalty intentions: Validating a parsimonious model in banking', *International Journal of Bank Marketing*, 30:4, pp.267–279.
- Sharp, B. and Sharp, A. (1997) 'Loyalty programs and their impact on repeat-purchase loyalty patterns', *International Journal of Research in Marketing*, 14:5, pp.473-486.
- Sharp, B., Wright, M. and Goodhardt, G. (2002) 'Purchase loyalty is polarised into either repertoire or subscription patterns', *Australasian Marketing Journal*, 10:3, pp.7-20.
- Sirdeshmukh, D., Singh, J. and Sabol, B. (2002) 'Consumer trust, value, and loyalty in relational exchanges', *Journal of Marketing*, 66:1, pp.15-37.
- Tenenhaus, M., Vinzi, V.E., Chatelin, Y.M. and Lauro, C. (2005) 'PLS path modeling', *Computational Statistics and Data Analysis*, 48:1, pp.159-205.
- Turel, O. and Serenko, A. (2006) 'Satisfaction with mobile services in Canada: an empirical investigation', *Telecommunications Policy*, 30:5/6, pp.314-331.
- Turkyilmaz, A. and Özkan, C. (2007) 'Development of a consumer satisfaction index model: An application to the Turkish mobile phone sector', *Industrial Management and Data Systems*, 107: 5, pp. 910-925.
- Urban, G. (2005) 'Consumer advocacy: a new era in marketing', *Journal of Public Policy and Marketing* 24 :1, pp.155-159.
- Wong, A. and Sohal, A. (2003) 'Service quality and consumer loyalty perspectives on two levels of retail relationships', *Journal of Services Marketing*, 17:5, pp.495 – 513.
- Yamaoka, T. (2004) 'The Elements of Consumer Advocacy Marketing', Master of Science thesis, submitted to MIT (online)(cited 8 June 2013). Available from <URL: <http://hdl.handle.net/1721.1/17877>>.
- Yang, Z. and Peterson, R.T. (2004) 'Consumer perceived value, satisfaction, and loyalty: the role of switching costs', *Psychology and Marketing*, 21:10, pp.799-822.
- Yi, Y. (1989) 'A critical review of consumer satisfaction', in Zeithaml, Valerie A.(ed). *Review of Marketing*. Chicago, American Marketing Association, pp.68-123.
- Zaltman, G. and Burger, P.C., (1975) *Marketing Research: Fundamentals and Dynamics*, Illinois, The Dryden Press.
- Zeithaml, V.A., Berry, L.L. and Parasuraman, A. (1993) 'The nature and determinants of consumer expectations of service', *Journal of the Academy of Marketing Science*, 21:1, pp.1-12.
- Zeithaml, V.A., Bitner, M.J. and Gremler, D., (2006) *Services Marketing: Integrating Consumer Focus Across the Firm*, (5th edn.), New York, McGraw-Hill Irwin.
- Zinkhan, G.M., Burton, S., and Wallendorf, M. (1983) 'Marketing applications for snowball sampling: potential benefits and problems' in Darden, W.R., Monroe, K.B. and Dillon W.R., (eds.), *AMA winter Educators Conference: Research Methods and Causal Modeling in Marketing*, Sarasota, FL. American Marketing Association.

Dr. Sanjit Kumar Roy, Assistant Professor in The University of Western Australia, Stirling Highway, Crawley, WA, Australia, Email: sanjit.roy@uwa.edu.au.

Dr. Abdolreza Eshghi, Professor of Marketing at Bentley University, Waltham, Massachusetts, Email: aeshghi@bentley.edu.

Prof. Ali Quazi, Professor of Marketing, University of Canberra, Bruce, Australia, Email: Ali.Quazi@canberra.edu.au.

CONDUCTING RESEARCH FOR NEW SERVICE DEVELOPMENT IN EMERGING MARKETS

Intekhab Alam

By placing New Service Development (NSD) activities in selected emerging markets and by using local managers for NSD, a firm can access critical information about innovations in those regions and make direct connections with potential new markets. However, to develop successful new services, customer inputs must be obtained. Yet cultural factors of customers pose challenges to the service firms in their customer interaction and NSD research. Therefore, the goal of this study is to comprehend the customer interaction process in NSD in an emerging market such as India and offer guidelines on how to manage cultural challenges during NSD research. We conducted a case study and generated several new service ideas. Through this case study we clearly show how service firms should interact with the customers using qualitative research techniques and obtain key input and information for new service idea generation and new service concept development stages

INTRODUCTION

New Service Development is an important growth strategy for many global service firms worldwide and therefore it must be managed globally. The benefits of global innovation include greater efficiency, developing a service suited more for global markets and access to technical expertise that are distributed globally. Thus, managing global innovation is an interesting area of research. In addition, lately many emerging economies have achieved a growing share of trade in service sectors worldwide. This economic shift has created a need for more thorough understanding of NSD practices of firms in the emerging economies of the world (Alam, 2007).

Although developing new services for emerging and global market is key to a firm's growth and prosperity, the overall failure rate of new services is high (Cooper and Edgett, 1996). Many studies have provided empirical support for the positive link between customer interaction and success of a new service (for example, de Brentani, 1995). Therefore, customer interaction has become a pivotal construct that affects a service firm's strategy and operation. Despite the growing interest in customer interaction, research on how firms interact with customers in some of

184 Conducting Research for New Service

the emerging markets of the world is surprisingly limited. Cultural difference of global customers and its impact on the customer interaction research is another area in need of attention because extant literature has limited guideline on how customers' culture and value orientations affect a firm's NSD initiatives. We address these gaps in the literature by conducting a longitudinal case research of the process of customer interaction for NSD projects in a developing and emerging nation, India. The choice of India was motivated by (a) its expanding local markets, (b) its recent increase in service imports from developed countries in North America and Europe and (c) the dearth of research involving India.

The goal is to comprehend further the challenges of conducting research for NSD in emerging markets and propose a framework that can help service firms address various tactical issues when considering customer interaction in another country. In particular, the research questions for this study are: (a) how to interact with the customers for NSD in the global market particularly the emerging market of India and, (b) what are the cultural challenges in conducting customer interaction research in global market? By answering these research questions we would like to sensitize global market researchers to various methodological issues which should be considered in conducting qualitative research for NSD. We also provide guidelines for addressing these issues and challenges. Therefore, the results of our research may be of considerable value and interest to international marketing researchers and scholars in understanding the process of qualitative research in an emerging market. Our research will further spark interest in theory building research in emerging markets and delineate the techniques of tackling common cultural challenges in conducting qualitative research in overseas markets. Essentially, this research responds to the call for a new thinking about research in emerging market and draws inspiration from Craig and Douglas (2001) who have emphasized the need to find creative ways to conduct research in the emerging countries of the world.

Our study is set in the financial services industry. The financial services industry is a worthy test of the customer interaction method because of the high level of innovation in that industry resulting from

deregulation and technological advancements. In addition, we focus on industrial services because business-to-business service transactions are more important and complex than the retail services (Alam, 2012).

Service Innovation in Emerging Markets

Many global service firms have research centres or service development teams scattered around the world, yet most of them focus on leveraging the knowledge available in their home countries only. Their innovation strategies tend to be dominated by the thinking and knowledge available in the countries where they are located. Lately, the trend is changing, as many U.S service firms are keenly taking interest in using service development resources derived from their subsidiaries and overseas branches (Alam, 2007). However, this phenomenon is taking off slowly because globalizing innovation is an evolution that typically takes place over a number of years (Ostrom et al., 2010). In this emerging trend, India is slowly becoming a key player. Having experienced success in outsourcing jobs such as call centres, IT and software services, many firms from developed countries are establishing their own off shore R&D facilities in India (Johnson and Tellis, 2008). This is no less true of financial services than of any other sectors in the U.S.

Globalization and deregulation of the financial services industry have also increased the competition among financial service firms in a vigorous search for a competitive advantage. New services are one such key source of competitive advantage. In additions, India has emerged as a country of immense industrial power by actively pursuing the policies of economic liberalization and privatization of its service sector since early 1990s (Johnson and Tellis, 2008). Consequently, many multinationals and U.S service firms are increasingly recognizing the importance of India's service sector and its potential in world economy (Saran and Guo, 2005). In brief, there is a need for the service firms to implement a process for NSD that transcends national boundaries. This strategy of utilizing local information, market intelligence and capabilities may provide a new source of competitive advantage.

Customer Interaction in New Product/Service Development

A considerable body of research have explored the mechanism and the process of customer interaction in new tangible product development (for example Alam, 2002; Gruner and Homburg, 2000; Biemans, 1991; Voss, 1985). These studies report that as buyers of current and future new products and services, the customers may contribute to all the phases of NSD, from idea generation to launch. However, no real pattern of the interaction process emerges from these studies because they vary widely in their elements and scopes. Yet, these studies offer a useful theoretical basis for analysing the process of customer interaction in NSD.

For instance, several customer interaction studies merely reported that the customers were active and played an important role in developing successful new products (Voss, 1985). Gruner and Homburg (2000) studied customer interaction in more detail and reported that customer interaction during the early stages of a development process significantly influenced the performance of new products. Therefore, they argued for intense interaction between the customers and product developers during the innovation process. Likewise in the case of NSD, Alam (2002) suggested that the intensity of service producer-customer interactions during the idea generation stage should be higher than all other stages. He also suggested that customer interaction results in important benefits such as reduced cycle time, superior services and customer education. Yet, how customers should be selected and how a firm should interact with customers during NSD is less known.

Given the large amount of literature in the field of innovation from diverse disciplines, we identified a large numbers of variables that may influence NSD and customer interaction process. However, we could not glean much about the customer interaction from a global and/or international perspective, nor could we surmise much about the potential set of guidelines for customer interaction activities and research process in a different country and culture. Part of the reason is that much of the focus of prior research has been on studying NSD practices in North America and Europe, therefore, our knowledge of NSD and the roles of customer interaction in Asian and emerging countries is limited. For this reason,

it seems worthwhile to conduct a research examining the process of customer interaction for NSD in emerging market of India

Cultural Factors in Customer Interaction and NSD

Success in global market typically requires that a firm develops new services that respond to a much more diverse set of market characteristics because cultural values may have a direct influence on a person's behaviour, attitude and action. Therefore, customers' cultural orientation and values may play a key role in the way they interact with the service managers and provide input for NSD. Thus, it is useful to understand the effect of cultural factors on the use and interaction of customers in NSD. Studies by Hofstede (1984), Hall and Hall (1990) and Schwartz (1994) are by far the most prominent approaches to study cultural factors in marketing and advertising research. Hofstede (1984) identifies five cultural dimensions that can influence customer interaction practices of a firm: power distance, individualism, masculinity, uncertainty avoidance and long-term orientation. Similarly, Schwartz (1994) groups value types according to the underlying motivational goals and cultural value orientations. His three cultural dimensions are: conservatism vs autonomy, hierarchy vs egalitarianism, and mastery vs harmony. In addition, Hall and Hall (1990) identify three dimensions of culture: high/low context, high/low space and monochronic/polychronic use of time. On applying these dimensions of cultural values to India, it becomes apparent that India is low on individualism and uncertainty avoidance but high on power distance. Similarly, India is a polychronic country, which means Indians would like to do many tasks simultaneously. India is a high context country which implies that personal relationship plays a key role in business dealings with the Indian customers. We expect that these cultural values will have an impact on the interaction process with the customers for NSD.

Despite the importance of national culture, most NSD studies do not incorporate the global aspects in their NSD programmes. In addition, the literature dealing with NSD and with cultural factors involves relatively separate streams; only rarely are the two issues studied together. This implies that the extant literature has not taken account of this important

188 Conducting Research for New Service

reality adequately. For example, despite India's potential in the world economy, very little is known about the NSD in that country. As a direct result of this phenomenon, firms from developed countries are only beginning to understand the Indian market and its cultural idiosyncrasies that create obstacles to market research and entry (Iyer *et al.*, 2006). This gap is serious for research and for firms that need to develop successful new services in global markets. In addition, there are many challenges in conducting research related to NSD and cultural issues. Yet, the methodological issues in conducting research in emerging markets have not been properly explored by the scholars, leaving a worthwhile gap in the extant literature. We fill this research gap by proposing a robust methodology for studying NSD and customer interaction in India.

METHODOLOGY: CASE RESEARCH IN AN EMERGING MARKET

The article is about conducting a longitudinal case study research in an emerging market. It also involves action research because the research team played the dual roles of respondents and researchers. They examined their own process of customer interaction in NSD and reported the results. The firm involved in this case study is Ameriprise Inc. (a pseudonym), a leading financial services firm based in the U.S. This multinational corporation has a global presence. It wanted to improve its innovation efforts in India and other Asian countries. Ameriprise was on the verge of big expansion and was planning to introduce a number of new services for its business-to-business customers in India. The firm had a policy of interacting with customers and obtaining input from them before introducing new services, and it had carried out several similar interaction activities in the U.S. Thus, Ameriprise decided to follow a similar strategy for its overseas markets, and India was the first stop in its quest for a successful innovation. Notably, India was of strategic interest to Ameriprise because of its massive market size, high level of economic growth, growing customer demand and increasingly transparent institutional policies (Johnson and Tellis, 2008; Kuntluru *et al.*, 2012). The remarkable economic resurgence and future promise of India, had made entering this market a priority for Ameriprise.

There were several competitive and environmental forces impacting the service innovation strategy of Ameriprise that led to the initiation of this research project. First, despite Ameriprise's dominance in the global market, the managers were concerned about growing competition from other financial institutions, particularly multinational service firms that were expanding globally. This growing global competition caused Ameriprise to actively search for new means to stay ahead in the competition. Second, managers were concerned that Ameriprise's overall market share had become static and that to achieve growth, new services must be developed.

Therefore, the marketing director of the firm asked a team of researchers led by the author(s) to develop new service ideas from customers' input. A preliminary investigation revealed that despite a strong market research programme and a focus on internally generated ideas, very few ideas were emerging. In addition, Ameriprise had relied heavily on customers and agents/brokers for new service ideas. However, since customers' requests mainly included minor extensions and "me-too" type services, all the ideas merely represented incremental innovations. Thus, the main problem facing the firm was an on-going shortage of new service ideas. The managers at Ameriprise used this finding as an opportunity and began focusing the firm on organic growth, which meant increasing the customer base by offering new services. This strategy relied heavily on identifying customer needs and gaining insights into NSD in each of its key markets, including India. However, to be successful, managers recognized the firm would need to adopt a new and unique approach to service innovation. It must consider the overseas market as a local entity and develop products based on local requirements and tastes and use local resources for this purpose. The managers were also concerned with the cultural challenges that might impede on the research process. Therefore, they recruited researchers from varied background and formed a research team to tackle the cultural challenges in conducting this research.

RESEARCH DESIGN

Prior research of customer interaction and NSD in international context

190 Conducting Research for New Service

has mostly relied on cross sectional surveys of customers and managers. However, scholars have called for more research based on qualitative methodologies (e.g. Marschan-Piekkari and Welch, 2004) and longitudinal data collection process in social science research (for example, Narayandas and Rangan, 2004; Ulaga and Eggert, 2006). Periodic calls for a new thinking about social sciences research have arisen from within the fields of Management and Marketing (Bonoma, 1985; Gummesson, 2002, 2000; Summers, 2001) and International Business (Marschan-Piekkari and Welch, 2004). All of these scholars are intrigued by a nonpositivist understanding of managerial actions and decisions and have stressed the need for more studies based on phenomenological research approaches. Responding to this call for the revival of inductive field research into global marketing we developed a research design for observing and analysing customer interaction activities in international market. In particular, we relied on research methods that are common in organizational behaviour, consumer behaviour and international business research (Pettigrew, 1990; Sherry and Kozinets, 2001; Bartlett and Ghoshal, 1987).

In addition, we used the longitudinal case research design proposed by Pettigrew (1990) and used recently by Gebhardt *et al.* (2006) and Narayandas and Rangan (2004). We chose longitudinal field research method to identify the main sequence of events of the customer interaction process in NSD while they happen and to avoid the ex-post rationalization phenomena (Van de Ven and Huber, 1990). This method combines qualitative data collection techniques, such as in-depth interviews, brainstorming, ethnographic observation, action research and archival records analysis. We also conducted a confirmatory follow up study using a small sample mail survey. Researchers have emphasized the importance of combining multiple data collection methods in conducting inductive field research and case studies (e.g. Deshpande, 1983; Eisenhardt, 1989). As used in previous research, we iteratively synthesized findings both from field research and the extant literature to develop a comprehensive understanding of NSD process and identify key factors and relationships that enhance the understanding of a firm's customer in-

teraction practices(e.g. Ulaga and Eggert, 2006; Workman *et al.*, 1998). In summary, our method can best be described as part way along the continuum ranging from “positivism to idealism: (Deshpande, 1983) and can be further characterized as hermeneutic (Spiggle, 1994) because of the range of data collection methods, data coding system and the iterative data comparison method adopted in this research.

First, we developed insights from the literature to establish initial boundaries to focus our research and to guide the selection of customers for research samples. We reviewed the extant literature on new product and service development and the importance of emerging countries and the broader literature on global business, customer interaction and customers’ cultural orientation to identify factors that may be important to the understanding of customer interaction in an emerging economy. In line with the studies by Alam (2002), we restricted our research only to three initial stages of the NSD process: idea, generation, screening and concept development because these three initial stages are more important for customer interaction purpose. We used these literature based insights to develop a semi-structured interview protocol. To collect data we developed a *systematic* process of conducting fieldwork. The basis of this framework is several empirical qualitative studies published in the prestigious journals (for example, Journal of International Business Studies, Journal of Marketing and Journal of Marketing Research), articles related to the qualitative research methodologies (for example, Bonoma, 1985; Eisenhardt, 1989) books dealing with qualitative research methodologies (e.g. Gummesson, 2000; McCracken, 1988; Miles and Huberman, 1994; Patton, 1990) and several practitioners’ reports on the use of qualitative methodologies in research. The analysis of our data occurred at several levels simultaneously throughout the data collection process that lasted several months. At the first level of analysis we continuously reflected the data against the previous interviews and emerging themes. We also used an iterative hermeneutical approach of moving between data and the insights developed from extant literature. We also actively compared and contrasted our findings across firms to generate new insights (Strauss and Corbin, 2008). Figure 1 graphically depicts the fieldwork part of our methodology.

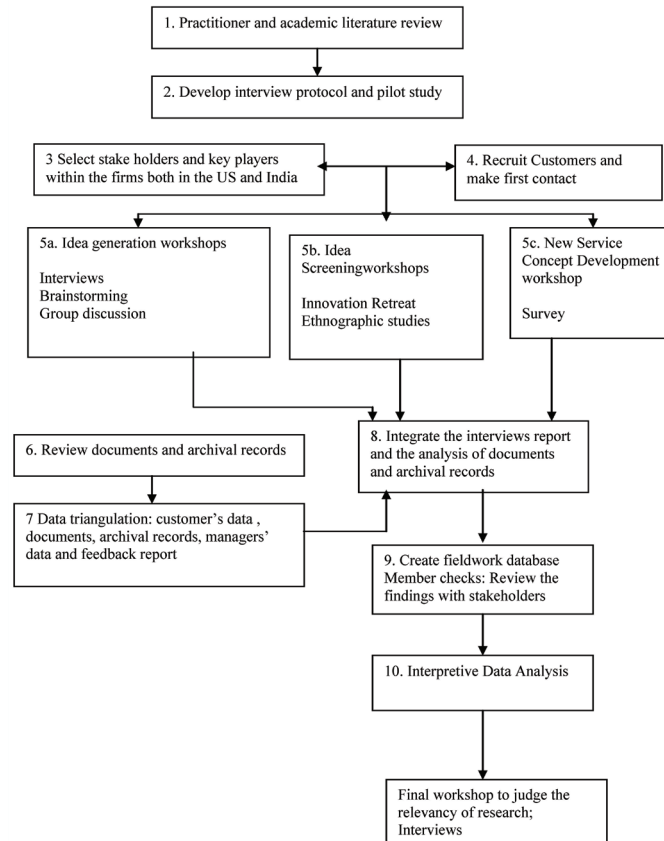


Figure 1: Process of Fieldwork and Data Collection

Fieldwork and Research Process

Selection of Customers and Formation of Research Team. First we outlined the key goals of the research and identified the main players and stakeholders who would implement the research. We believe that it is important to put together a very skilled and talented team to ensure the success of the project. Thus, after a thorough screening process, we identified four managers based in Ameriprise’s subsidiary in India as the key players and stakeholders. Next, working as a team of researchers we identified 42 business customers as potential participants, but selected only

21 customers who had the richest information to offer and invited them to participate in idea generation workshops. As used in past studies, we took care to select the key informants through the identification and pre-notification method. All the respondents had two key characteristics. First, they were experienced practicing managers in NSD or a related position. Second, they were closely involved in NSD projects in their respective firms. These characteristics of the key informants imply that they had the necessary knowledge and confidence to respond to the NSD issues under study. As part of this identification process we also sent them a questionnaire asking them to provide a self-report of their knowledge of NSD issues under study. The mean score was 4.4 on a 5-point scale (1= not at all knowledgeable and 5= highly knowledgeable). In summary, the key informants for data collection were middle to senior-level managers and influential decision makers and actual users of financial products marketed by the Ameriprise.

Idea Generation Workshops. All the 21 customers then joined the author and four Ameriprise managers for idea generation and concept development workshops that lasted about a week. We conducted semi-structured interviews with the participants. Each interview lasted from two to three hours and was audiotaped. The interviews covered four complementary themes of inquiry: (a) needs of customers regarding the new services (b) the problems they had with the current services and the solutions to solve those problems (c) the latest trends in the market in regard to various service concepts, and (d) whether any of the customers had actually developed a new service or modified an existing service to solve their problems. We posed several questions to probe these four areas of inquiry. During the interviews, we reviewed several documents pertaining to Ameriprise's previous efforts for idea generation and overall NSD. The analysis of our data occurred at several levels simultaneously throughout the data collection process. We managed interview transcripts, field notes and archival records electronically using QSR International's Nvivo software that allowed us to code all the data. Using this software we highlighted the key quotes and emerging themes in the data. At the first level of analysis we continuously reflected the data against the previous data and emerging themes. We also used an iterative hermeneutical approach of moving between the data and the insights developed from the extant literature.

194 Conducting Research for New Service

A second level of analysis involved another intensive examination of recorded data to identify commonalities and differences among respondents and scrutinize the emerging themes more thoroughly. We resolved all discrepancies through discussions and several interrelated themes developed iteratively. This analysis of interview transcripts and field notes collected from seven days of regular meetings and discussions uncovered rich data that would finally be the basis of new service ideas. The goal was to characterize and dimensionalise the key themes in new service ideas.

Completion of this this stage of research process revealed 27 new service ideas related to a variety of financial services that the firm was planning to develop. These ideas were related to various products, such as business insurance, cash management systems, group pension plans, industrial asset management and money market products. One interesting finding deserves attention. One of the customers belonging to the ethnic minority Muslim community suggested the need for several types offinancial services that comply with the Islamic law. He asserted that due to the enormous Muslim population who are practicing Islamic culture and values, there is a potential for Islamic business to business banking products in India. Finally, we prepared our database for these 27 ideas and sent copies to all the respondents for member checks, both to help verify the accuracy of new service ideas and to provoke any additional insights the respondents might harbour. This process of audit trial, member checks and working within a research team assisted in enhancing the merit and reliability of the research.

Idea Screening. The next step was to determine the quality of each idea so that the screening could be done and concept development and other subsequent stages of NSD could proceed. To achieve this goal we organized a two-day innovation retreat in a hill resort near Mumbai. In this session the participants jointly developed service delivery blueprints, reviewed the blueprints, noted the strengths and weaknesses of the service concepts and commented on the cost and fees structure of the all the service ideas developed in the previous step. We conducted ethnographic studies by observing and interacting with customers. For this purpose, a mock service delivery process was developed, and the customers were asked to react to the service delivery, suggest fail points and tie up all the loose ends. This process conformed in many ways to the situated or auto-ethnography in that the researchers became fully situated as the member of the groups

being studied. At the end of the retreat, only 11 ideas survived and moved on to the next stage of concept development and design. We concluded the idea generation and screening fieldwork when we achieved theoretical saturation, a point at which additional fieldwork appeared unlikely to produce any more ideas.

New Service Concept Development. To test the service concepts developed in previous steps and validate their commercial potential we decided to survey a larger group of customers. One of the stakeholders (Customer Relations Manager of Ameriprise's Indian subsidiary) asserted that a customer's positive reactions to a service concept should not be construed as an intention to use or buy that service because it is common for many Indian customers to respond to interview questions in a positive manner merely to please the interviewers. For this reason she argued for further probes into customers' initial positive reactions to the new service concepts through further studies. Another objective of this portion of the study was to triangulate the qualitative findings and to refine the new service ideas developed in previous stages of the research. It also enabled us to assess the face validity and reliability of our fieldwork insights. For example, the research team assessed the potential size of the market and the number of customer firms that might adopt these new services. In essence this process was designed to determine whether the findings are resonant across diverse group of customers rather than being idiosyncratic to the customers we interviewed.

For this purpose, we identified 173 customers and sent a questionnaire asking for their intentions to adopt these 11 new services, if offered. The questionnaire also contained other details of the new service concepts including, fees, and charges, details of service delivery staffs, service delivery process and brief service delivery blueprints. After the analysis of responses from 103 valid questionnaires, we decided to discard six new service concepts because their means for the intention to adopt were below our cut-off point of 4 in the scale of 1-5 (5 being "definitely adopt/buy the new service"). Thus remaining five new service concepts (with means of 4 and higher) moved on to the service design phase of the NSD process. In summary, the data collection framework and the research design worked very well in achieving the desired results. The management was happy with the five new service concepts that were the results of this research.

DISCUSSIONS AND RESEARCH IMPLICATIONS

Our study proposes a robust methodological approach for answering a key research question in the innovation literature regarding the influence of cultural factors on customer interaction in NSD. The findings suggest that (a) interaction with customers will lead to innovative new services because the customers are a rich source of new service ideas, (b) customers that are innovative and willing to participate in NSD research already exist in emerging markets such as India, as a skilled resource for any NSD project and only need to be identified, (c) customers are willing to work with the service producers without any compensation if the managers are able to demonstrate that the customers are important partners in a firm's NSD strategy, as also reported in previous studies (Alam, 2013; 2011), (d) the interaction with customers improves teamwork and is significantly faster at developing new services, and (e) the managers should focus on customer interaction resources at the beginning of NSD process starting with the stage of idea generation because the customers can contribute most to this NSD stage in a firm.

Service managers should be cognizant of several cultural factors that may impact the customer interaction process in a NSD project. We found that the way of thinking among customers in India was analytical rather than holistic in character. There is a general tendency among the customers to strive to solve problems through the use of logic rather than relying on finding a common middle ground. A related implication is that this style of thinking promotes never ending debate and argumentation. They find all too easy to discover flaws in other customers' arguments. The Indian managers of the Ameriprise also displayed this logical and analytical way of thinking that led to unnecessary prolonged discussions and debate. This finding emphasizes the need for a strong team leader, who will step in to resolve any unending debates and move forward with the common tasks of developing new services. One surprising finding worth noting here is that although Indians are regarded as collectivists, the Indian customers mostly exhibited individualistic characteristics throughout this research process. This finding confirms the arguments put forward by other researchers suggesting that that Indians are both individualistic and collectivistic in their orientation (Kumar and Worm, 2004; Sinha and Kanungo, 1997). They may be very agreeable on some occasions and make concerted efforts to

find common ground, while on other occasions they may be singularly focused on attaining their own goals. In this situation, service managers are advised to take a firm stand on the need to focus on common goal, which is to generate new service ideas. Because of the polychronic use of time by the Indian customers, service managers may face meeting scheduling problems. It is common among the Indian customers to either cancel the interviews at the last minute or come late to the team meetings. Because of these scheduling issues, NSD projects may be delayed. We had to send several reminders to the customers for the return of case research databases that were sent to each participant for member checks and reviews. Member check is an important methodological technique in case research, therefore, marketing researchers must take note of this challenge in dealing with the Indian respondents. However, one positive factor deserves attention. There was no language barrier as one may expect in an overseas country. All the participants knew English and western traditions and culture very well. This made the marketing research task much easier for the research team. Secondly, contrary to the general belief about the polychronic nature of the country, the Indian customers however provided detailed and explicit information about new services which was very helpful in generating innovative new service ideas. Thirdly, as with most high context cultures, the relationships play a key role in customer selection and the overall success of customer interaction strategy. Therefore, service firms should consider investing time and resources in developing a close relationship with their customers because it will assist them in selecting the right customers and gaining their cooperation for the research.

RESEARCH CONTRIBUTIONS AND CONCLUSIONS

To the best of our knowledge this study represents a first attempt to develop a research design to empirically explore the cultural factors in customer interaction and NSD in Indian service firms. More specifically, the use of longitudinal research constitutes a worthwhile methodological contribution to the study of customer interaction and NSD. Since cross-sectional research reports retrospective accounts of organizational actions, they often have been found to differ from actual activities (Stewart, 1998). Therefore, participant observation and action research can indeed claim to offer obvious advantages over surveys or other cross-sectional methodologies,

198 Conducting Research for New Service

which until now have been the most common research methodology for NSD in the extant literature. Service managers may take note of this research design and apply it to their NSD and customer interaction studies. To be successful, the customer interaction method has to be somewhat different from the studies of firms from developed countries presented in the literature. For example, in the context of the emerging countries, cultural issues related to the team dynamics, interpersonal relation and time factors must be taken into account. In addition, this study reflects the current academic and practitioner interest in the emerging role of India, not just as a customer of new services but as an increasingly strong player in developing global new services capabilities. Thus, our findings may be of considerable value and interests to service managers in developed countries faced with the complex tasks of marketing and developing new services in an emerging country.

All the extant customer research typically relates to tangible products. In contrast, our research specifically involves services. Thus our implications may help further the understanding of NSD and customer interaction practices in service firms. Because of the characteristics of intangibility, heterogeneity, inseparability and perishability, many services are to a large extent similar in nature (Lovelock and Gummesson, 2004). Therefore, our findings, although subject to further verifications and refinements in future studies, may also apply to knowledge intensive and other complex, technology-oriented service sectors, such as telecommunication, healthcare, information technology and the financial services sector that was our study context. In conclusion, our customer interaction research resulted in several innovative new service ideas and therefore answered the challenges involved in developing successful and innovative new services. Ameriprise gained important benefits from its customer interaction initiative because this research generated an unprecedented surge of creative thinking about NSD as evidenced from the number of new service ideas developed during the customer interaction workshops.

Limitations and Future Research Directions

The overall results of our single case analysis appear very successful. While the generality of such results must be determined by further studies,

we believe that this initial case provides a vivid description of customer interaction in NSD. As is typical in studies of this nature, the single case design constraints the generalizability of our interpretations. Nevertheless, we believe that a detailed and comprehensive analysis of the case mitigates this circumstance and that our study has implications for the NSD, customer interaction and cultural studies literature and for further research. Second, this research is conducted in only one emerging market. Although most emerging markets share cultural similarities, a different pattern of findings may emerge in other countries. Thus our study needs to be replicated in other parts of the world. Third, during this study, a new area of research emerged that relates to developing new services exclusively for customers belonging to ethnic minority group in India. There are almost 200 million Muslim minority customers in India and there seems to be a demand for services that adhere to Islamic law. This area of research needs further attention. Finally we study only one, albeit important service industry, which again raises the issue of generalizability. The financial services industry is unique in many ways but it is also possible to make at least some tentative generalizations from financial services to other service industries. Our objective for this research is to develop a deeper understanding of the customer process, cultural factors and marketing research that specifically relates to NSD. We believe that this is crucial to improving the state of the art of service innovation strategies and cultural studies and we encourage further research in this area.

REFERENCES

- Alam, I. (2013) 'Customer interaction in service innovation: evidence from India', *International Journal of Emerging Markets*, 8 :1, pp.41 – 64.
- Alam, I (2012) 'New Service Development in India's Business-to-Business Financial Services Sector', *Journal of Business and Industrial Marketing*, 27:3, pp.228-241.
- Alam, I (2011) 'Process of Customer Interaction During New Service Development in an Emerging Country', *Service Industries Journal*, 31:16, pp.2741-2756.
- Alam, I. (2007) 'New service development Process: Emerging versus developed markets', *Journal of Global Marketing*, 20 :2/3, pp.43-55.
- Alam, I. (2002) 'An exploratory investigation of user involvement in new service development', *Journal of the Academy of Marketing Science*, 30:3, pp.250-261.
- Bartlett, C. and Ghoshal S. (1987) 'Managing across borders: New strategic requirement', *Sloan Management Review*, 28:4, pp.7-17.

200 Conducting Research for New Service

- Biemans, W.G. (1991) 'User and third party involvement in developing medical equipment innovations', *Technovation*, 11:3, pp.163-82.
- Bonoma, T. (1985) 'Case research in marketing: opportunities, problems and process', *Journal of Marketing Research*, 22:2, pp.199-208.
- Cooper, R.G. and Edgett, S.J. (1996) 'Critical success factors for new financial services', *Marketing Management*, 5:3, pp.26-37.
- Craig, S.C. and Douglas, S.P. (2001) 'Conducting international marketing research in the twenty-first century', *International Marketing Review*, 18:1, pp.80-90.
- de Brentani, U. 1995 'New industrial service development: scenarios for success and failure', *Journal of Business Research*, 32, pp.93-103.
- Deshpande, R. (1983) 'Paradigms lost: On theory and method in research in marketing', *Journal of Marketing*, 47:4, pp.101-110
- Eisenhardt, K.M. (1989) 'Building theories from case study research', *Academy of Management Review*, 14:4, pp.532-50.
- Eppinger S.D. and Chitkara A.R. 2006 'The new practice of global product development', *Sloan Management Review*, 47:4, pp.22-30.
- Gebhardt, G.F., Carpenter, G.S., and Sherry, J.F. Jr. (2006) 'Creating a market orientation: a longitudinal, multifirm, grounded analysis of cultural transformation', *Journal of Marketing*, 70 :5, pp.37-55.
- Gruner K.E. and Homburg C. (2000) 'Does customer interaction enhance new product success?' *Journal of Business Research*, 49:1, pp.1-14.
- Gummesson, E. (2000) *Qualitative Methods in Management Research*, 2nd edition, Thousands Oak, Sage.
- Gummesson, E. (2002) 'Relationship marketing and a new economy: It's time for de-programming', *Journal of Services Marketing*, 16:7, pp.585-589.
- Hall, E.T., and Hall, R.M. (1990) *Understanding Cultural Differences – Germans, French and Americans*. Yarmouth, ME: Intercultural Press.
- Hofstede, G. (1984) *Cultural Consequences, International Differences in Work-related Values*, Sage, Beverley Hills, CA.
- Iyer, G., LaPlaca, P.J., and Sharma A. (2006) 'Innovation and new product introductions in emerging markets: Strategic recommendations for the Indian market', *Industrial Marketing Management*, 35:3, pp.373-382.
- Johnson J. and Tellis, G.J. (2008) 'Drivers of success for market entry into China and India', *Journal of Marketing*, 72:3, pp.1-13.
- Kumar, R. and Worm, B. (2004) 'Institutional dynamics and the negotiation process: comparing India and China', *International Journal of Conflict Management*, 15:3, pp.304-334.
- Kuntluru, S., Muppani, V.R. and Khan, M.A.A. (2012) 'Foreign direct investment and export performance of pharmaceutical firms in India: An empirical approach', *International Journal of Economics and Finance*, 4:5, pp. 216-226.
- Lovelock, C. and Gummesson, E. (2004) 'Whither Services Marketing?' *Journal of Services Research*, 7:1, pp.20–41.
- Marschan-Piekkari, R. and Welch, C. (2004) *Handbook of qualitative research methods for international business*, Cheltenham, Edward Elgar.

- McCracken, G. (1988) *The Long Interview*, Sage, Newbury Park, CA.
- Miles, M.B. and Huberman, A.M. (1994) *Qualitative Data Analysis-A Source Book of New Methods*, Sage, Newbury Park, CA.
- Narayandas, D. and Rangan, V. K. (2004) 'Building and sustaining buyer seller relationships in mature industrial markets' *Journal of Marketing*, 68:3, pp.63-77.
- Ostrom, A.L., Bitner M.J., Brown, S.J., Burkhard, K.A., Goul, M., Smith-Daniels, V., Demirkan, H., and Rabinovich, E. (2010) 'Moving forward and making a difference: research priorities for the science of service', *Journal of Service Research*, 13:1, pp. 4-36.
- Patton, M.Q. (1990) *Qualitative Evaluation and Research Method*, Sage, Newbury Park, CA.
- Pettigrew, A.M. (1990) 'Longitudinal field research on change: theory and practice', *Organization Science*, 1:,3, pp.267-292
- Saran, A. and Guo, C. (2005) 'Competing in the global marketplace: The case of India and China', *Business Horizons*, 48:2, pp.135-142.
- Schwartz, S.H. (1994) *Beyond Individualism/Collectivism: New Cultural Dimensions of Values*, Sage, Thousand Oaks, CA.
- Sherry, J.F. and Kozinets, R.V. (2001) 'Qualitative Inquiry in Marketing and Consumer Research' in, Dawn, Iacobucci (ed.), *Kellogg on Marketing*, New York, John Wiley and Sons.
- Sinha, J.B.P., and Kanungo, R.N. (1997) 'Context sensitivity and balancing in Indian organizational behavior', *International Journal of Psychology*, 32, pp.93- 105.
- Spiggle, S. (1994) 'Analysis and Interpretation of Qualitative Data in Consumer Research', *Journal of Consumer Research*, 21:December, pp.491-504.
- Stewart, A. (1998) *The ethnographer's method*, Qualitative research methods series 46. Thousand Oaks: Sage Publications.
- Strauss, A.M. and Corbin, J.M. (2008) *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, (3rd edn.), Thousand Oaks, CA: Sage
- Summers, J.O. (2001) 'Guidelines for conducting research and publishing in marketing: from conceptualisation through the review process', *Journal of the Academy of Marketing Science*, 29: 4, pp.405-415.
- Ulaga, W. and Eggert, A. (2006) 'Value based differentiation in business relationships: Gaining and sustaining key supplier status', *Journal of Marketing*, 70:1, pp.119-136.
- Van de Ven, A.H. and Huber G.P. (1990) 'Longitudinal field research methods for studying the processes of organizational change', *Organization Science*, 1:3, pp.213-219.
- Workman J.P. Jr., Homburg, C. and Gruner, K. (1998) 'Marketing organization: An interactive framework of dimensions and determinants', *Journal of Marketing*, 62:3, pp. 21-41.
- Voss, C.A. (1985) 'The role of users in the development of application software', *Journal of Product Innovation Management*, 2, pp.113-121.

Dr. Intekhab Alam is professor of Marketing at School of Business, State University of New York (SUNY), New York, USA. Email: alam@geneseo.edu.

BOOK REVIEWS

Khalil, Tarek and Shanker, Ravi, Management of Technology: The key to competitiveness and wealth creation 2nd ed. New Delhi: Tata McGraw Hill, 2013. 536 pp. Rs. 650/-.

Technology is dynamic. It is ever changing entity. In this era of severe competition and rapid changes, technology is becoming instrumental in shaping the progress and future of the countries as well as the business firms. In this current changing environment management of technology is very important. Having technology is not enough, the survival and economic growth of nations and corporations depend on effective management of technology (MOT). It has lead to success and failure of many organizations globally.

This book provides a holistic insight into the importance and need of managing technology. The authors of the book draw attention to the highly interactive and supportive relationship between competitive business and technology approaches of the firms. The book reviews the history and socio-political-economic implications and philosophical importance of technology leading to economic wealth and attaining competitiveness in the global economy.

The book comprises of 15 chapters and each chapter highlights a major aspect of management of technology. The book begins with explaining the term technology and its fundamental role in development of society. Further in the book major factors providing competitiveness of manufacturing and service organizations globally are introduced. It focuses on progress and consequential impact of technological developments on industrial and business system. Further it explores the technology and business planning and their respective life cycles. The value of innovation and need of research and development management, organizational structures in achieving and maintaining competitive edge are highlighted. The book briefly outlines the need and importance of managing people, role of capital, technology protection, and third party influence on technological change.

The book includes interesting case studies discussed throughout text providing useful insights to theoretical and practical aspect of MOT supplemented with additional readings and references at end of each chapter. The language remains effective and chapters are in flow of themes related to the title of the book. The book will be a valuable read for those interested in the theory and practice of technology management like technology planners, forecasters, government science, public policy makers and at macro and micro economic advisors. It will be particularly useful for introductory or survey courses in technology management. It is also a good read for management and engineering students at advanced undergraduate and graduate level.

Monica Bhardwaj, Assistant Professor, Institute for International Management and Technology, Gurgaon, India.

204 Book Review

Gupta, S.L. and Gupta, H., Business Research Methods. New Delhi: Tata McGraw Hill, 2012. 440pp. Rs. 350/-.

Business research has become a necessary way of life for every firm that wishes to survive and grow in this dynamic world. New markets are opening and old markets are in the process of restructuring their business practices based on the outcomes of business research. Responding to continuing rapid changes this book aims to encourage educators, students and practitioners to develop a wide range of evidence-based research skills and techniques including those of problem definition, the collection, analysis and critical evaluation of data as well as skills of arguing a case based on evidence and analysis.

The book is easy, enjoyable read and provides learning objectives of each chapter in the beginning giving students a list of key topics to be discussed and the goals to be achieved after studying the chapter. The multiple choice questions along with right answers at the end of each chapter helps in testing the in-depth knowledge on the subject. The inclusion of case studies covering various functional areas provides interesting explanation to a serious student in the application of theory of Research to practical, real-life situations. The activities/role plays are also quite interesting to be carried out by instructors with their students in seminar class.

The step by step procedure of using SPSS for solving and getting results for practical problems and the extensive interpretations of SPSS output motivates the researchers to use this software package.

Overall the book helps to familiarize students with scientific business research methods and usage of statistical techniques in order to develop effective research skills for business problem solving and decision-making. It helps in applying suitable methodologies to use statistical & business research techniques, suggest steps for reliable data collection & designing quality questionnaire, demonstrate techniques for data analysis & interpret results and illustrate ways for writing a good report for effective managerial decision making.

Dr. Tanuja Kaushik, Associate Professor, G D Goenka University, Sohna, Haryana, India.

A. Thompson, Margaret, A. Peteraf, John E. Gamble, A.J. Strickland, A.K. Jain, Crafting and Executing Strategy: The Quest for Competitive Advantage-Concepts and Cases. New Delhi: Tata McGraw Hill, s.l. 465pp. Rs. 615/-.

The book—Crafting and Executing Strategy is one of the best books available in the area of strategic management, currently. The authors have ensured to explain core concepts in language that students can easily grasp and provide examples carrying company-wise relevance. It discusses much in-depth about the latest developments in the theory and practice of strategic management. This keeps the content firmly in the mainstream of contemporary strategic thinking. The tools of strategic analysis, how they are used, where they fit into the managerial process of crafting and implementing strategy have also been described, thoroughly. Con-

205 Book Review

temporary cases are the key feature of the book that involves strategic issues giving students ample opportunity to apply what they have learned from the chapters.

The authors have taken all the possible efforts to revise the content with the latest examples and covered burning issues in the form of cases. The book covers the resource-based theory of the firm in the 18th edition which is nowhere seen in other texts available. The coverage of relational view, which focuses on cooperative strategies and the role that inter-organizational activity can play in the pursuit of competitive advantage is also rarely seen in other books. The reader would get to read extensively about issues much talked about internationally such as business ethics, core values, social responsibility and environmental sustainability.

Chapter one focuses on the key questions of “What is strategy?” and “Why is it important?.” The authors have been very focused and clear in terms of explaining the questions in light of more concise definitions of the key concepts. The chapter is a perfect start for the reader to understand the basics of strategy and its management. Chapter two deals deeply into the core of the subject. It talks about the managerial process of crafting and implementing a strategy. It discusses five-step managerial process of crafting and implementing strategy. The chapter also sheds light on creation of vision, mission core values, strategic intent etc. for any organization to start in a particular business. Chapter three emphasizes on analytical tools and concepts of industry and competitive analysis and demonstrates the importance of tailoring strategy as per the situation and conditions of a firm’s industry and the environment. Chapter four presents the resource-based view of the organization and strongly argues why a firm’s strategy must be built around its most competitively valuable resources and capabilities. Simple taxonomy has been introduced so that the students may easily identify a firm’s resources and capabilities and use the same with the help of VRIN model to seek competitive advantage. The chapter also shows table that helps to calculate the key financial and operating ratios and its interpretation.

The content is extremely lucid to understand and it has been written keeping in view the students’ perspective under different circumstances. Chapter five deliberates on five major generic strategies which are highly beneficial to compete, successfully and gain a competitive advantage over market rivals. It also talks about the capacity of the company to deliver more customer value. The chapter also focuses on key value drivers for any firm to lead in the market place which can bring down the cost and also enhance its differentiation keeping in view the overall goals and objectives of the firm in the long-run. Chapter six primarily discusses the competitive strategies for single-business firms. Strategic actions and their timing, covering blue ocean strategies and first-mover advantages and disadvantages have also been included as part of discussion. Value chain activities have been clearly discussed with enough emphasis on horizontal integration, vertical integration, outsourcing etc. thus highlighting the strategic benefits and risks involved. In chapter seven, the authors change the approach of strategy by exploring the full range of strategy options for expanding a company’s geographic

206 Book Review

scope and competing in foreign markets through export strategies, licensing, franchising, establishing a wholly owned subsidiary. The book also covers significant topics such as Diamond of National Advantage; the choice between multidomestic, global, and transnational strategies; profit sanctuaries and cross-border strategic moves and the quest for competitive advantage via sharing, transferring, or accessing valuable resources and capabilities across national borders. Enough inputs have been given regarding the strategic issues pertaining to competing in the developing markets, internationally. Also, the chapter discusses about the various strategies that local companies can use to defend against global giants.

Corporate level strategy has been covered in Chapter eight wherein the authors have explained as why successful diversification strategies must create shareholder value. It also discusses some of the essential tests that a strategy must pass before implementation to achieve its desired goal. They are viz. the industry attractiveness, cost of entry and better-off tests. According to the chapter, there are alternative routes such as acquisition, internal start-up or joint venture to enter into a new business. The chapter carries analytical spotlight in discussing the techniques and procedures for assessing the strategic attractiveness of a diversified firm's business portfolio. The chapter also sheds light on post-diversification strategy alternatives. In chapter nine, the authors have focused on ethical standards for a company. It talks about the company's obligation to demonstrate the socially responsible behavior. It dwells on the reasons as why companies often do not want to adhere to the ethical standards of the industry. The inclusion of this chapter would enable the students to ponder and take decisions which are not only strategically correct but ethically, too. Chapter ten, eleven and twelve are anchored around a pragmatic, conceptual framework. It emphasizes on the requirement of matching a firm's organizational structure to its strategy execution requirements. It also describes different types of organizational structure, both conventional and contemporary structures. These chapters also encompass the topics concerning strategy implementation which are highly significant in the context of strategy. More importantly, the topics such as leadership and corporate culture have been incorporated to find relationship with strategy in running the organization, successfully.

The authors have taken special care in enriching the book with all relevant inputs to grab the attention of readers. The book is highly useful for senior-and MBA-level strategy course. I would like to strongly recommend the book for all those in search of a volume covering formulation and implementation of strategies with numerous examples, situations and relevant cases.

Dr. Amirul Hasan Ansari, Associate Professor, Jamia Millia Islamia Central University, New Delhi, India.

207 Book Review

Vedamani, Gibson G., Retail Management: Functional principles and practices 4ed. Mumbai: Jaico, 2012. xxvi+475 pp. Rs. 395/-.

Retailing is an important aspect of doing business owing to the fact that the retailers are closer to the consumers than the manufacturers. This has been recognised highly in the Indian context wherein companies have focussed on developing stronger relationship with the retailers or have done vertical integration with the retailers. This phenomenon has bolstered the growth in the organized retail industry in India in the new millennium. This book attempts to uncover many such facets of the organized retail in India and encompasses several topics, which are not discussed widely in the Indian retail context.

There are 29 chapters in the book, which are present in a logical structure under five different sections. The chapters begin with various objectives and end with summary, key terms and discussion questions. The highlight is a small caselet or an illustrative insight, which is placed in the end of each chapter. Many unexplored cases from the retail industry are discussed including not so well known players, which are upcoming.

The book takes the readers forward with a focus on the market environment prevailing in India. It discusses the trends and prospects prevailing across various formats. Further, it discusses product management, store location and design, marketing communication and various channels of retailing. Although there are various books on 'retail management' existing in the market this book is different from others in terms of integrating new topics while focussing on the Indian context. These include international retailing, legal issue including taxation, franchising, retail economics, vending machines, retail banking, etc. Although, these topics might have been discussed scarcely in other books or separate books on these topics are available, the integration is seldom seen in any book. Therefore, this book is a single source for gaining the market insight with a multitude of focus which is well assimilated.

From the practical point-of-view, the book seldom ponders on the retail theories expect for the international retail theories and limits itself from using scholarly academic sources. Although, the book provides many practical insights, it reflects a regional focus rather than national. The focus on the southern states in one of the chapters simply ignores the other regions.

Looking at the potential readers of the book it is quite notable that the book would be appreciated by the students who are specialising in retail management enrolled in various b-schools of India. The store managers and other employees with work experience in the industry would also find it useful in their career advancement. However, the book might not be suitable for the academicians and scholars who are aiming to get research insights from the book. Readers looking forward to getting empirical insights should avoid this book. In short, this book is a useful tool for the beginners who aim to work (or are working) in the Indian retail industry.

208 Book Review

Finally, with the changing retail scenario in India this book is likely to be deemed useful by its readers due to its simple language and lucid style of explanation, which is suitable for its target audience. It is well articulated contemporary text book.

Gaurav Tripathi, Assistant Professor, IIMT-Oxford Brookes University, Gurgaon, India.

Suba Rao, P. International Human Resource Management, Mumbai: Himalaya Publishing House, 2013. 504pp. Rs. 375/-.

Globalization of business and emergence of transnational companies has led to the movement of employees across the globe for different projects. On one hand it offers new opportunities, but on the other hand it poses challenges of handling the expatriates for the Human resource managers. Consequently, the organizations are designing such human resource programs which help them deal their human resources concerns efficiently. Not only this, but universities are also including international human resource management as a module in their curriculum for imparting knowledge to their management students.

This book by P. Subba Rao is a commendable effort in this direction. It is written from a practical management perspective in a clear and engaging style. The book, written in a lucid language has a learner friendly approach and has a wide and comprehensive coverage. It deals with all the important aspects of IHRM.

The book is divided into fifteen chapters where the first 5 chapters act as a background to IHRM, and the next 10 deal with the concept and other aspects of IHRM. Chapter 1 and 2 explain the evolution of international business and the modes of entry into international markets. Globalization is covered in Chapter 3. Chapter 4 and 5 explain the social and cultural context of IHRM. It also elucidates the ways of managing cultural diversity. Chapter 6 defines and analyzes the term IHRM with a reference to term expatriate. Chapter 7 & 8 discuss the organization structure and HRP. Recruitment and Selection, Performance Management, Training and development and Compensation of expatriates forms the subject matter of next four chapters. Chapter 13 and 14 discusses international industrial relations and Global Strategic Management process. The book wraps itself up with a discussion of future trends in international business with reference to human resource management.

As was observed, there is an amalgamation of concept with practice in every chapter, as with all the chapters, vignettes are provided to equip the students to understand real life issues in IHRM. In addition, a note on methods of case analysis has been provided to further train the students in handling practical situations. Case studies are also provided for the same. By and large, the author gives an extensive view of IHRM, not only in accordance to the syllabus in the Indian universities, but also for a layman to understand and be benefitted by it.

Dr. Kalpana Maheswari, Associate Professor, IIMT School of Management, Gurgaon, Haryana, India.

FORTHCOMING CONFERENCES & SEMINARS

- Dates** : **10th to 13th March 2014**
Event : 2014 ISIS - Manila International Multidisciplinary Academic Conference: Promoting Global Progress and Excellence in Academia
Location : MANILA, Philippines
Deadlines : 15th October 2014
Website : <http://www.isisworld.org/conferences/>
- Dates** : **6th to 8th October 2014**
Event : The Third International Conference on Informatics & Applications (ICIA2014)
Location : Kuala Terengganu, Malaysia
Deadlines : 6th September 2014
Website : <http://sdiwc.net/conferences/2014/icia2014/>
- Dates** : **5th to 7th November 2014**
Event : 2014 ISIS - Manila International Multidisciplinary Academic Conference: Promoting Global Progress and Excellence in Academia
Location : MANILA, Philippines
Deadlines : 15th October 2014
Website : <http://www.isisworld.org/conferences/>
- Dates** : **6th to 8th November 2014**
Event : 9th International Conference on Knowledge, Information and Creativity Support Systems (KICSS 2014)
Location : Limassol, Cyprus
Deadlines : 20th June 2014
Website : <http://kicss2014.cs.ucy.ac.cy/>
- Dates** : **9th to 12th December 2014**
Event : International Antalya Hospitality Tourism and Travel Research Conference
Location : Antalya, Turkey
Deadlines : 1st July 2014
Website : <http://www.ihtrc.com/>

210 Conferences & Seminars

Dates : **10th to 12th December 2014**
Event : Management and Innovation Technology International Conference
Location : Pattaya, Chonburi, Thailand
Deadlines : 1st July 2014
Website : <http://www.miticon.org>

Dates : **17th to 19th December 2014**
Event : Intellectbase International Consortium, Multidisciplinary Academic Conference - Intellectual Perspectives
Location : Las Vegas, NV, United States of America
Deadlines : 24th November 2014
Website : http://www.intellectbase.org/Las_Vegas.php

Dates : **4th to 7th January 2015**
Event : 2015 Las Vegas Global Conference On Business And Finance
Location : Las Vegas, NEVADA, United States of America
Deadlines : 28th October 2014
Website : <http://www.theibfr.com/call-us.htm>

Dates : **4th to 8th January 2015**
Event : 2015 International Business Conference in Maui
Location : Maui, Hawaii, United States of America
Deadlines : 3rd December 2014
Website : <http://cluteinstitute.com/conferences/2015MauiBusiness.html>

Note: All correspondence regarding any conference or seminar should be directed to the organisation concerned. IIMT will not respond to any queries related to these conferences.

ACADEMIC OPPORTUNITIES & FELLOWSHIP

Temporary Lecturer

UCSD, School of International Relations and Pacific Studies (IR/PS)

Application Date: Aug 31, 2014

UniCredit & Universities Foundation invites applications for 1 Research Fellowship and 3 Modigliani Research Grants in the fields of Economics and Finance.

The School of International Relations and Pacific Studies (IR/PS) at University of California, San Diego is committed to building an excellent and diverse faculty, staff, and student body, and invites applications from candidates whose experience has prepared them to contribute to our commitment. Successful candidates will have: a Masters or Ph.D. in political science, economics or international relations, experience in managing medium to large classrooms (30-100 students), outstanding teaching qualifications, and demonstrated commitment to diversity. Our School invites applications for Temporary lecturer positions in the fields of International Politics, International Security; the politics of regulation; institutions and policy making; comparative politics; foundations in public policy; political economy; research/survey research methods, and in the regional sub-fields of Latin America, Korea and South East Asia for political science and economics fields, to begin October 1, 2014. All appointments are part-time for one quarter with potential for extensions.

Salary is commensurate with qualifications and based on University of California published lecturer pay scales.

To Apply: Applications should include: a current Vitae; a cover memo explicitly stating the fields and sub-fields you are applying for; a statement of teaching; a sample of the applicant's work (Syllabus); three recent course evaluations; a personal statement summarizing past or potential contributions to diversity (<http://facultyequity.ucsd.edu/Faculty-Applicant-C2D-Info.asp> for further information) and, three original letters of reference (sent separately by references or their proxies directly to our on-line system). All applicant materials including referee information must be submitted via UCSD Academic Personnel On-Line: <https://apol-recruit.ucsd.edu/apply/JPF00525>

Proof of Eligibility for U.S. employment will be required prior to employment (US Immigration Control and Reform Act of 1986).

212 Academic Opportunities

UCSD is an Affirmative Action / Equal Opportunity Employer with strong institutional commitment to excellence through Diversity.

PhD Position at the Research Area “Social and Behavioral Approaches to Global Problems”

Institute for the World Economy

Application Date: NA

Research activities in the research area “Social and Behavioral Approaches to Global Problems” focus on better understanding economic decision making and drivers of co-operation. One of the core projects of the research area is “Beyond Homo Economicus: Tackling Global Problems through New Conceptions of Motivation and Decision-Making” by Prof. Dr. Dennis Snower together with Prof. Dr. Tania Singer (Director of the Max-Planck-Institute for Human Cognitive and Brain Sciences in Leipzig, Germany, Department of Social Neuroscience), funded by INET, the Institute for New Economic Thinking. Research in this project takes place at the interface of Behavioral Economics, Psychology of Economic Decisions, Economics of Identity and Public Economics aiming to provide a broader understanding of how motivation influences economic decision making, with a view to exploring the opportunities for cooperation in addressing public goods problems. To this end, empirical research methods from psychology and neurosciences (focusing on motivation, social cognition and emotion) are combined with behavioral economics methods (based on game theoretical paradigms), models of identity and social behaviors, as well as public-policy and macro-economic models. This research is expected to provide evidence that can be used to generate models of economic decision making and macroeconomic activity that are based on human biology and psychology.

This INET research program will consist of a small group of four researchers (two postdocs and two PhD students), under the supervision of Prof. Dr. Dennis J. Snower (1 Postdoc position and 1 PhD position at the Kiel Institute for the World Economy in Kiel) and Prof. Dr. Tania Singer (1 Postdoc position and 1 PhD position at the MPI in Leipzig).

The position (0.75 of a full position) initially for 2 years and renewable (subject to funding), is primarily devoted to research.

The successful candidate for the position has a solid background in behavioral and social economics (game-theoretical paradigms), public eco-

213 Academic Opportunities

nomics, micro- and macroeconomic analysis applied to global problems, combined with a strong interest in the psychology of economic decisions. Knowledge of cognitive psychology, anthropology, sociology and/or cultural evolution would also be advantageous. She/He also shows evidence of scholarly promise in the form of publications in high-impact journals and other achievements.

The Kiel Institute for the World Economy (http://www.ifw-kiel.de/kiel-institute-for-the-world-economy/view?set_language=en) offers an international research environment, with English being the language spoken for research purposes. It offers an excellent research environment (covering many aspects of the global economy) and excellent infrastructure (including the ZBW, the largest economics library in the world).

Salary is determined according to the salary scheme of the German public sector (EG 13 TV-L). Part-time employment is possible.

The Kiel Institute is an equal opportunity employer. The Kiel Institute works individually with its employees to establish flexible working time schemes that allow them to maintain a good work-family balance and to parent their children optimally. Further information can be found at <http://www.ifw-kiel.de/about-us/equal-opportunity-at-the-kiel-institute/>.

The Foundation is committed to employing persons with disabilities and will thus give them preference over persons without disabilities if they are equally qualified.

For further details, see <http://www.uni-kiel.de/snower>, <http://ineteconomics.org>, or contact

Macroeconomist for the analysis and planning department (m/f)

CIM - Centre for International Migration and Development

Application Date: NA

Do you want to put your know-how and skills to use where they are needed? Do you want to work abroad and experience different cultures? Then the Centre for International Migration and Development (CIM) is your ideal partner for finding a responsible position in the field of development policy. We place highly qualified staff with employers in Asia, Africa, Latin America and Europe.

The Ministry of Economic Development in Pristina, Kosovo is looking for

214 Academic Opportunities

a Macroeconomist for the analysis and planning department (m/f).

The Ministry of Economic Development (MED) requires your expertise for its analysis and planning department. The Ministry is responsible for overall economic planning, boosting economic development, convergence with European standards, and privatising the postal, telecommunications, energy and mining sectors. Its objectives are to create new value chains and jobs, and to reduce existing regional disparities. To this end, the MED needs reliable data for overall economic development, and sectoral and structural analyses. The MED therefore wishes to improve the quality and practical relevance of its national economic analyses, forecasts and statistical data, and to strengthen its capacity for developing appropriate measures for boosting economic development and for realising privatisation.

Your tasks will involve: Supporting the compilation of national economic analyses, forecasts and documents for decision-making

Elaborating proposals for preparing, visualising and presenting statistical data
Supporting the set-up of a monitoring and evaluation system for business promotion
Training staff members, in particular on needs-oriented formats for reports and analyses.

Your profile: A university degree in economics/business, focusing on macroeconomics, econometrics or a related subject. Several years of experience in drawing up national economic analyses, forecasts and documents for decision-making. In-depth knowledge of statistical software such as EViews, SPSS or GGobi. Experience in clear preparation, visualisation and presentation of data. Experience in planning and implementing training courses. Business fluency in English. In addition you have a basic knowledge of German as well as the citizenship of an EU member state.

Varied tasks, which you will be expected to carry out self-responsibly in an international environment

Cooperation with other development cooperation organisations

Professional preparation for your assignment abroad

Local employment contract as an integrated expert for an initial period of two years - contract may be extended.

Attractive monthly top-up payments in addition to local salary and social benefits

Submit your application using online portal at <http://www.cimonline.de> to find out more about the services.

About IIMT

The Institute for International Management & Technology (IIMT) is sponsored by an educational trust namely, The UMAK Education Trust. Presently it operates from its campus at Gurgaon falling under the National Capital Region. It provides internationally recognised undergraduate and postgraduate programmes of study in the professional areas of hospitality and tourism management and business management.

Given the need for establishing educational and training benchmarks that are universal, IIMT has the Oxford Brookes University, Oxford, U.K., (OBU), as its academic partner. OBU has been rated as the best new university in U.K. for the last eight years running by The Times newspaper.

IIMT conducts the much acclaimed “International Conference on Services Management” (ICSM) under the aegis of the Journal of Services Research from 2008 onwards. The School of Hospitality Management, Penn State University, USA and the School of Business, Oxford Brookes University, UK, have joined hands with IIMT in co-hosting the ICSM in India, USA and UK annually.

IIMT MISSION STATEMENT

IIMT’s mission is to use education and life long learning as a means of economic, social and cultural emancipation. We will strive for empowerment through education such that self-actualisation is not a mere dream and ensure that no part of the society remain untouched from the forces of positive change.

Schools AT IIMT

IIMT offers state of the art education in the areas of management and hospitality through the following schools:

- School of Hospitality and Tourism Management
- School of Management and Entrepreneurship

These schools offer undergraduate and post undergraduate programmes of study leading to award of degrees and diplomas in various disciplines. Other than this, each school promotes research, consulting and executive training in their chosen areas of excellence. Each school has its dedicated staff and other resources and are governed by their own Academic Councils to direct their academic pursuits.

GUIDELINES FOR BOOK REVIEW

Journal of Services Research publishes book reviews related to the management topics. Reviews should be no longer than 1500 words in length.

A book review is a description, critical analysis, and an evaluation on the quality, meaning, and significance of a book, not a retelling. It should focus on the book's purpose, content, and authority. Begin review with the reference of the book. The format is as follows. Please include the author, title of the book, publisher information (city, state, name of publisher), page count, paper Back/Hard Bound, price, ISBN.

Example of Citation Format

Allison, D. C. (2009) *The Historical Christ and the Theological Jesus*, New Delhi, Tata McGraw Hill. Pp. x + 126. Paper, US\$16.00. ISBN 978-0-8028-6262-4.

Formatting

The review should be prepared in a Microsoft Word. It should be no longer than 1500 words in length, Times New Roman, Font Size: 12-point, 1.5" margins on all four sides and single spacing.

Content Guidelines

Please do not structure your review as a chapter by chapter analysis. Rather, write your comments and personal opinions about the book as a whole, highlighting particular areas of interest to illustrate your points. If you enjoyed the book, or thought the text was commendable, communicate your views in a way that will also make others want to read it.

A book review should contain or reflect upon at least four issues: 1) What was the intent of the author in creating the work? 2) What are the major topics covered in the work? 3) Depending on the work, how were the materials created? 4) A critical evaluation. Our intent is to have reviews that are informative and interesting. The art of a review is professionally balancing the elements of the review against the need to communicate practically and succinctly with the audience. We want the readers to know why this book is of importance to their interests in homeland security and emergency management. We want the reader to be engaged by the review. Tedious, routine overviews of each chapter or segment of the work will not help the reader understand why the work is being evaluated for the Journal's audience.

A critical evaluation is not synonymous with negative criticism. The critical evaluation offers the reviewer a wide degree of latitude for helping the reader learn about the work. Reviewers should discuss how the work stands in relationship to the general literature (e.g., substantial contribution, path-breaking, new paradigm, solid addition to emergent literature). Depending on the book, it important that the readership be told what practical applications the work may have and who would benefit from reading it.

Reviewer's Detail

The reviewers should provide detail information about your full name, accreditation, and affiliation, and e-mail at the end of your review.

Please send the review as an email attachment to Editor, at jsr@iimtobu.ac.in.

For more information, visit www.jsr-iimt.in.

Editor

Journal of Services Research

GUIDELINES FOR AUTHORS

Journal of Services Research invites original, research based papers and cases in the area of services management. This journal publishes papers of interest to academicians and to practitioners of business. The papers range widely over different areas of services. It is a condition for publication that the material sent is original work which has not been previously published or submitted for publication elsewhere. The guidelines for contributors is listed below :

1. **Manuscripts** should normally be of upto 5,000 - 6,000 words (A-4 size pages, typed double space and 11-point font). Microsoft Word for windows and Word-Perfect are the preferred softwares for submission. Manuscripts must be submitted through e-mail the cover page bearing only the title of the paper and authors' names, designations, official addresses and phone/fax numbers.
2. **Abstract.** Submit an abstract of about 150-200 words.
3. **Tables and Figures.** The tables and figures should be submitted in MS-Word/Excel format Separately. Their location in the text should be indicated as follows:

Table –1 about here

4. **End notes.** All notes should be indicated by serial numbers in the text and literature cited should be detailed under Notes at the end of the paper bearing corresponding numbers, before the references.
5. **References.** Place the references at the end of the manuscript following the end-notes. Arrange the reference list in alphabetical order of author's surnames, and chronologically for each author where more than one work by that author is cited. The author's surname is placed first, followed by initials, then the year of publication is given followed by details of the publication. The name of the publication (usually a book or journal) appears in italics. Following examples will illustrate the style used in the journal.

To reference	Use the general format	For example	
Books and Chapter in books	Book (first edition)	Surname, Initials, and Surname, Initials. (date) <i>Title</i> , Place of publication, Publisher	Saunders, M.N.K and Cooper, S.A. (1993) <i>Understanding Business Statistics</i> , London, DP Publications Ltd.
	Book (other than first edition)	Surname, Initials. and Surname, Initials. (date) <i>Title</i> (' <i>edn.</i> '), Place of publication, Publisher	Morris, C. (1999) <i>Quantitative Approaches to Business Studies</i> (5 th edn). London, Financial Times Pitman Publishing
	Book (no obvious author)	Corporate name or Publication name. (date) <i>Title</i> , Place of publication, Publisher	Mintel Marketing Intelligence (1998) <i>Designerswear: Mintel Marketing Intelligence Report</i> , London, Mintel International Group Ltd.
	Chapter in a book	Surname, Initials. and Surname, Initials. (date) <i>Title</i> , Place of Publication, Publisher, Chapter ?	Robson, C. (1993) <i>Real World Research</i> , Oxford Blackwell, Chapter 3.
	Chapter in an edited book	Surname, Initials. (date) 'Chapter title', in Surname, Initials and Surname, Initials. (eds) <i>Title</i> , Place of Publication, Publisher, page numbers.	Craig, P.B. (1991) 'Designing and using mail questionnaires' in Smith, N.C. and Dainty, P. (eds), <i>The Management Research Handbook</i> , London, Routledge, pp. 181-9.
Journal articles	Journal article	Surname, Initials. and Surname, Initials. (date) 'Title of article', <i>Journal name</i> , volume number, part number, pages.	Storey, J., Cressey, P., Morris, T. and Wilkinson, A. (1997) 'Changing employment practices in UK banking: case studies', <i>Personnel Review</i> , 28:1, 24-42.
	Journal article (no obvious author)	Corporate name or Publication name (date) 'Title of article', <i>Journal name</i> , volume number, part number, pages.	Local Government Chronicle (1993) 'Westminster poised for return to AMA fold', <i>Local Government Chronicle</i> , 5 November, p.5.
Government publications	Parliamentary papers including acts and bills	Country of origin (date) <i>Title</i> , Place of publication, Publisher.	Great Britain (1994) <i>Criminal Justice and Public Order Act 1994</i> , London, HMSO
	Others (with authors)	As for books	As for books
	Others (no obvious authors)	Department name or Committee name (date) <i>Title</i> , Place of publication, Publisher.	Department of Trade and Industry (1992) <i>The Single Market: Europe Open for Professions, UK Implementation</i> , London, HMSO.
Newspapers, including CD-ROM databases:	Newspaper articles	Surname, Initials. and Surname, Initials. (date) 'Title of article', <i>Newspaper name</i> , day, month, pages.	Roberts, D. (1998) 'BAe sells property wing for £301m', <i>The Daily Telegraph</i> , London, 10 October, p. 31.
	Newspaper article (no obvious author)	<i>Newspaper name</i> (date) 'Title of article', <i>newspaper name</i> , day, month, pages.	Guardian (1992) 'Fraud trial at Britannia Theme Park', <i>The Guardian</i> , Manchester, 5 February, p.4.
	Newspaper article (from CD-ROM database)	<i>Newspaper name</i> or Surname, Initials. (date) 'Title of article', <i>Newspaper name</i> , (CD-ROM) day, month, pages.	Financial Times (1998) 'Recruitment: lessons in leadership: moral issues are increasingly pertinent to the military and top corporate ranks', <i>Financial Times</i> , (CD-ROM), London, 11 March, p. 32.

220 Guidelines for Authors

To reference		Use the general format	For example
Other CD-ROM publications		Title of CD-ROM or Surname, Initials, (date) (CD-ROM), Place of publication, Publisher.	Encarta 98 Encyclopedia (1997) (CD-ROM) Redmond, WA, Microsoft Corporation.
Unpublished conference papers		Surname, Initials, and Surname, Initials, (date) 'Title of paper', <i>paper presented at the Conference name, days, month, location of conference.</i>	Saunders, M.N.K. and Thornhill, A. (1998) 'The development and application of a diagnostic tool to help manage survivors of change over time', <i>paper presented at the Fifth Annual International Conference on Advances in Management</i> 8-11 July, Lincoln.
Letters, personal emails and electronic conferences/bulletin boards	Letter	Surname, Initials, and Surname, Initials, (date) <i>unpublished letter: subject matter.</i>	MacClelland, S. (1998) <i>Unpublished letter: Reviewer's feedback.</i>
	Personal email	Surname, Initials, (date) <i>subject matter</i> (email to the author) (online).	MacClelland, S. (1998) <i>Reviewer's feedback</i> (email to the author) (online).
	Electronic conference/Bulletin Boards	Surname, Initials, (date) <i>subject matter, name of electronic conference/bulletin board</i> (online).	Jones, K. (1999), 101 reasons why we need the pound, <i>Britain and European Monetary Union</i> (online).
Internet items excluding emails	Journal published on the Internet	<URL:http://www.remainer of full Internet electronic conference/bulletin board>	<URL:http://stingray.ivation.co.uk/groups/emu/frindex.htm>
		Surname, Initials, and Surname, Initials, (date) 'Title of article', <i>journal name</i> , volume number part number (online) (cited day month year). Available from <URL:http://www.remainer of full Internet address>.	Jenkins, M. and Bailey, L. (1995) 'The role of learning centre staff in supporting student learning', <i>Journal of Learning and Teaching</i> 1:1, Spring (online) (cited 29 March 1996). Available from <URL:http://www.chelt.ac.uk/cwis/pubs/jolt/issue1_1/page2.htm>.
	Internet site	Site title (date) 'Title of page within site where applicable' (online) (cited day month year). Available from <URL:http://www.remainer of full Internet address>.	Institute of Personnel and Development (online) (cited 14 October 1988). Available from <URL:http://www.ipd.co.uk>.

6. **Follow British spellings throughout (programme, not program).**
7. Universal "s" in "ise" "isation" words.
8. **Use of numerals:** One to twelve in words, thirteen and above in figures, unless the reference is to percentages (5 percent), distance (5 km) or age (10 years old). Use 1900s and 19th century.
9. No stops after abbreviations (UK, MBA). Use stops after initials (V.P.Singh).
10. Use single quotes throughout. However in case of use of double quotes for example, "In the words of Szell, the 'the economic question' is today" the quotation can be encased within single quote in the double quotes. Quotations in excess of 45 words should be separated from the text with a line space above and below and indented on the left. Quotes should be cited accurately from the original source, should not be edited, and should give the page numbers of the original publication.
11. Italicization and use of diacriticals is left to the contributors, but must be consistent. When not using diacriticals, English spelling should be followed.
12. Capitalization should be kept to the minimum and should be consistent.
13. An author will receive a complimentary copy of the issue in which his/her paper appears and soft copy of the reprints.
14. Book reviews must provide the following details, and in this order: Name of author/title of book reviewed/place of publication/publisher/year of publication/number of pages, in Roman and Arabic figures to include preliminary pages/and price, with binding specifications such as paperback or hardback. For example : Brian K. Julyan, *Sales and Service for the Wine Professional*. London and New York: Cassell, 1999. ix+214pp. £16.99 paper.
15. If papers are accepted for publication, contributors are requested to send floppy disks containing the full text of the paper including notes, references, tables, charts and maps.
16. If papers are accepted for publications, contributors are requested to fill the copyright form and send to us by fax or through email along with signature. Otherwise paper will not be considered for the publication.

221 Guidelines for Authors

17. Manuscripts which do not conform to these guidelines will not be considered for publication.
18. Manuscripts not considered for publication will not be sent back. Those submitting papers should also certify that the paper has not been published or submitted for publication elsewhere.
19. Manuscripts and all editorial correspondence should be addressed to:

Editor
Journal of Services Research
Institute for International Management & Technology
336, Udyog Vihar Phase IV
Gurgaon 122 001.

Ph: (0124) 4787111
Fax: (0124) 2397288
Email: jsr@iimtobu.ac.in
Website: www.jsr-iimt.in

Call for Papers

Journal of Technology Management for Growing Economies

About the Journal

Technology has a great potential to change the way we live our lives. Numerous inventions over centuries have helped us to combat diseases and adapt our life to changing environmental complexities. As the developed economies leap frog to the next level of growth, the emerging economies are still struggling with lots of issues to manage in the realms of education, healthcare, transport, energy, environment, agriculture and shelter among others. There is still a large proportion of the population which is still struggling to have access to basic facilities in life.

Addressing various challenges in developing nations is a key priority to work towards a scenario where people have an equitable access to resources. Here, technology can play a key role in making a difference to the lives of so many people providing a better quality of life. The Journal of Technology Management for Growing Economies (JTMGE) has therefore been created to assess and debate about relevant technologies which could bring about a change in growing economies.

JTMGE aims to provide refereed and usable research on a range of technology management issues relevant to growing economies. It aspires to create a platform for various stakeholders such as academicians, research community, entrepreneurs, industry, government, civil society and NGO's to participate, debate and contribute. JTMGE is targeted at researchers, academics, industry, policy makers, and entrepreneurs.

The focus of this journal is twofold:

1. Research that can be used.
2. Research which focuses on applications

The sectors that this journal focuses on ranges from services to manufacturing spanning from healthcare, education, telecommunication, transport, infrastructure, IT, software, pharmaceuticals, biotechnology, automobiles, energy etc. The papers could focus on conceptual and theoretical underpinnings, application based papers, empirical contributions. The case studies are particularly very welcome. The robustness of research is a key element. The journal would very much welcome contribution in areas such as sustainable development, energy, environment, sustainable entrepreneurship as themes underpinning technology development. The research featuring in the journal should essentially have qualitative implications as well. A good mix of qualitative and quantitative approaches would be desirable.

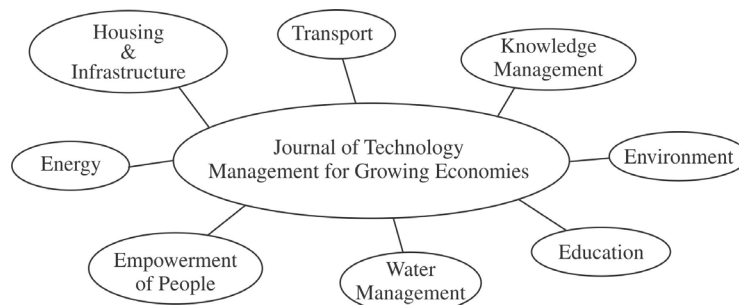
The Journal of Technology Management for Growing Economies is published by Chitkara University, Chandigarh and is published twice a year. It is available in full text in EBSCO, & GALE online databases and listed in the Ulrich Periodicals Directory and Cabell's Directory.

Themes coverage in JTMGE

- New and upcoming technologies and their application aspects in context of growing economies
- Competitiveness and Productivity
- Management of Innovation
- Globalisation

224 Call for Papers

- Technologies Clusters and their sustainability
- Technology for growing economies
- Patents and commercialisation
- Entrepreneurship especially in High Technology Segment.
- Environment and Unconventional Energy Development
- R&D management
- Auditing and apprising R&D institutions
- Strategic Management of R&D
- Managing Hi Tech Labs
- Financing of Technology Ventures
- IP issues in Technology is Growing Economies
- Internationalisation of Technology Research
- International technology transfer and licensing
- Emergency of new business models driven by technology
- Internet based businesses and sustainability
- Technology transfer and licensing



COPYRIGHT

It is a condition for publication that the material sent is original work which has not been previously published or submitted for publication elsewhere.

The authors have to give an undertaking in the prescribed format that the works original and is not plagiarized and adequately referenced. All papers and contributions become the legal copyright of the publisher unless agreed through a separate agreement.

GUIDELINES FOR AUTHORS

The guidelines for contributors is listed below:

1. Manuscripts should normally be of up to 5000 - 6000 words (A-4 size pages, typed double space and 11-point font). Microsoft Word for windows is the preferred software for submission. Manuscripts must be submitted through e-mail (journal@chitkarauniversity.edu.in) the cover page bearing only the title of the paper and authors' names designations, official addresses , emails, specifying the name of the corresponding author as well.
2. Abstract. The abstract should precede the paper. It should have the following sections :
Objective/Purpose of the paper (2-3 lines)
Approach/Methodology Adopted for the work (2-3 lines)

Major Findings (4-5 lines)
 Key conclusions (2-3 lines)
 Key contribution of the paper (1-2lines)
 Key words (4-5)

3. The word limit for the abstract is about 100-150 words.
4. Tables and Figures. The tables and figures should be submitted in MS-Word/Excel format Separately. Their location in the text should be indicated as follows:

Table -1 about here

5. End notes. All notes should be indicated by serial numbers in the text and literature cited should be detailed under Notes at the end of the paper bearing corresponding numbers, before the references.
6. References. Place the references at the end of the manuscript following the endnotes. Arrange the reference list in alphabetical order of author's surnames. The following format should be used for references:

To reference	Use the general format	For example
Books and Chapter in books	Book (first edition)	Surname, Initials, and Surname, Initials. (date) <i>Title</i> , Place of publication, Publisher Saunders, M.N.K and Cooper, S.A. (1993) <i>Understanding Business Statistics</i> , London, DP Publications Ltd.
	Book (other than first edition)	Surname, Initials, and Surname, Initials. (date) <i>Title</i> (?edn), Place of publication, Publisher Morris, C. (1999) <i>Quantitative Approaches to Business Studies</i> (5 th edn), London, Financial Times Pitman Publishing.
	Book (no obvious author)	Corporate name or Publication name. (date) <i>Title</i> , Place of publication, Publisher Mintel Marketing Intelligence (1998) <i>Designerwear: Mintel Marketing Intelligence Report</i> , London, Mintel International Group Ltd.
	Chapter in a book	Surname, Initials, and Surname, Initials. (date) <i>Title</i> , Place of Publication, Publisher, Chapter ? Robson, C. (1993) <i>Real World Research</i> , Oxford Blackwell, Chapter 3.
	Chapter in an edited book	Surname, Initials. (date) 'Chapter title', in Surname, Initials, and Surname, Initials. (eds) <i>Title</i> , Place of Publication, Publisher, page numbers. Craig, P.B. (1991) 'Designing and using mail questionnaires' in Smith, N.C. and Dainty, P. (eds), <i>The Management Research Handbook</i> , London, Routledge, pp. 181-9.
Journal articles	Journal article	Surname, Initials, and Surname, Initials. (date) 'Title of article', <i>Journal name</i> , volume number, part number, pages. Storey, J., Cressey, P., Morris, T. and Wilkinson, A. (1997) 'Changing employment practices in UK banking: case studies', <i>Personnel Review</i> , 28:1, pp. 24-42.
	Journal article (no obvious author)	Corporate name or Publication name (date) 'Title of article', <i>Journal name</i> , volume number, part number, pages. Local Government Chronicle (1993) 'Westminster poised for return to AMA fold', <i>Local Government Chronicle</i> , 5 November, pp. 5.
Government publications	Parliamentary papers including acts and bills	Country of origin (date) <i>Title</i> , Place of publication, Publisher. Great Britain (1994) <i>Criminal Justice and Public Order Act 1994</i> , London, HMSO
	Others (with authors)	As for books As for books
	Others (no obvious authors)	Department name or Committee name (date) <i>Title</i> , Place of publication, Publisher. Department of Trade and Industry (1992) <i>The Single Market: Europe Open for Professions. UK Implementation</i> , London, HMSO
Newspapers, including CD-ROM databases:	Newspaper articles	Surname, Initials, and Surname, Initials. (date) 'Title of article', <i>Newspaper name</i> , day, month, pages. Roberts, D. (1998) 'BA sells property wing for £301m', <i>The Daily Telegraph</i> , London, 10 October, pp. 31.
	Newspaper article (no obvious author)	Newspaper name (date) 'Title of article', <i>Newspaper name</i> , day, month, pages. Guardian (1992) 'Fraud trial at Britannia Theme Park', <i>The Guardian</i> , Manchester, 5 February, pp.4.
Other CD-ROM publications	Title of CD-ROM or Surname, Initials. (date) (CD-ROM), Place of publication, Publisher. Encarta 98 Encyclopedia (1997) (CD-ROM) Redmond, WA, Microsoft Corporation.	
Unpublished conference papers	Surname, Initials, and Surname, Initials. (date) 'Title of paper', <i>paper presented at the Conference name</i> , days, month, location of conference. Saunders, M.N.K. and Thornhill, A. (1998) 'The development and application of a diagnostic tool to help manage survivors of change over time', <i>paper presented at the Fifth Annual International Conference on Advances in Management</i> , 8-11 July, Lincoln.	
Letters, personal emails and electronic conferences/bulletin boards	Letter	Surname, Initials, and Surname, Initials. (date) <i>Unpublished letter: subject matter</i> . MacClelland, S. (1998) <i>Unpublished letter: Reviewer's feedback</i> .
	Personal email	Surname, Initials. (date) <i>Subject matter</i> (email to the author) (online). MacClelland, S. (1998) <i>Reviewer's feedback</i> (email to the author) (online)
Internet items excluding emails	Electronic conference/Bulletin Boards	Surname, Initials. (date) <i>Subject matter. Name of electronic conference/bulletin board</i> (online) Jones, K. (1999), 101 reasons why we need the pound, <i>Britain and European Monetary Union</i> (online).
	Journal published on the Internet	Surname, Initials, and Surname, Initials. (date) 'Title of article', <i>Journal name</i> , volume number part number (online) (cited day month year). Available from <URL:http://www.reminder of full Internet address>. Jenkins, M. and Bailey, L. (1995) 'The role of learning centre staff in supporting student learning', <i>Journal of Learning and Teaching</i> , 1:1, Spring (online) (cited 29 March 1996). Available from <URL:http://www.chelt.ac.uk/cwis/pubs/jolt/issue1.1/page2.htm>.
	Internet site	Site title (date) 'Title of page within site where applicable' (online) (cited day month year). Available from <URL:http://www.reminder of full Internet address>. The Economic Times (2006) 'Hotels take a really check on management' (online) (cited 30 September 2006). Available from <URL:http://economictimes.indiatimes.com/articleshow/1944141.cms>.

7. Universal "s" in "ise" "isation" words.
8. Use of numerals: One to twelve in words, thirteen and above in figures, unless the reference is to percentages (5 percent), distance (5 km) or age (10 years old).
9. No stops after abbreviations (UK, MBA). Use stops after initials (V.P. Singh).
10. Use single quotes throughout. however in case of use of double quotes for example, "In the words of Szell, the 'the economic question' is today" the

226 Call for Papers

quotation can be encased within single quote in the double quotes. Quotations in excess of 45 words should be separated from the text with a line space above and below and indented on the left. Quotes should be cited accurately from the original source, should not be edited, and should give the page numbers of the original publication.

11. Capitalization should be kept to the minimum and should be consistent.
12. An author will receive a complimentary copy of the issue in which his/her paper appears and soft copy of the pdf file of the reprints.
13. Book reviews must provide the following details, and in this order: Name of author/title of book reviewed/place of publication/publisher/year of publication/number of pages, in Roman and Arabic figures to include preliminary pages/and price, with binding specifications such as paperback or hardback. For example:
Bhushan, Sudhanshu and Vinnie Jauhari (year) From Chaos to Serenity, New Delhi: Samskriti ix+306pp. 750 hardbound.
14. If papers are accepted for publications, contributors are requested to fill the copyright form and send to us by fax or through email along with signature. Otherwise the paper will not be considered for the publication.
15. Manuscripts which do not conform to these guidelines will not be considered for publication.
16. Manuscripts not considered for publication will not be sent back. Those submitting papers should also certify that the paper has not been published.
17. Manuscripts and all editorial correspondence should be addressed to:

Editor: Dr. Vinnie Jauhari

Assistant Editor: Mr. Gaurav Tripathi

Email: journal@chitkarauniversity.edu.in

Website: <http://journal.chitkara.edu.in>

**STATEMENT ABOUT OWNERSHIP & OTHER PARTICULARS OF
THE JOURNAL
“ JOURNAL OF SERVICES RESEARCH”
FORM-IV, (Rule 8)**

1. Place of Publication : Gurgaon, Haryana
2. Periodicity of its Publication : Twice a Year (April & October)
3. Printer's Name : Mr. Neeraj Kodesia
- a. Whether Citizen of India : Yes
- b. Address : 6B Regal Building, Connaught Place
New Delhi-110001
4. Publisher's Name : Mr. Amit Kapur
- a. Whether Citizen of India : Yes
- b. Address : S-135, Greater Kailash-2
New Delhi
5. Editor's Name : Dr. Vinnie Jauhari
- a. Whether Citizen of India : Yes
- b. Address : Institute for International Management &
Technology
336, Phase-IV, Udyog Vihar, Gurgaon,
Haryana
6. Printing Press with address : Premier Fine Printers Publishers Pvt. Ltd.,
CB-133 Naraina, Ring Road, New Delhi-28.
7. Name & address of the
individuals : Institute for International Management &
who own the : Technology, 336, Phase-IV, Udyog Vihar,
newspaper : Gurgan, Haryana
and partners or shareholders
holding more than one percent
of the total capital.

I Amit Kapur hereby declare that the particulars given are true to the best of my knowledge and belief.

Date: 1st April 2014

Amit Kapur
(Signature of Publisher)

Journal of Services Research, Volume 14, Number 1 (April - September 2014)



Institute for International Management and Technology

336, Udyog Vihar, Phase-IV, Gurgaon-122 001, Haryana (India)

Phone: (0124)-4787111 Fax: (0124)-2397288

E-mail: jsr@iimtobu.ac.in

Website: www.jsr-iimt.in

Assessment

Neoliberalism and its Contradictions for Rural Development: Some Insights from India

Arindam Banerjee

IDFC in collaboration with CESS, IRMA and IGIDR, *India Rural Development Report 2012/13*. New Delhi: Orient Blackswan, 2013. 280 pp. Available for download at: <http://orientblackswan.com/ebooksfree/9788125053927/content/irdr%20full%20book.pdf>

INTRODUCTION

Nothing has been more contentious than the question of agrarian and rural development in India since her political independence. Poor implementation of land reforms and the bias of the Green Revolution strategy towards rich farmers were important concerns in view of widespread, non-declining poverty during the initial decades. With liberalization in the 1990s, new phenomena like the agrarian crisis, causing mass suicides of farmers, and rising farmland acquisition have added to the 'old' challenges involved in combatting rural poverty. The debates on rural development policy are also intensified by the presence of myriad interest groups and multi-dimensional contradictions between institutions like class, caste and gender in rural India.

With around two-thirds of the Indian population and more than a tenth of the world population located in rural India, these debates often have significant implications for the developing world more widely.¹ In that light, the *India Rural Development Report 2012/13* published by IDFC Foundation in collaboration with CESS, IRMA and IGIDR² is a useful enterprise, one

I would like to thank the Editorial Board of *Development and Change* for their comments on an earlier draft of this article.

1. In 2011, rural India had a population of 833 million, which constituted 11.9 per cent of the world population (6.99 billion).
2. IDFC Foundation is a not-for-profit subsidiary of IDFC Ltd (Infrastructure Development Finance Company); CESS is the Centre for Economic and Social Studies, located in

which invites disagreements and counter views, enriching the discourse in the process. The IDFC Foundation, formed in 2011, has largely focused on infrastructure development in the country and engages in policy advocacy and capacity building of various state governments and civil society organizations. The *India Rural Development Report 2012/13* (henceforth IRDR) aims to further the goals of the Foundation through the dissemination of research and policy perspectives on rural development to state and non-state actors functioning on the ground.

The report correctly identifies the question of rural livelihoods as the starting point for any serious assessment of rural development in India. This is not only important from the point of view of a structural transformation of the economy but also assumes importance in the context of more immediate and intensifying conflicts on land use and land acquisition. In the chapter on 'Inclusion', the livelihood question is linked with the well-being of the rural population. The trends and patterns of poverty incidence, no less contentious and fiercely debated, are discussed in a regional context, trying to dissect the varying impacts of livelihood changes in the country. The deeper analysis of various components of poverty, like access to health or education, undoubtedly adds to the understanding of the reader. The discussions on 'Infrastructure', 'Sustainability' and '*Panchayati Raj* Institutions' in the subsequent chapters try to address the supply-side constraints for development, the potential natural resource constraints in the future and the challenges for implementation of developmental programmes, respectively.

The final chapter of the IRDR conducts a case study of the National Rural Employment Guarantee Act (NREGA), introduced in 2005, the largest employment support programme in the developing world and perhaps the most important example of a rights-based programme among the rural poor. The ambitious employment programme has evoked strong opinions both for and against. The assessment of the NREGA is now of critical significance with the new central government led by the far-right National Democratic Alliance (NDA) revealing intentions to downsize the programme significantly.³

The IRDR acquaints the reader with a story of structural transformation in a widely diverse rural sector in India, situated within a fast-growing economy. The higher contribution of non-agriculture in rural employment, accompanied by the declining contribution of agriculture to the national income, is highlighted as a reflection of this transformation. At the same time, the report warns of the regional dimensions of these changes and also

Hyderabad; IRMA is Institute of Rural Management, Anand (in Gujarat); and IGIDR is Indira Gandhi Institute of Development Research in Mumbai.

3. The Union Rural Development Minister has said in the media that the NREGA should be restricted to just 200 districts rather than continuing in its current universal form covering all 643 districts (see *The Financial Express*, 2014).

expresses concern about their sustainability; the emphasis on sustainable farming and livelihoods indicates this concern. The IRDR also highlights the supply-side weaknesses and challenges in the development project that is being pursued in rural India, primarily in education and health.

While the report contains an excellent mapping of government schemes regarding various aspects of rural development and how they are functioning at ground level, it does not engage with the changes in the macro-economic policy paradigms in the country. It seems to remain oblivious to the fundamental shift in emphasis of policies towards economic liberalization since the early 1990s. The reduced importance of the 'rural' and anything that is regarded as 'petty production' within the newly dominant economic philosophy of neoliberalism is something that the IRDR hardly touches upon.

It is also not possible to achieve a comprehensive understanding of the developmental outcomes in rural India without a deeper engagement with the issues related to land acquisition and the resistance to it. A vigorous contestation over the idea of development has been at the centre of the intensified land conflicts. The phenomenon of large-scale land acquisition projects is linked to the larger question of livelihoods and the political economy of contemporary development, thus involving much more than simply a change in land use and its impact on agricultural production.

Finally, any evaluation of development is strongly influenced by the measurements used. Like many other studies, the IRDR runs into an unresolved dilemma when many indicators in health and nutrition, education and basic services fail to reflect the optimism of the massive poverty reduction claims of official poverty estimates in rural India. The report tries to reconcile this through some discussion of the methodological problems in the official poverty measurement in its Annexure 3.1. However, this does not capture the fundamental fallacy in the poverty estimation methodology. Much of the disparity between trends in official poverty numbers and other indicators of well-being can be explained if we ask the relevant questions regarding the correctness of the former. It is worth elaborating on this issue in the process of undertaking an assessment of the IRDR.

NEOLIBERAL ECONOMIC REFORMS AND RURAL TRANSFORMATION

The analysis of the stagnation of Indian agriculture since the late 1990s and the even more serious institutional crisis in rural India referred to as the 'agrarian crisis', is inextricably linked to the way one views the changes in employment structure in recent times. Valid concerns are raised about the sustainability of chemical-intensive 'Green Revolution' strategies in agriculture. The issue of sustainability of agriculture, however, concerns more than the natural and environmental factors and 'threshold' farm size that are usually emphasized. On average, nearly 2,000 farmers per day have

quit agriculture in India during the last two decades.⁴ Much of this is triggered by the adverse economic circumstances of small-scale farmers as a result of economic liberalization.

The signing of the WTO agreement by India in 1995, which reduced tariff barriers in agricultural commodities, as well as a general emphasis on export-oriented agriculture, essentially placed Indian farmers in direct competition with millions of developing country farmers. Ironically, this strategy was accompanied by reduced public support for small-scale farming, which was essential for the Indian farmer to stand up to global competition. Driven by fiscal fundamentalism, there was a calibrated withdrawal of the state from economic operations, and more so from agriculture. A host of policies were adopted, including the rationalization of input subsidies, the downsizing of public interventions such as incentive pricing, the decline in public investments and expenditures on agricultural research and extension services, and contraction of institutional credit availability in rural areas.

The increasing volatility of crop prices twinned with rising costs of cultivation and farmers' increasing dependence on onerous private credit resulted in a deflation in real farm incomes and the emergence of indebtedness among the peasantry (Banerjee, 2009; Patnaik, 2002; Reddy and Mishra, 2009). More than 270,000 farmer suicides since 1995 bear testimony to the growing difficulties for the majority of cultivators; so extreme are their circumstances that they are unable to accomplish even a 'simple reproduction' of their farm systems.

The reforms in rural banking and the impact of these on agriculture are illustrative of the restructuring that the rural economy is undergoing with the neoliberal economic policies. The provision of institutional credit following the bank nationalization of 1969 and the adoption of priority sector lending targets for agriculture and small and medium enterprises played a central role in the turnaround of the agricultural sector. The share of institutional credit in the total credit accessed by cultivator households jumped from 32 per cent to 63 per cent between 1971 and 1981 (IRDR, p. 26, Figure 2.3A). With the implementation of the recommendation of the Narasimhan committee (1992), rural banking lost priority with changed banking norms. Between 1991 and 2007, nearly 5,000 rural bank branches were closed (a decline of around 15 per cent) in backward regions. Institutional credit to rural areas consequently declined with farmers relying more on informal credit sources charging higher interest rates (Banerjee, 2012; Ramachandran and Swaminathan, 2005).

Interestingly, after more than a decade of such shrinkage, rural credit underwent a revival after 2005. The enhanced disbursement of rural credit,

4. According to the Census figures, the number of farmers declined by 14.2 million between 1991 and 2011 (Sainath, 2013).

however, did not reach the small and marginal farmers, with greater bias towards big-ticket borrowings and the associated urbanization of agricultural credit. For example, in 2008, half of the agricultural credit in the state of Maharashtra was disbursed in urban metropolitan areas (42.6 per cent only in Mumbai) — that is, to the seed and food processing companies, often MNCs, with their headquarters mostly in Mumbai (Chavan, 2010). It is clear that petty producers in agriculture continue to be neglected, with the undermining of social banking objectives in India. Similar marginalization of the ‘small and medium’ can be witnessed in land markets and in the upstream/downstream markets associated with agriculture and rural production. The land question is perhaps the most important of all, on which I will reflect later. The squeezing of the petty agricultural producers and other similar rural producers between stagnating or volatile output prices and rising production costs, mounting dependence on informal credit and reduced social protection and public investment is steadily pushing small-scale traditional farmers out of agriculture. Development-induced displacement, including land acquisition, furthers this process.

A careful examination of the diversification of rural employment in recent years indicates the distress-led nature of the changes. With the gradual withdrawal of the government from the ‘rural’ and contractualization of government employment, regular jobs have been declining since 1993 (IRDR, p. 36, Figure 2.5). At the same time, a casualization of rural non-farm employment is occurring. This was particularly marked between 2004–05 and 2009–10, the period of rapid economic growth. Self-employment which was dominant till 2004–05 (representing nearly half of total rural employment) has been replaced by casual work as the more prevalent form of non-farm employment (more than 40 per cent in 2009–10).

A view from the lens of sectoral employment in rural India casts more light on the situation. The overall reduction in the share of farm-based employment in the total was 10.5 percentage points between 1993–94 (78.4 per cent) and 2009–10 (67.9 per cent), of which a reduction of 4.8 percentage points occurred after 2004–05. The sectors to which people shifted for jobs were largely in construction, trade, hotels and restaurants and transport. The latter two sectors seem to have stagnated in terms of new jobs after 2004–05. Rural manufacturing has witnessed a steep decline in employment share after 2004–05, obliterating all earlier gains. The only sector which has consistently facilitated a shift from farm to non-farm employment is construction. During the entire period, the share of construction increased by 7 percentage points, which is two-thirds of the total shift; after 2004–05, the share went up by 4.5 percentage points, accounting almost entirely for the decline in farm employment (all figures based on IRDR, p. 35, Table 2.7).

Much of the vitality within the construction sector can be attributed to the real estate boom and encroaching urbanization in rural areas, on one hand, and the associated private–public partnership based infrastructure building,

Table 1. Worker Productivity by Sector (at 1986–87 prices, NDP in Rs/employed worker)

Sector	1993–94	2009–10	CGR
Agriculture	5349	8448	2.9
Industry	8693	24666	6.7
Construction	14067	13821	–0.1
Services	18302	42016	5.3
Total	7476	15863	4.8

Note: CGR = Compound Growth Rate

Source: Chand and Srivastava (2014: 50).

on the other. All of these factors driving the construction sector have issues of sustainability with the slowing down of the global economy, followed by the national economy. But of even more concern is the connection between the creation of precarious, low-paying, casual jobs and the construction sector. The construction sector in India has been characterized by a complete lack of improvements in labour productivity. As Table 1 shows, the output–worker ratio declined between 1993–94 and 2009–10, something not witnessed even in the crisis-ridden agricultural sector. The implication is clear. The construction sector is expanding its scale of operation without any qualitative change in the nature of jobs created; the latter remain casual and with stagnant pay.⁵

This raises the question whether construction is not acting as the residual and precarious repository of the labourers and petty producers who are thrown out of farm-based work in the midst of a prolonged agrarian crisis. With the massive deficits in education, health and basic services that the IRDR effectively highlights in the discussion on ‘Inclusion’ (pp. 57–104) and ‘Infrastructure’ (pp. 115–61), it is expected that people traditionally trained only in farm-based work and without additional skills form a source of unskilled labour supply outside agriculture. On the demand side within a neoliberal policy regime, the non-farm sector has a limited capacity to create better jobs for those who leave agriculture and are not necessarily impaired by skill deficits. The combination of these factors compels millions of workers (23.6 million between 1993–94 and 2009–10⁶) to enter unskilled, low-paying and casual jobs in construction.

The NREGA, though providing some work-based income transfer, does not contribute much to this transition. Based on the fact that in 2009–10, the

5. The male non-agriculture real wage declined steadily between 1999–2000 and 2009–10 as shown by Chand and Srivastava (2014: 50). After 2009–10, there was a sharp increase in real wages for a couple of years which created excitement among the growth optimists, leading them to argue that neoliberal policies have led to positive development impacts. It remains to be seen whether this emerges as a sustainable trend in the longer run.

6. Computed by the author based on a total rural workforce of 337 million in 2009–10.

programme provided 36–37 days of work on average in a year and assuming that full employment amounted to 250 days in a year, Chand and Srivastava (2014: 51) estimate that NREGA provided work to only 2.9 per cent of the total rural labour supply. This also implies that, although a right-based programme like NREGA improves the bargaining power of rural labour as a class (even if they do not actually get employment), the impact on rural wages with this extent of job creation could well be miniscule. The IRDR also points out that several studies on the impact of NREGA on rural wages have remained inconclusive (pp. 262–3).

Nonetheless, the IRDR draws attention to one positive aspect of this labour mobility: it may allow the rural working poor, the majority of whom are socially discriminated groups, to escape the traditional feudal exploitation in agriculture under the systems of social hierarchy, for example, the *jajmani* system. However, it may be premature to treat such sectoral migration of labour as emancipatory given that new forms of caste-based discrimination are reproduced for labour mobilization in non-agricultural sectors. In 2011–12, the share of Scheduled Castes (SC) and Scheduled Tribes (ST) in total casual labour was 43.2 per cent; the share of SCs at 30.4 per cent was markedly higher than their overall share in the workforce at 19.3 per cent (Institute for Human Development, 2014: 79).

Srivastava (2005: 18–31) notes that with unbalanced growth between agriculture and non-agriculture, the traditional forms of bonded labour (mostly in agriculture) are being replaced by new forms of debt bondage in brick kilns, quarries and even in public construction works or unorganized manufacturing or urban domestic services. The labour contractors mobilizing labour, including children, for these sectors often resort to cash advances for mobilizing migrant labour from socially vulnerable sections into unacceptable working conditions.

THE LAND QUESTION IN RURAL INDIA

Discussions on rural land issues usually emphasize the fragmentation of land holdings over generations and the declining size of the average farm. The low viability of farming with tiny holdings is no small challenge. The IRDR addresses this with an emphasis on developing cooperative and collective farming in order to overcome the problems of indivisible inputs and investments. However, land has historically served as a means for the ruling classes to exercise social and economic power and it continues to do so in contemporary rural India. The land question therefore assumes more complex dimensions than merely the declining average farm size.

The depression in farm incomes markedly reduces the productive value of agricultural land. This creates a suitable context for a variety of parties, from real estate developers and service providers to industrial and mining companies, to grab farmland at relatively low prices. It would be imprudent

Table 2. Percentage Distribution of Owned Area by Rural Household Groups

Household Group	1961–62	1971–72	1981–82	1991–92	2002–03
Bottom 60%	10.8	10.8	10.5	11.0	8.3
Middle 30%	37.7	38.2	38.5	38.0	36.5
Top 10%	51.5	51.0	51.0	51.0	55.2

Source: Nair and Banerjee (2012: 53)

to ignore the fact that the landed rural ruling classes also buy reduced-value agricultural land to further accumulate and consolidate power. The enclosure movement in England, which occurred in the context of the crisis of feudalism, is one of the earliest and best-known instances of primitive accumulation of capital. Increasing land concentration in rural areas and land acquisition, as it has emerged in India, can be viewed as part of the same process of primitive accumulation of capital, which accompanies the contemporary corporate-led, neoliberal growth process.

There has been a distinct increase in landlessness in rural India in recent decades. Using the NSS Employment–Unemployment Surveys, Rawal (2013: 79) shows that the percentage of rural households having no access to operated areas increased from 39 per cent in 1993–94 to 49 per cent in 2011–12. Further, the share of the bottom 70 per cent of rural households (including the landless) in the total Operated Area declined from 18.9 per cent in 1993–94 to 14.5 per cent in 2011–12. During the same period, the top decile of rural households increased their share from 47.9 per cent to 50.2 per cent (*ibid.*: 82).

Elsewhere, Nair and Banerjee's (2012) examination of the distribution of Owned Area from 1961–62 to 2002–03⁷ revealed that land concentration was historically high, a decade after economic liberalization. Based on NSS data from the Land and Livestock Surveys (see Table 2), they estimated that the share of the bottom 60 per cent and the middle 30 per cent of rural households had decreased to 8.3 per cent and 36.5 per cent by 2002–03. The share of the top 10 per cent households was at its highest point in the post-independence period, at 55.2 per cent (Nair and Banerjee, 2012). The larger point is that in terms of ownership or access to land, the bottom 60–70 per cent of the rural population is virtually landless. The rural middle classes also find it difficult to hold on to their agricultural land in a neoliberal policy environment and given the agrarian crisis.

7. The analysis of Nair and Banerjee (2012) does not go beyond 2002–03 because, at the time of their study, this was the year when the latest round of NSSO Land and Livestock Survey, the most reliable source of data on land ownership by households, was published. These surveys are conducted once a decade. The next round for 2012–13, which has recently been released, could capture changes during the period of rapid economic growth (after 2004) and yield further interesting insights regarding land concentration.

The nature of conflicts linked with land illuminates the problem. While resistance to land acquisition, often led by rural middle peasants, has been spontaneous and much more frequent in recent times in India, land movements demanding redistribution of agricultural land have not been equally vigorous, even taking into consideration the demands for land reform from Ekta Parishad and various Leftist parties in the country. With the income-generating capacities of agricultural land having stagnated, the struggles of the land-poor to acquire access to that land also seem to have declined. The opposition to land acquisition now emanates from a different configuration of classes, driven by diverse reasons.

The change in land use from agriculture to non-agriculture is structural in nature and often accompanied by a sharp increase in the value of land. In certain cases of land acquisition accompanied by an immediate change in land use, land price escalation is strongly influenced by speculative real estate interests. The dimensions of these changes are difficult to fathom at the time of the land takeover, when compensations are determined. Original landowners often discover that land prices have rapidly multiplied, to many times the benchmark price which was used to determine their compensation. Such speculative land price changes — which occur even without any real value addition — inevitably lead ex-landowners to feel that the price they received was terribly inadequate. This has led to a stream of resistance to land acquisition led by the rural middle and upper middle classes which consists of landowners who feel excluded from the massive accumulation that is occurring.

The other concerns regarding land acquisition are linked to livelihoods and come from the section of small/middle peasants and agricultural labour who manage a modest livelihood from land without any substantial accumulation. The lack of meaningful alternative livelihoods and their apprehension regarding the casualization of their labour render these peasants' land assets indispensable and non-alienable to them. The market prices used as a norm for fixing the compensation for land rarely capture the costs of an involuntary and precarious transformation of livelihood or possible future unemployment. Any land acquisition for large development projects or industrialization not only displaces the families of landowners but also destroys the livelihoods of tenants and rural labour and the non-farm self-employment that services the agrarian community. This leads to another stream of spontaneous opposition to land takeovers and may see a broader configuration of social classes.

It would amount to gross inaccuracy to construe that 'access to land' as a component of rural development is *passé*. A similar alienation of rights of rural communities from common property resources like forests or pastures is also a reality in rural India given that the laws enacted to protect these rights are poorly implemented.

DECLINING POVERTY YET WORSENING WELL-BEING?

Official poverty measurements in India using consumption expenditure data from subsequent rounds of the NSSO surveys reveal a significant decline in poverty in both rural and urban areas. The poverty lines and the underlying methodology estimating them have, however, come under increasing scrutiny. Given the flawed methodology, concerns have been raised about a potential under-estimation of poverty, but also about whether the unambiguous decline in poverty in recent decades as depicted by the official estimates is beyond question. Limited space prevents me from traversing the full landscape of the 'poverty debate' in India. However, I would like to point out some fundamental fallacies in the approach to Indian poverty measurement, as elaborated primarily by Utsa Patnaik. This could explain why the non-declining trends in other developmental indicators like child under-nutrition and mortality or anaemia among rural women are not in agreement with the claimed decline in rural poverty.

When the poverty lines were first estimated for 1973–74, a calorie intake norm of 2,200 Kcal per person per day could be attained at the poverty line of Rs 49 expenditure per person per month⁸ in rural India. Over time, this poverty line was simply updated using price indices, the consumption basket remaining unaltered (mentioned in IRDR, Annexure 3.1, pp. 101–02). This implies that many structural changes that occurred outside the domain of the market could not be accommodated in the subsequent poverty estimation exercises.

The consumption basket at the poverty line is dynamic in nature. Say, for example, that an agricultural labourer receives a part of her wages in kind, in terms of rice valued at farm gate prices at an earlier point in time. The remaining rice requirement is procured at a higher retail market price. When, at a later point, she starts receiving her wages entirely in cash (a very common change in rural India today compared to the 1970s), she also has to buy all of her rice from the market at the retail price, which is definitely higher than the earlier weighted average price. The same amount of money that she previously spent on rice consumption would allow her to procure a smaller amount of rice, thus also representing fewer calories. To maintain her earlier intake of rice and calories, she must *ceteris paribus* increase the share for rice in her total consumption budget. All of these changes can occur without any increase in the market price of rice.

The targeting of food subsidies introduced in India in 1997 when the country moved away from a universal Public Distribution System is another such policy-induced structural change. Such changes are not captured when the poverty line is simply updated using price indices, with the latter merely accounting for inflation. As a result, the successive poverty lines

8. Though the benchmark declared by the Indian Council of Medical Research was 2,400 Kcal per person per day, a lower norm of 2,200 Kcal was actually applied.

after 1973–74 have progressively deviated from the original calorie norm on which they were based. By 2004–05, the calorie intake possible at the official poverty line of Rs 356 per person per month was only 1,820 Kcal per capita per day — 380 Kcal below the original 2,200 Kcal. Similar deviations from the norm were true for the urban poverty line as well (Patnaik, 2007: 3138).

The fact that the poverty lines of the different years (and also across states) embodied varying normative energy intakes implies that the corresponding poverty estimates were temporally (and spatially) non-comparable. In fact, the declining trend in poverty was brought about by lowering the norm for every successive exercise of poverty estimation. Applying an unchanged norm of 2,200 Kcal for the rural areas, it can be observed that the proportion of rural population living in poverty (i.e. experiencing food and energy deprivations) has actually increased roughly from 69.5 to 75.5 per cent between 2004–05 and 2009–10 (Patnaik, 2013: 44).⁹ This is much higher than the official rural poverty estimate of 33.8 per cent in 2009–10 (IRDR, p. 64, Table 3.5).

With such a wide gap between hunger incidence and the official poverty estimates, the latter does not qualify as a credible measure for poverty incidence. The use of these poverty figures in the IRDR's analysis reduces its clarity, as states with 'less poverty' are found to be performing abysmally on many counts. Rather, the food-energy deprivation levels are more compatible with other indicators of malnutrition (see p. 79, Table 3.13), high dropout rates in school education and poor learning outcomes (pp. 74–5, Figure 3.12 and Table 3.11) than the IRDR highlights. These indicators also provide a more realistic picture of the level of well-being of the rural population which has been confronted with acute landlessness, a prolonged agrarian crisis, destruction of traditional livelihoods and the widespread casualization of the working poor.

No development trajectory in contemporary rural India, and similar developing countries, can avoid addressing the land question and the larger phenomenon of alienation of rural poor from natural productive and renewable resources. While the petty producer in the agrarian economy is disadvantaged under a neoliberal, market-based economic regime, it does not necessarily lead to any positive structural transformation. Displaced small producers and labourers face increasing casualization of their labour,

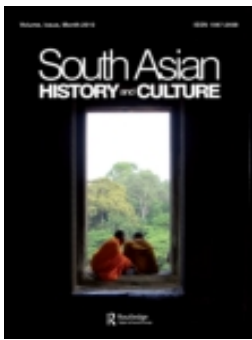
9. The argument that higher calorie intakes are possible at the official poverty lines but are low due to voluntary diet diversification among the rural and urban population caused by rising incomes does not withstand scrutiny. In the event of such a phenomenon, the total consumption of food grains (direct plus indirect as feed) should have increased, with the population consuming more animal products, the latter requiring higher proportions of feed for production. However, the annual per capita food-grain (including pulses) consumption in India has in fact declined from 186.2 kg to 164.4 kg between 1991 and 2012 (calculation based on Net production, Net Imports and Changes in Food-grain Stocks data published by the Economic Survey of the Ministry of Finance; see Government of India, 2015).

with poor quality jobs in construction-related activities and other tertiary sectors. Construction has emerged as a residual/default sector for a ‘reserve army’ of unskilled labour. The IRDR has correctly traced some of these developments in rural labour markets, though it does not make the connections with the larger policy regime explicit in its narrative. As argued here, the challenge of rural development in India, as elsewhere in the developing world, cannot be tackled without questioning the neoliberal paradigms. It is nigh-on impossible to arrest developments like the agrarian crisis or casualization of rural labour and petty producers without questioning the grand and powerful discourse of liberalization, free market reforms and corporate-led growth.

REFERENCES

- Banerjee, A. (2009) ‘Peasant Classes under Neo-liberalism: A Class Analysis of Two States’, *Economic and Political Weekly* 44(15): 49–57.
- Banerjee, A. (2012) ‘From Agrarian Crisis to Global Economic Crisis: Neoliberalism and the Indian Peasantry’, in P. Utting, S. Razavi and R. Buchholz (eds) *The Global Crisis and Transformative Social Change*, pp. 177–98. London: Palgrave Macmillan.
- Chand, R. and S.K. Srivastava (2014) ‘Changes in the Rural Labour Market and their Implications for Agriculture’, *Economic and Political Weekly* 49(10): 47–54.
- Chavan, P. (2010) ‘How “Rural” is India’s Agricultural Credit?’, *The Hindu* 12 August.
- The Financial Express* (2014) ‘Economists Ask PM Modi not to Dilute NREGA’, 15 October. <http://archive.financialexpress.com/news/economists-ask-pm-modi-not-to-dilute-nregs-nitin-gadkari-says-focus-on-needy-areas/1298648>
- Government of India (2015) ‘Economic Survey’. New Delhi: Ministry of Finance.
- Institute for Human Development (2014) *India Labour and Employment Report 2014: Workers in the Era of Globalization*. New Delhi: Institute of Human Development and Academic Foundation.
- Nair, K.N. and A. Banerjee (2012) ‘Structural Changes in Land Distribution and its Implications for Improving Access to Land’, in D. Narayana and R. Mahadevan (eds) *Shaping India: Economic Change in Historical Perspective*, pp. 46–66. New Delhi: Routledge.
- Patnaik, U. (2002) ‘Deflation and Déjà vu: Indian Agriculture in the World Economy’, in V.K. Ramachandran and M. Swaminathan (eds) *Agrarian Studies: Essays on Agrarian Relations in Less-Developed Countries*, pp. 111–43. New Delhi: Tulika.
- Patnaik, U. (2007) ‘Neoliberalism and Rural Poverty in India’, *Economic and Political Weekly* 42(30): 3132–50.
- Patnaik, U. (2013) ‘Poverty Trends in India 2004–05 to 2009–10: Updating Poverty Estimates and Comparing Official Figures’, *Economic and Political Weekly* 48(40): 43–58.
- Ramachandran, V.K. and M. Swaminathan (eds) (2005) *Financial Liberalization and Rural Credit in India*. New Delhi: Tulika.
- Rawal, V. (2013) ‘Changes in the Distribution of Operational Landholdings in Rural India: A Study of National Sample Survey Data’, *Review of Agrarian Studies* 3(2): 73–104.
- Reddy, D.N. and S. Mishra (2009) *Agrarian Crisis in India*. New Delhi: Oxford University Press.
- Sainath, P. (2013) ‘Over 2000 Fewer Farmers Every Day’, *The Hindu* 2 May.
- Srivastava, R. (2005) ‘Bonded Labour in India: Its Incidence and Pattern’. Working Paper 43, Special Action Programme to Combat Forced Labour. Geneva: International Labour Organization.

Arindam Banerjee (e-mail: arindambjnu@gmail.com) teaches economics at the School of Liberal Studies, Ambedkar University, Delhi. His research interests are agrarian relations, colonialism and food security. His forthcoming publication is 'Agrarian Crisis and Accumulation in Rural India: Locating the Land Question within the Agrarian Question', in Anthony D'Costa and Achin Chakrabarty (eds) *Beyond Transition*.



The endangered city in Rituparno Ghosh's early cinema of confinement

Sayandeb Chowdhury

To cite this article: Sayandeb Chowdhury (2015) The endangered city in Rituparno Ghosh's early cinema of confinement, *South Asian History and Culture*, 6:2, 277-289, DOI: [10.1080/19472498.2014.999435](https://doi.org/10.1080/19472498.2014.999435)

To link to this article: <https://doi.org/10.1080/19472498.2014.999435>



Published online: 19 Jan 2015.



Submit your article to this journal [↗](#)



Article views: 46



View related articles [↗](#)



View Crossmark data [↗](#)

The endangered city in Rituparno Ghosh's early cinema of confinement

Sayandeb Chowdhury*

School of Liberal Studies, Ambedkar University, New Delhi, India

This essay looks at the cinema of Rituparno Ghosh from the vantage point of urban cultural studies. Ghosh was at a forefront of a new cinema in the mid-1990s that purportedly 'brought the Bengali middle classes back to the theatre'. Under the rubric of this claim which is verifiably true, lies the understated idea: who or what was the nature of this new middle class and how in the initial years of globalization did they relate to the imperatives of cultural and global capital. One obvious critical paradigm in the early cinema of Ghosh is its internality, a parcelling out of larger conceptions of space and place into metonymic, drawing-room dramaturgy, a chambering of orchestrated relationships away from the politically volatile, lived, identifiable vestiges of the city of Calcutta, where the films are apparently based. This article hopes to add to contemporary debates about the de-politicization of the middle classes by looking at Ghosh's cinema as a major contributor to middle class's conscious, cultural self-fashioning under globalization and the construction of their spatial and locational aesthetics. It concludes by looking into how Ghosh's films severely challenge notions of space around the idea of the 'cinematic city', and how that ultimately relates to his assumed position as a feminist filmmaker.

Keywords: city; chamber drama; television; the home; sexual economy

The article makes an attempt to look afresh at the cinema of Rituparno Ghosh from the vantage point of urban cultural studies. Ghosh was at a forefront of a new cinema in the mid-1990s that purportedly 'brought the Bengali middle classes back to the theatre'. But this claim cannot be vindicated unless it stands up to a range of critiques, especially those inquiring into the nature and scope of this *new* middle class and how in the initial years of globalization they located themselves in the imperatives of cultural and global capital. Since class categories are always problematic and part of larger social and cultural formations, Rituparno Ghosh's work, must be interrogated accordingly. And in doing so, the article hopes to locate Ghosh's cinema as a major contributor to middle class's conscious, cultural self-fashioning under globalization and the construction of their spatial and locational aesthetic. That aesthetic, as this article hopes to show, was achieved by a conscious disenfranchisement of the idea of the City, which was part of the broader de-politicization process that the middle class went through as liberalization seeped in. In fact, the absence of the city was so total that it would not be exaggeration to claim that the vanishing city *reinforced* Ghosh's cultural authority and created the necessary capital for his kind of cinema to dominate middle-class imagination for more than a decade. A detailed critique of Ghosh's production and appropriation of space

*Email: sayandeb@aud.ac.in

further leads us to re-interrogate Ghosh's apparent critique of phallogocentrism in his cinema, which concludes the essay.

I

The cultural capital of sudden, unexpected and untimely death in a highly sentimentalized social and cultural formation often obfuscates the vigorous critical distance that ideally separates the artiste from his/her art and that art from those who consume it. Rituparno Ghosh's death on the wee hours of 30 May 2013, in his home in Calcutta, belonged to this unfortunate category. It earned him a degree of immunity from sincere critical evaluation, especially in the popular press, which almost uniformly and without deliberation, decorated him with maudlin hyperbole. Ghosh had in fact, in recent years before his death, walked the tightrope between the personal and the filmic with too much alacrity, probing sexual boundaries and limits, both as a person and as a storyteller. In fact if anything, Ghosh's films seemed to have somewhat faded to the background while he stood turbaned, behind dark glasses, in cross-dressed flourish, eloquent and intelligent, secured in his queer forthrightness. This fact remained fastened to his posthumous evaluation, making it all the more difficult to identify and mark out Ghosh the man from Ghosh the artiste.

But the fact was that in the recent years his cinema, with the exception of *Arekti Premer Golpo* (2010), a film which he co-wrote and acted in but did not direct, had fanned a coldness of both critical and commercial reception. Moreover, Rituparno, just 51 at the time of his death, was already a veteran in the Bengali cinema industry, which since at least the middle years of the last decade, had seen a new crop of filmmakers emerge. Ghosh, once the trailblazing *new* filmmaker, the chronicler-in-chief of the *new* middle classes, was neither ignored nor silenced. But he floated in the discourse as *one* of the prominent filmmakers in Bengal. His films were still awaited but he had evidently lost the position of pre-eminence he had successfully cultivated for himself since his much-eulogized *Unishey April* arrived in the cultural life of Bengal in 1995. Ghosh was to complete two decades in filmmaking soon and increasingly seemed to be battling his own past achievements. His untimely death did cut short this embattled side of Ghosh, though it may have also brought to an end the serious efforts he seems to have been making to reinvent himself artistically.

It is with this understanding that it is necessary to rescue his name from both undiscerning aplomb and premature closure and to situate him within the broader cultural debates in cinema in the last two decades.

II

Though the unreleased children flick *Hirer Angti* (1992) was his first film, it was the sleeper hit *Unishey April* that brought Ghosh recognition. He managed to follow *Unishey April* with a string of critically and commercially successful films in the decade that followed. One must not see commercial 'success' as an absolute, unqualified marker but only on a scale. The revenues that Ghosh's films generated were no match for the more box-office friendly commercial fare that earned the Bengal film industry its bread. However it was reasonable enough to earn him financiers. Also, Ghosh managed to give his backers the 'safety' of awards, his films having had an uncanny sense around accolades at various local and national film forums. Soon his films garnered enough attention and managed to marshal their own audience. This audience was not only a

significant demography in Calcutta and Bengal but was also, significantly, spread across borders in the metropolitan centres in India and in Europe and the US. Across the borders, there was a sizeable presence of a professional, Bengali speaking, moneyed class with tenuous and variable links to Calcutta and Bengal – their intellectual but inevitably inhospitable homeland. With his films, Ghosh seemed to have sunk deep into their tenuous sense of belonging, their slippery subjectivity, their relentless self-fashioning, and their contentious identity. The liberalised media economy and the new-fangled worldwide web helped his case further. Soon, Ghosh was to find himself as not just a noted filmmaker but as a cultural powerhouse. His name was to become part of a celebratory cinematic mythology, as the man who brought the middle classes back to the theatres. Ghosh was seen to have singlehandedly retrieved Bengali serious cinema at a time when it was choking under the weight of *popular* cinema¹ – whose disregard for the middle-class aesthetic – an aesthetic that was regarded as *raison d'être* in Bengali cinema's historico-cultural aura, was becoming ever more assaultive.²

To understand better Ghosh's centrality in the new cultural economy of Bengali cinema, one must look into the circumstances – social, political and cultural – in which *Unishay April* was released in 1994, circumstances that are not external to the film's appeal and its consequent claim as a watershed film in recent Bengali cultural history.

III

Any critical debate tracing the genealogy of *new* Bengali cinema must go back to the death, again shockingly untimely, of Uttam Kumar, the legendary Bengali matinee idol. From mid-1950s to his death in 1980, Uttam Kumar not only had carried the industry's prospects on the shoulders of his phenomenal popularity but gave it a significant aesthetic and cultural modernity.³ Cinematic modernity in Bengal, thanks to Kumar's overwhelming presence never could secure for itself a *safe* ghetto – in the art-house behemoths-Satyajit Ray, Mrinal Sen, Ritwik Ghatak – which proved to be its biggest windfall. Largely on account of Kumar and a collective of talented behind-the-scenes individuals, the mainstream Bengali cinema never really relinquished its deeply organic and spacio-cultural links to metropolitan modernity.⁴ Though the rot started to set in while he was alive, Kumar's sudden death finally left Bengali cinema bitterly divided into morbid art-house cinema and garish, insipid melodrama. I have written previously⁵ how the Communist Party of India (Marxist), the ruling dispensation in Bengal since 1977 had put its significant weight behind the former, pouring money into what it thought were serious, durable narratives which would cement its self-image as a custodian of high cultural tastes.⁶ With this favour to the cultural imperative of 'good cinema', the Communist Party led government thought they could help build a repertoire that, in the years to come, would reinforce the party's own founding mythology through cinematic memory. But in spite of their formidable patronage, through the 1980s and early 1990s, 'serious' Bengali cinema was a washout.⁷ Popular cinema, on the other hand, having lost both public and institutional backing, sought out the lowest common denominator – by cutting costs and looking for desperate patronage beyond the metropolis, distant from the tastes of the city and its dominant classes. The so called 'good' cinema made with public money never really took off, while popular cinema, once the touchstone of Bengali cultural taste, languished in abandonment so far as the city-bred *bhadralok* were concerned. The most visible impact of this decline of a public cinema culture was felt in two aspects. The physical space of the single theatres, suffering heavy losses, started to wind up. Second, the substantial patronage and energy of the middle-class found new areas of

concentration. Bengali cinema's cherished space and spectatorship of the metropolitan centres in Bengal and most identifiably in Calcutta evaporated, changing the experience of *going to cinema* forever. Instead, the drawing room and television became a somewhat lame substitute for the middle classes' cultural engagement. Television, still a public broadcasting engine, largely dished out family entertainers and cinema of yore. Resultantly, a whole new generation grew up in 1980s and 1990s on the staple of old Bengali movies on television and faced with the possibility of having seen not a single specimen of Bengali cinema in the theatres.⁸

The first ripple of change was felt with the arrival of liberalization in the mid-1990s. Though Calcutta, owing to the posturing of its communist bosses, was slow to wake up to the possibilities of a new economy, it was a matter of time before private financing began to tiptoe its way into the 'serious' cinema.⁹ One must remember what other alleged riches the early years of liberalization were to bring. Among significant developments was the broadening of the market, easy loans and access to consumer articles, a heightened exposure to global issues through a new liberalized media economy, and new possibilities thrown up by telecommunication technology. There were also factors such as swelling of the middle class in size and purchase-power, the manifold reach and scope of televised entertainment, the arrival of a young crop of actors and technicians bred largely in the television format and new money that could come to the entertainment industry without government gate-keeping. Ghosh's debut in 1994 must be seen within the broader context of these developments.¹⁰

Ghosh managed to start a *new* dialogue with the urban middle class, a segment that was itself consistently on the increase throughout the first decade of liberalization. Unchained from the burden of being government-approved tableaux such as in the years of CPM funded 'art cinema', Ghosh's films had consciously set out to de-politicize their contents and environs to create a universe of their own, a universe of the class which chiefly patronized these films: doggedly self-conscious, strenuously auto-telic, unrepentantly isolationist, and deeply consumerist. Ghosh's greatest joy was to throw a group of middle and upper middle-class characters into a tightly controlled domestic eco-system in which they were tested, tensions would mount, passions would play their turn and the possibilities of subtle melodrama were to be fully realized. Ghosh's chamber-drama set-pieces were sharpened with sartorial attention to make them fit into this tightly lit, closely-observed, neatly packed environ of the posh house where the drama was usually set. Several of his films, from *Unishey April*, through *Dahan* (1998), *Asukh* (1999), *Utsab* (2000), *Shubho Muharat*¹¹ (2003) and *Dosar* (2006), wooed the middle classes with *their* story. Having relished watching 'themselves' on screen, the middle-class went back home from the theatre contented. It was often assumed that this was what sophisticated cinema had to do to keep alive its cultural aura, its baggage of seriousness. Having been denied a chance to partake in cinematic narratives for over a decade, the middle classes across towns and cities in Bengal and the Bengali demography outside India lapped up Ghosh's films as their own. Ghosh found an eager audience who also doubled as an expanding market. The *new* chamber cinema was born.

Sooner than later, this kind of self-same cinema became the staple of serious cinema in general, a benign formula. The conversion of his limited celluloid vision into an apparent asset for Bengali cinema marked Ghosh's vanguardism in creating a 'new' Bengali cinematic taste. To understand how Ghosh managed to create and sustain his much-feted middle-class narratives, we must understand how his early cinema conspicuously became a 'cinema of confinement' and how it managed to create an operative distance from both the Cinema of the City¹² and the City itself. One might begin with an excerpt

from an interview of Rituparno Ghosh at the Asia Society in New York where he talks about Calcutta:

Calcutta is not a very high-brow city. It is a very ordinary, plain city where you can mix with different kinds of people; it is not a bureaucratic city, it is not a clinical city. It is a very warm, pulsating, vibrating city, almost like New York, and certain areas of London remind me of Calcutta too. It is busy, there are people walking on the streets all the time, jostling against each other, there is constant energy and complete over-reaction to everything: when people in Calcutta are happy, they're crazy, when they're angry, they're crazy as well! In Calcutta you see everything that a Bengali has in a slightly refined and filtered form, so it makes the city very interesting.¹³

Such exaltation usually borders on bombast but Ghosh still manages to invoke the apparent exuberance of the city of his birth. Such a salutation to Calcutta is not new of course and neither are the various discontents that challenge Calcutta's unique, complex, and hard-to-classify charm. But in his films is there a Calcutta that he exults about? Is there a teeming, cheek-by-jowl, crepuscular, cacophonous, empathetic and ever-clammy city in Rituparno's cinemascapes? Evidently not.¹⁴ A critical look at some of his early films, starting with *Unishey April*, will hopefully bring us nearer to this claim.

In an interview with Kaustav Bakshi, Ghosh had detailed the germination of his first prominent film.

The story of *Unishe April* was largely inspired by Ray's *Jalsaghar*. I was watching the film on Doordarshan, when the story idea of *Unishe April* came to me. *You know, watching a film on television can change your response to it; for television facilitates a more intimate viewing, and a more intimate connection with the characters in the film. To a large extent, my experience of watching Jalsaghar on television made me read the film in a new light: I saw the film as a man's much-cherished relationship with his mansion. Almost immediately, the idea of a story with a retired dancer as protagonist and her intimate relationship with her house came to my mind. The character of the daughter, which eventually superseded the mother, was conceived much later. (emphasis mine)*¹⁵

The inevitable response to this excerpt would be to find similarities between Ray's film and that of *Unishey April*, which, to be honest, are hard to locate. I will be more interested in the fact that Ghosh 'found' his film through an 'intimate viewing' experience on television. So it is not the film but the medium that attracts my attention. If what Ghosh claims is true, what indeed he borrowed from his watching *Jalsaghar/The Music Room* was not the plot of *Unishey April* (which anyway was borrowed from Ingmar Bergman's *Autumn Sonata*) but the experience of intimacy he felt with television – a severely constricted, formulaic, middling, in other words, non-cinematic space. Hence it will be a mistake to see Ghosh's first major film as having aesthetic connections with Satyajit Ray's masterpiece. Instead, what struck Ghosh was how he could locate his own sensibilities more profitably in the television format, a format whose intimacy, he must have thought, would outdo its severe limitations. So when Ghosh arrived on the Bengali screen, he was in no way building upon a legacy of great cinema of the past but he was merely transferring the tried-and-tested *intimacy* of television into the format of celluloid.¹⁶ His audience too, so long unused to the viewing experience of large screen format, and by now addicted to an uncritical reception of bedroom television, warmed up to his narrative space, as much as they warmed up to his narrative content. Ghosh responded to this demand by returning again and again to the visual, chamber-drama format: stagey in its management of space,¹⁷ confined in its narrative logic, private in scope and deeply

middle-class in concern. It is entirely through this set of storytelling motifs – heightened interiority, protracted conversations, endless close ups and fade-ins and measured twists of narrative – that Ghosh achieved the intended *dénouement*. His films were hence the story of the middle classes told in their preferred scopic format. Either way, the *new* chamber cinema came to become *de rigueur* of the *new* middle class.¹⁸

IV

Unishey April, a watered-down, unacknowledged adaptation of *Autumn Sonata*, concerns the day in the life of Sarojini, a famous danseuse whose daughter, the distant and lonely Aditi, arrives after finishing her medical school. It happens to be the day Sarojini's husband died years ago leaving behind a young Aditi. The film opens with the arrival of news that Sarojini had won a prestigious award. In response to the excitement of the award and the consequent noise around her mother, Aditi pushes herself further and further into isolation thinking only of her father, whose absence becomes ever more conspicuous when compared to her mother's self-absorption. The mother and daughter's sentiments runs against each other till it reaches a peak, after which things start to settle down. Clearly, this film, in spite of Ghosh's claims on the contrary, was not inspired by Ray at all but entirely by Bergman. However any comparison with Bergman cinematically would be superfluous, which I have tried to enumerate later in the article.

When one watches *Unishey April* closely one cannot help but be struck by how dramaturgical, non-cinematic the writing is. Ghosh's camera pans simply between one room and the next, from one set of conversation to the next, from one sequence of close-ups to the next. Some films do demand rigorously confined spaces to make it imperative to its restive drama. But in Ghosh, as we will see, confinement became an unfortunate, self-referential trope. Because once this formula managed to hold forth with *Unishey April*, he repeated himself in film after film. It is hence imperative to establish the critical paradigm in the early cinema of Ghosh through its unrepentant internality – a parcelling out of larger conceptions of space and place into metonymic, drawing-room dramaturgy, a chambering of orchestrated relationships away from the politically volatile, lived, identifiable vestiges of the city of Calcutta, where the films were apparently based. Clearly he was not interested in cinema in its broad, sweeping, spatial, throbbing, scopophilic largesse,¹⁹ but cinema that abjures its original scopic claims for a copious, sanctimonious, claustrophobic internality. One can surely demand this to be Ghosh's signature style, all the more because having struck gold with his first major film, Ghosh found it logical to repeat himself. But at the same time, it is important to locate his cinematic habitus in the wider cultural taxonomy of Calcutta/Bengal, for which one must critically analyse the limitations of his style. And moreover, as I have tried to show, his style is not foreign to the appeal of his films, their commercial viability with a class that Ghosh has unfailingly addressed and repeatedly mined.

Consider *Dosar*, an otherwise luminous film in monochrome, made in 2006. The premise of the film is promiscuity, as are in many of Ghosh's films. On his return from a rendezvous outside the city with his girlfriend, Kaushik's car meets an accident that injures him brutally and kills his companion Mita. The accident forces Kaberi, Kaushik's wife, into a split: between her *duty* to nurse her husband and the emotional detachment his infidelity provokes. Needless to say, this is as chambered a dramatic material as it could be and Ghosh makes no effort to exercise any other option. The result is that after a full decade after *Unishey April*, one sees the same film all over again: two

characters drifting apart in intimate space, confrontation, near-breakdown and then sudden reconciliation, every fault-line evoked in aching domestic detail.

Ghosh's fourth film *Asukh* had pushed this tendency of detailing to its extreme. In this film, a successful actress, while slowly coming to terms with the supposed infidelity of her lover, starts to suspect her own father when her ageing mother's protracted illness hints momentarily at the possibility of immunity-deficiency. Her fears are not only proved erroneous but she comes across as no more matured than an irritating and fidgety adolescent, throwing accusations as easily as owning up to her mistakes. But the film's real failure was in its inability to salvage the thinness of the story which Ghosh had forcefully stretched into a two-hour chamber-drama. Devoid of any real sense of tension and any real empathy for the grim-reaping protagonist, the film seemed like a silly, tiresome medley of dimly-lit scenes with a meticulous, obsessive attention to the banalities of everyday life. Such tender attention to pointless detailing as seen in *Asukh* and *Dosar* may remind one of French avant-gardist Chantal Akerman. However, like Bergman, the association is fortuitous, because Ghosh is incapable of either intellectualizing loneliness or forging an experiment of layered time, both actual and cinematic.

Even when his camera does manage to tread outside the four walls of designer bedrooms, the city is usually empty, devoid of its humungous humanity, almost deserted. In *Dosar* for example, the city emerges only as passing scenery from a taxi, that too only around the total emptiness of the green space in the heart of the city. Another scene *set in the city* is when characters from a subplot hotly debate the state of paralysis in their adulterous relationship (again), on an empty stretch on the bank of the river Hooghly. In another scene, Kaberi, while waiting for her husband to emerge into consciousness, waits in the hospital corridor while outside a solitary corporation waste-van glides down an abandoned road. So conspicuous is the effort to depopulate the outdoor that it raises serious curiosity and concern about what kind of city Ghosh's narratives engender.

Dahan a film about sexual assault, marital rape and the luridness of legal scrutiny has a similar visual distance from the city. In this film, the camera sets out to capture a small stretch of the city, empty and barren again, only when Romita, the assaulted woman, writes confessional letters to her sister in Canada. 9, Golf Club Road, the address of her in-laws and the site of most of the drama in the film, remains just an address, unqualified by any specific detailing, any neighbourhood and any real, physical habitation. Except some minor scenes, the film largely moves between the home of Jhinuk, a conscientious school teacher and Romita, the housewife and battered woman of the assault. Their embattled lives as the saviour and the saved become the crux of the drama. Here too, like *Dosar*, the drawing room, the bedroom, the lighted premises of the elite clubs and restaurants, the chatty school classroom and the daunting confines of the courtroom become metonymic of the city itself. Even the pivotal scene of the assault of Romita and her husband remains clumsy, to say the least, with Ghosh preferring to narrate the sequence of events mostly through the gaze of apathetic passers-by sitting *inside* vehicles till Jhinuk, comes to the rescue. Unlike his other films of the time, *Dahan's* dramatic potential, because it was based on a true incident and a popular novel based on that event, had saved the film from becoming another innocuous pontification on promiscuity.²⁰ But that did not mean that the film could evolve into a realistic commentary on the city's hidden but festering sleaze and its overwhelming parochial and patriarchal authority. Like its peers, *Dahan* too triumphs in its obsessive love of the interior space to create the necessary dramatic tension, thanks to which the arrogance of sexual crime and the legal impunity offered to the well-heeled remain foreign to a frame confined to sequestered,

isolated moments. The film never manages to spill out into the city, contributing to its larger meaning-making process.

In *Shubho Muharat* a film inspired, this time officially, by Agatha Christie's Miss Marple whodunit *The Mirror Cracked from Side to Side*, Ghosh continues with his usual concerns. This time the narrative 'justifies' his logic of concealed space because the Indianized version of Miss Marple, unlike her original, never leaves her home. In the original story, Marple does visit the scene of crime, Gossington Hall. But in keeping with Ghosh's dogged logic of internality, Rangapishi (Marple) is denied that. She spends all her time at home, picks up her cues from television, film magazines and newspapers and uses the information gathered by her journalist niece to crack the case. In fact, Rangapishi's *homebred* intelligence is a special highlight of the film's drama, which tries to juxtapose her eye for detail from *within* the confines of her home with the cavalier inquiry of the police, who keep missing out on clues.

In this film too, all possibilities of contact between the characters and the city are severed. The city is banished into a vast unknown, kept outside the closed doors in carefully arranged confinement of the rooms – be they the house (or houses), the film studio or other, inevitably refined interiors. One scene in the film becomes symptomatic of this tendency. While on a date with a police officer, who is investigating the case, Rangapishi's niece Mallika parks their car in an open space in the city only to recoil in horror when poor children accost them for alms. They readily pull up the windows of the car and move out. Clearly, even if Ghosh's comfortable, bourgeoisie space unlocks itself for a moment, it takes no time to recoil into its sequestered interiority and locks out the dirt of the city's nether apparitions.

In *Utsab*, Ghosh apparently manages to create a site that is more intrinsic to its plot than others.²¹ *Utsab* is located outside the city in an old mansion that has seen its better days. Here during the four days of the Durga Puja, a family gathers every year. Their mother is the sole inhabitant of the mansion. The film opens with the hint that the house, the last, residual connect between the members of the family scattered in various parts around Calcutta, could be sold to a cousin. Ghosh repeats the close-fitting scenario again (not for a single frame does the camera leave the house) but this time with a mythological design: the matriarch and her two daughters and two sons are like the goddess Durga who visits the earth with her four children. The earth – the goddess's home for the four days of festivity is signified by the house, the ancestral *bhite*, of Bhagabati, the mother. We learn that a cousin who on allegation of an incestuous affair with the elder daughter, was banished from the house years ago, now wants to buy the house. The situation is further complicated by the current crises that each sibling is facing – the odds and ends usual to the aspirational middle classes: insecurity at the workplace, vacuous mid-life meddles, unhappy marriages, or funding the children's education. A hint of incest, between cousins now growing up, hovers again around the house while the one of the past, that was erased, comes back. The tensions, however, are resolved rapidly as festivities come to an end. The house is saved for the time being and fractured relations are, even if temporarily, restored.

V

The total absence of the City in *Utsab* and the endless references to the power it exerts over the family is symptomatic of Ghosh's larger world view. We have tried to see how in film after film, Ghosh's characters seek to freeze the contours of their confines, declare external agency unwarranted, and deny any associative reference to the world at large. And yet in his films, the *city* repeatedly seduces, weans away, provokes and petrifies,

ushers in fractured aspirations. However the *city* is also conspicuous by its absence, severely banished, circumscribed, and almost always stopped at the gates.²² But why is Ghosh so obdurate in making any allowance to anything that is external to his confined environs and to the middle-classes' selfish needs?

The answer perhaps lies in *Utsab*. In this film, by substituting the *mythical earth* for the *confines of the home*, Ghosh's reversal of the *home and the world* is total. And this *home* is marked by its non-denominational physicality, like a play, where the space is determined by the square-foot of the stage, where characters converse on a seemingly endless loop, where props stand in as signifiers of external objects, where painted walls and pasted papers signify the absent weight of *the city*.

But what does one mean by mining of the needs of the middle classes? One way of connecting selfishly to the city is to have the utilities taken care of. In Ghosh's films, the *needs* of the professional middle class are fulfilled by a retinue of service people: chauffeurs, maids, baby-sitters, nurses, sweepers, watchmen. They are always in the shadows of Ghosh's dimly lit chic interiors, always an unquestioning, servile presence behind the burgeoning consumer needs of the middle-class which foreground his narrative and aesthetic spaces, spaces which in itself are a catalogue of merchandize and riches made available to the newly moneyed middle classes. This is the height of the consumerist ethic that was unleashed by neo-liberalism, an ethic in which there is both an unquestioning enforcement and a self-congratulatory *jouissance* about the efficacy of capital to monetize not just goods but also relationships and services.

The other motif of the city's metonymic presence in Ghosh's films is the telephone. In every early film of his, the telephone is the link to the external world. Its presence is not just constant but almost imperative, like a narrator that creates and resolves tension in the film, disrupts and heals. The dependence on the telephone sometimes becomes so obsessive and ostentatious that one wonders if his films are located in a mythic space, a sort of cinematic outback where the telephone brings in the news from a world afar.

Hence Ghosh's city, if any, is *not* Calcutta, contrary to his many claims. His films, non-denominational as they are, can be based anywhere as long as there is a telephone. This is the Calcutta of the post-90s, fuelled by real estate boom, luxury condominiums, and protected habitations. To extend Gyan Prakash's argument about the 'urban turn'²³ in the Indian context, this was a moment when the middle class finally and fully uncoupled itself from seeing the city as part of any nationalist imagination. The new bourgeois city, as Partha Chatterjee argues,²⁴ grew outside the sphere of 'the governed' and sought to provide a new urbanism that is in service of neo-liberalism through a utilitarian exchange of monetized functions and services available for purchase. As Chatterjee writes, 'The idea of what a city should be and look like has now been deeply influenced by this post-industrial global image everywhere among the urban middle classes in India. The atmosphere produced by economic liberalization has had something to do with it. Far more influential has been the intensified circulation of images of global cities through cinema, television and the internet as well as through the Indian middle class's far greater access to international travel. Government policy, at the level of the states and even the municipalities, has been directly affected by the urgent pressure to connect with the global economy and attract foreign investment'.

If the Bengali cinema of the '80s and early '90s *turned away* from the metropolitan consciousness to invoke a fractious provinciality, Ghosh's cinema turned unctuously *inward*. The reverse-image of the desired city replaced the actual. The global network of services and functions that the middle class increasingly aspired for was levied as something that the lower classes and the poor were supposed to provide. In the new world

order of the 90s, the desirous subjectivity that the middle class nurtured was entirely dependent for its instrumentality on the needs and riches that the market economy had ushered. In Ghosh's cinema, the dividends of *becoming* the newly globalized middle class were clearly laid out in the production of interior space which could be controlled by carefully orchestrating the *entry* of the undesirable. Hence, by interchanging the *home with the world*, Ghosh is merely repeating the biggest fantasy of the neo-liberalized, a-politicized middle classes²⁵: to reduce the physical, actualized space of the city into an entourage of metonymic devices and payable services. All other links to the city are consciously minimized if not obliterated; even the need for movement or mobility. This is the middle class of the gated housing estates in which a lifetime worth investment is in keeping the vagaries of the city out of sight and its grime out of bounds. The sizeable attraction of his films for the middle class is precisely because it successfully feeds into this fantasy. It is precisely again in this sense that the absent *homeland* of part of his audience – those who have lived a substantial part of their life outside Calcutta and other metropolitan centres of Bengal – becomes realizable. The posh rooms and other privileged settings of familiar emotional traction appear more recognizably anywhere-territory to this demography which would otherwise shudder to drop their feet on the onerous dirge that is Calcutta. They do want to connect to their so-called *homeland* but only in their own way, only through signifiers that feed into their collective ennui about the real, embodied, city.

In this sense the *home* in Ghosh is not a parallel form of habitus in the world but its *other*. Home is the new middle class accumulation – not just a private but a *privatized* property. This repeated investment in privatized non-space, the aesthetic truisms and the unproblematic alliance with middle class fantasy is what forbids Ghosh's films from finding acquaintance with either Bergmanesque minimalism, or the economy of objects as in Ackerman, or in the several superlative movie experiences that the idea of confinement has produced.²⁶

The notion of confinement as serialized in Ghosh's cinema provokes a far more damaging indictment of his oeuvre than can be easily understood. The *home and the world* has much bigger implications in Bengali cultural history and memory, the name obviously referring to Tagore's classic work about the arrival of modernity in colonial Bengal and its conflict with vulgar nationalism. The same theme resonates in Ray's *Charulata* (or Tagore's *Nostoneer/The Broken Home*) and *Mahanagar* (The Big City), where the idea of the city as a liberating space is set against the doctrinaire orthodoxy of the *home*. Undeniably, in both Tagore and Ray, the *home and the world* are not equipose but necessarily indicators of spatial progress, of movement from *former to the latter*.²⁷ This idea has hence garnered a deeply embedded cultural logic in Bengali and even Indian cinema. A serious filmmaker should have been, ideally, aware of what he might risk by making his films politicize domestic confinement and displace the city. By reversing the idea of *home and the world*, Ghosh, who has always made claims of strong cultural kinship to both Ray and Tagore, is actually *reversing* the legacy of liberty as engendered in space. If his films are essentially 'feminine' narratives, as has been repeatedly argued, doesn't his kind of feminism forfeit any claim for the public space, the space in which its demands are most regularly violated? What kind of modernity does this femininity propound in a confined, sequestered, privatized space? By forcing the public space to be confronted within the liminality of the private, Ghosh's early cinema ends up deeply problematizing the foundational idea of women's politics itself. In trying to critique dominant modes of phallogentrism, do Ghosh's films not threaten to become their impenitent apogee? If nothing else, this in itself should provoke us to rethink Ghosh's legacy as a protrusive artiste.

Notes

1. For a detailed exposition on the trappings of Indian popular cinema, especially in its proclivity to narrativize an imagined Indian national space, see Gokulsing and Dissanayake, *Indian Popular Cinema*. A more sophisticated theoretical discourse is available in Vasudevan, *Meaning Making in Indian Cinema*.
2. The popular-art cinema divide is always fraught with conflicting ideas because though it was somewhat an applicable duality till the 90s, the division over the next decade or so became doubtful, thanks to money that came the way of 'art' cinema and the talent that came the way of popular cinema, two things they were said to be mutually lacking in their past incarnations. In Bengali cinema, critically speaking, this division is even more unreliable on account of the presence of a top actor like actor Uttam Kumar or filmmaker like TapanSinha, who effortlessly juggled and achieved considerable success with both.
3. For a detailed analysis of Kumar's early career and the conflicted modernity of the melodrama form that dominated his early films, see Nag, "Love in the Time of Nationalism".
4. For more on Kumar's cinema and his continuing cultural deification, see my essay "The Heroic Laughter of Modernity".
5. See my essay, "Power to the Bourgeoisie".
6. There is no quantifiable reference for this claim. However if one looks at the history of production of the 'art film' in Bengal since mid-1970s, it becomes clear that the Bengal government backed a significant number of 'serious' films in the next decade or so. The national equivalent of this norm were the films produced by National Film Development Corporation (NFDC) and the fact that Bengali 'serious' cinema was *not* patronized by NFDC but the Bengal government is evident in the fact that none of the NFDC produced films were in Bengali (but had several other regional languages in its repertoire).
7. Exceptions such as Gautam Ghose, Aparna Sen and Buddhadeb Dasgupta were not significant to cause any ripple in the radar.
8. For a nuanced discussion about the *television* of broadcasting space and the emerging discourse around a de-nationalized scopic regime, see Vasudevan, "National Pasts and Futures". Vasudevan writes: 'A complex historical account of the changing patterns of film production and its constituencies would bring into focus the ever more complicated map of diversity and overlap in India's contemporary audiovisual sphere. It is here, in the efflorescence of new systems of delivery, especially satellite relays and cheap cable networks, that a picture of the future seems most radically presaged. In a context in which cheap cable access is still beyond the reach of a substantial part of the population, India's state television, Doordarshan, still dominates the field through its extensive network of terrestrial broadcast. But satellite channels relayed through cable command very substantial viewerships in India's populous cities and small towns and amongst the well-to-do in the countryside'.
9. The so-called art cinema movement in the 1970s was largely public funded but not every serious film before or after was made with public money, and, private financing existed even at that point. Liberalization however greatly extended the scope of private capital.
10. For a critical understanding of the various turns in the history of Bengali cinema from its early years, see Gooptu, *Bengali Cinema*. Apart from being the first serious academic study of the whole history of cinema in Bengal, Gooptu is also keenly attentive to its attendant dualities and disjunctures.
11. The appropriate English title of this film remains elusive. The title refers to a practice in Indian cinema of launching a film on an auspicious day. The film plays on the semantic possibilities of *auspicious* but English titles in circulation like 'The Beginning', or 'The First Day of Shoot'; cannot hope to highlight that irony.
12. For a detailed theoretical exposure of *Bombay/Mumbai* in cinema, see Mazumdar, *Bombay Cinema*, and her detailed treatment of the 'unintended city' and the 'unreal city' in Indian contexts as against studies of the archetypal cinematic metropolis in the West.
13. Shaikh, 'Rituparno Ghosh and the 'Intellectual Film' in India'.
14. This claim follows Ghosh's trajectory from 1994 to 2006. However *Bariwali* (1999) *Titli* (2002), *Chokher Bali* (2003), *Raincoat* (2004) and *Antarmahal* (2005) are kept out of the discussion for the fact that they are either period pieces or set mostly outside Calcutta. It is worth noting however that the dividing line between his early cinema and his so-called late cinema (post-2006) is not necessarily clinical and there are, as is mostly the case, obvious

- overlaps. However, the concerns of his cinema did change over the years and the change was unfolding rapidly at the time of his untimely death.
15. Bakshi, "My City Can neither Handle Me nor Ignore Me."
 16. For a detailed thesis on how the television and its audience construct each other, see Gray and Lotz, *Television Studies*. Gray and Lotz write: 'As much as television programmes matter much of their importance is only felt in as much as there is an audience in the first place. To say a programme "does" or "means" something is to assume it does so to an audience. We might often convince ourselves that commercial television is the business of creating and selling *shows* but in truth it is the business of creating and selling *audiences*' (p.58).
 17. By cinematic space I mean a space whose scopic range is unlimited and open ended as against theatrical space whose range is limited by its proscenium practice. For more detailed understanding of use of city space as cinematic space, see Shiel and Fitzmaurice, *Cinema and the City*. For more pertinent discussions on Calcutta see essays by Moinak Biswas, Supriya Chaudhuri and Sudipto Kaviraj in Kaarsholm, *City Flicks*.
 18. I use *new* to denote a series of films that consciously belonged to this particular cultural and ideological formation of the middle-class. There are of course older specimens of chamber drama in Bengali and Indian cinema but Ghosh's films are different and form part of a broader, neo-liberal construction of identity of the new middle class post liberalization and globalization.
 19. There is no denying that cinema's relationship with modernity is highly contingent upon its purchase as a medium of extraordinary visual scope, a purchase which has given a normative understanding of cinema.
 20. See a detailed discussion of this film in Mukherjee, 'Feminism in a Calcutta Context: Assault, Appeasement, and Assertion in Rituparno Ghosh's *Dahan*'. Also see Macdonald "Real and Imagined Women".
 21. Unlike the other films discussed where each house could be any house, the old, airy, decaying, colonnaded mansion, with its long corridor and neatly separated spaces for living, relaxing, cooking, eating and receiving guests assume a character of its own.
 22. Among other things the city makes itself present through a series of sounds – the cries of peddlers, songs played at local Puja festivals, horns of cars and bicycles.
 23. Prakash, "The Urban Turn," 2–7.
 24. Chatterjee, *The Politics of the Governed*, 143–4.
 25. Moinak Biswas's Bengali essay, "Neo-Bhadrolok Darpan", (Mirror of the neo-bhadrolok) in *Baromash*, a Bengali journal published annually, critically discusses this idea in detail. A concise form of his argument has recently appeared in his essay 'Rich Tradition'. The following quote is from the online edition: 'The new middle-class cinema of the post-economic reform period, on the other hand, has developed a thoroughly apolitical character. Realism continues to be a yardstick for the latter, but curiously, it is now a realism committed to the details of the new urban interior and spaces of consumption opening up for gated communities. The signs are clear: it is the television screen that now stands as the spectral mediator for self-reflections of a class. It seems not only to be using those chamber reflections for closing off larger dimensions of reality, it also betrays a happy ignorance of things happening in the cinema outside'. (Accessed 3 October 2013). I have tried to further his argument in trying to define the said cinema, its ideological, spatial and aesthetic concerns in terms of confinement and interiority.
 26. The cinema of confinement has also produced some of the finest specimens of world cinema: *12 Angry Men*, *The Fireman's Ball*, *Taste of Cherry*, *Last Year at Marienbad*, *Russian Ark*, *Dillinger is Dead*, *Persona*, *Jeane Dielman*, *Wait Until Dark* etc. But it is impossible to trace any of the effects generated by these films in Ghosh's cinema, both in terms of narrative and aesthetic practice.
 27. Satyajit Ray's cinema is too heterogeneous and multi-referential to make allowances for any singular claim about his narrative patterns. It is beyond the scope of this essay to deal in great detail about the same. However it would be sufficient to claim that Ray's cinema manages to avoid any kind of straight-jacketing as far as his female protagonists are concerned. Ray excelled in crowding the visual and locational motives of his protagonists, ennobling them with a heightened sense of humanity and cultural referentiality. His *Mahanagar* is a case in point. His *Home and the World* is perhaps the only film in which, adapting Tagore's locational imperative, he heightens the effect of space as an engendered identity. Otherwise interiority was

not a given locale of his female protagonists but a site of serious intellectual enquiry itself, a space that Ghosh, perhaps unwittingly, manages to politicize as essentially female.

Bibliography

- Bakshi, Kaustav. "My City Can neither Handle Me nor Ignore Me: Rituparno Ghosh in Conversation with Kaustav Bakshi." *Silhouette: A Discourse on Cinema* 10, no. 3 (2013): 1–12.
- Biswas, Moinak. 2013. "Rich Tradition." *Frontline*, October 2. <http://www.frontline.in/arts-and-culture/cinema/rich-tradition/article5189802.ece>
- Biswas, Moinak. "Neo-Bhadrolok Darpan." *Baromash*, 32 (2011): 1–19.
- Chatterjee, Partha. *The Politics of the Governed: Reflections on Popular Politics in Most of the World*. New York: Columbia University Press, 2004.
- Chowdhury, Sayandeb. 2011. "Power to the Bourgeoisie." *Caravan Magazine*, December 1.
- Chowdhury, Sayandeb. "The Heroic Laughter of Modernity: The Life, Cinema and Afterlife of a Bengali Matinee Idol." *Film International*, Fall Issue 10, no. 4–5 (2012): 82–91. doi:10.1386/fint.10.4-5.82_1.
- Gokulsing, K. Moti, and Wimal Dissanayake. *Indian Popular Cinema: A Narrative of Cultural Change*. Straffordshire: Trentham Books, 2004.
- Gooptu, Sharmistha. *Bengali Cinema: An Other Nation*. Oxford: Routledge, 2010.
- Gray, Jonathan, and Amanda. Lotz. *Television Studies*. (Short Introduction Series). Cambridge: Polity Press, 2011.
- Kaarsholm, Preben, ed. *City Flicks, Indian Cinema and the Urban Experience*. Calcutta: Seagull Books, 2004.
- Macdonald, Alison. "Real and Imagined Women: A Feminist Reading of Rituparno Ghosh's Films." Working Papers, March, Department of Anthropology, University College London, 2009.
- Mark, Shiel, and Fitzmaurice Tony, eds. *Cinema and the City: Film and Urban Societies in a Global Context*. Oxford: Wiley-Blackwell, 2001.
- Mazumdar, Ranjani. *Bombay Cinema: An Archive of the City*. Minneapolis: University of Minnesota Press, 2007.
- Mukherjee, Srimati. "Feminism in a Calcutta Context: Assault, Appeasement, and Assertion in Rituparno Ghosh's *Dahan*." *Quarterly Review of Film and Video* 22 (2005): 203–210. doi:10.1080/10509200490474302.
- Nag, Dulali. "Love in the Time of Nationalism: Bengali Popular Films from 1950s." *Economic and Political Weekly* 33, no. 14 (1998): 779–787.
- Prakash, Gyan. "The Urban Turn." In *Sarai Reader 02: The Cities of Everyday Life*, edited by Ravi S. Vasudevan, Jeebesh Bagchi, Ravi Sundaram, Monica Narula, Geert Lovink, and Shuddhabrata Sengupta. Delhi: Sarai, CSDS+ The Society for Old and New Media, 2002.
- Shaikh, Nermeen. "Rituparno Ghosh 'Intellectual Film' in India, 2005." Accessed September 5, 2013. <http://asiasociety.org/arts/film/rituparno-ghosh-and-intellectual-film-india>
- Vasudevan, Ravi S., ed. *Meaning Making in Indian Cinema*. Delhi: Oxford University Press, 2000a.
- Vasudevan, Ravi S. "National Pasts and Futures: Indian Cinema." *Screen* 41, no. 1 (2000b): 119–125. doi:10.1093/screen/41.1.119.

Historiography sans History

A Response to Tirthankar Roy

ARINDAM BANERJEE, CHIRASHREE DAS GUPTA, SURAJIT MAZUMDAR

Responding to Tirthankar Roy's article "The Economic Legacies of Colonial Rule in India: Another Look" (EPW, 11 April 2015), which reinterprets the economic legacy of British rule in India, this article critically interrogates the relationship between ideology, perspective, and method in an emerging strand of economic history. This strand tries to make history writing on colonialism consistent with the rationalisation(s) of contemporary globalisation. This article traces the ideological basis of "neutrality," explores the conceptual and historical fallacies of the "openness" paradigm, and assesses the methodological inconsistencies of cost-benefit analysis in the historiography of reinterpretations of colonialism in India.

Arindam Banerjee (arindambjnu@gmail.com) is a faculty member at the School of Liberal Studies, Ambedkar University Delhi. Chirashree Das Gupta (chirashree@gmail.com) is a faculty member at the Centre for the Study of Law and Governance, Jawaharlal Nehru University. Surajit Mazumdar (surajit.mazumdar@gmail.com) is a faculty member at the Centre for Economic Studies and Planning, Jawaharlal Nehru University.

Tirthankar Roy "The Economic Legacies of Colonial Rule in India: Another Look" (EPW, 11 April 2015) in taking "another look" at the "economic legacies of colonial rule in India" argues that British colonialism fostered India's openness to the inflow of ideas, skills and knowledge from Britain, which served India well in terms of new institutions and the overall "modernisation" of the economy. This was supposedly achieved through the military-fiscal state, started by the East India Company, and consolidated by the British Crown after 1858; and the integration of sea-trade by the British on a world scale, leading to "early globalisation."

The former is claimed to have politically unified the Indian subcontinent like never before, while the latter integrated India within the global economy. "Openness" increased commercialisation, which allowed the survival of artisanal skills, and led to a reorganisation of the handicrafts sector on more efficient lines. This was one of the main benefits that India accrued, apart from cosmopolitanism, modern English education and investments.

The costs of acquiring such benefits were also modest, and not as claimed in nationalist and Marxist writings. Dadabhai Naoroji's theory of drain is deemed to be the "price India paid to tap into a mobile market for skills and capital" (imports which India could not have done without) which enabled "extraordinary" industrialisation from the mid-19th century to independence, for which otherwise the conditions did not exist. Roy's aim to "reiterate the virtues of openness" has contemporary significance since the "misreading" of the consequences of British rule by nationalists is held responsible for the "retreat from openness" that descended on India after independence till 1991.

Using Roy's article as an entry point, this article offers a critical examination of the relationship between ideology and perspectives in economic history, and the concomitant debates on methodological approaches. In particular, it probes the methodological basis of aggressive resurrection of liberal imperialist historical thought on colonialism which seeks consistency with the rationalisation of contemporary globalisation. The emphasis on the virtuous implications of openness for economic development makes it imperative to re-examine what openness means, and its historical relationship with capitalist development. Finally, a reassessment of the "costs and benefits" of colonial rule in India taking Roy's arguments into account leads us to a more fortified comprehension of the material legacies of British rule in India in connecting the past and the present.

Ideology, Perspective, Method

The role of ideology in economic history writing is evident from Roy's self-characterisation:

Economic history of India as a field emerged as a tool in the service of economic nationalism. That original link is still strong. I see my work as a critique of that brand of economic history that comes pre-loaded with patriotic sentiment. Doing the history of India is an enterprise to free the past from political narratives (Roy nd).

The asymmetry in this statement—the effective denial of not only the existence but also the possibility of any interpretation or narrative of Indian economic history serving imperial imperatives—is stark. A historical method which renders oblivious such imperial necessities but enables one to see how imperatives of nationalism influence the interpretation of history, leads to two outcomes. First, the method considers the enhanced flow of ideas under colonialism as a distinct "positive" for the colony without recognising that this inflow also included ideas about the imperium and the society that it dominated which would serve its political purpose. Second, one ends up summarily ignoring the crucial role that material dominance plays in determining dominance

in the world of ideas. Thus the argument that much of Indian economic history scholarship is motivated by nationalism and has created a “narrative trap,” which has served economic history poorly in order to advance a political agenda, can itself be seen as caught in the narrative trap of its own historical approach.

The very basis of the question “did the Empire, on balance, modernise and develop the regions that it ruled, or left them poorer than before” has been the preoccupation of British liberal imperialists since Adam Smith’s first full-fledged exposition of this question in 1776 in *The Wealth of Nations*, published a year after American independence. The assertion that Indian economic nationalism’s joining the “study of history with a political battle that served politics very well but history rather badly” (Roy 2015: 52) suggests a wilful ahistoricity which has three dimensions.

First, the link between politics and history in the contestations of economic nationalism is held as specific to India, quite oblivious to the role of political freedom as the basis of economic nationalism in the making of not only the United States (us) and Germany, but also the “success stories” of erstwhile colonies like South Korea and practically every sovereign nation state that emerged through anti-colonial struggles (Chang 2002). It is peculiar that the argument acknowledges that nationalism and the critique of colonialism emerged in response to imperialism and its actual experience (and not the other way around), but fails to recognise either any nationalism with economic content in capitalist colonialism itself or the economic nationalism(s) that emerged much before it took root in India and countries that followed Britain along the path of industrialisation. Instead of thus seeing economic nationalism in India as a specific outcome of its distinctive history, the argument becomes based on the logic of “incorrectness” in the interpretation of history. But, the “correct” interpretation put forward falls prey to inconsistency and denial.

Second, it proposes that the historical has to be free of the political. The political is visible in all other historiography traditions except the one posed as correct.

It implicitly suggests that the political is “bad” and the historical is “good” conforming to the contemporary neo-classical false dichotomy between the political as bad and the economic as good. The neoclassical techno-economic paradigm is based on a very limited range of toolkits that come in binaries of bad and good—public (evil, inefficient, corrupt, political, state, social) and private (good, efficient, transparent, economic, market, individual). The false dichotomy between politics and economics is a fundamental ideological precept in this etymology, which is now being extended to history in general and economic history in specific (Das Gupta 2010).

The third dimension lies in the huge temporal leap in the fetishised characterisation of the “old” and “new” where the old is located in 1901–02 (the two works by Naoroji and R C Dutt) and the new which is traced to new institutional economics (NIE) and the contemporary imperial strand of Anglo-Saxon historiography, both of which can be dated to the 1980s–1990s. While there is ambiguity towards NIE and admiration for contemporary Anglo-Saxon historiography, both have in common “the idea of neutrality.”

Why This Ahistoricity

The devastating consequences of such neutrality in the moral spectacle and political ecology of the British Empire have been extensively documented (Dirks 2006; Davis 2001). NIE’s “faith in superiority of European institutions” considered to be new is also at least 240–years old. Adam Smith had contended in 1776 that the superiority of the British state and the inferior institutional quality of company rule made all the difference between North America and India. Neither the “people” of India nor the American “people” seemed to have liked that “idea” and this was demonstrated in the events of 1857 and 1775, respectively.

Why is this giant leap of ahistoricity necessary? The economic history of India was not cryogenically frozen between 1902 and the 1990s, but there is not a single reference to any history writing in 20th century India. The reason is the “vexation” that narrative history writing on India is based more on indigenous

agency than European agency. This is a resort to burlesque about the diverse and contested historical scholarship on India and in India with no references at all except to a handful of Anglo-Saxon historians. This could have been avoided by engaging with the rich material that has informed Indian history writing all through the 20th century in which “agency” has been problematised in many different ways (Sarkar 2002). Arrogant denial as an old colonial legacy is evident in the statement that “few original works were published in the field of empire and development in the last 20 years after the last major works by the Monthly Review Press collective” (Roy 2015: 52). Micheal Hardt and Antonio Negri’s *Empire*, and E M Wood’s *The Empire of Capital*, by way of example, were both written in the last two decades.

Nationalist and the Marxist interpretations of Indian economic history are collapsed seamlessly into one.¹ The only explicit reference to Marxist interpretations is to the dependency theorists of the world-systems school and that is only to trivialise the Marxist concept of exploitation. That Marxist historiography in India and on India continues to be a highly contested terrain in which sharp engagement and critiques of dependency theory have been central to the departures,² finds no mention.

In a teleological sweep, all Marxist writing is castigated for focusing on exploitation as the basis of capitalism and not on its “innovative propensity.” It is contended that “exploitation cannot be the definition of capitalism” as if that is how Marx defined capitalism. Schumpeter’s focus on “innovative propensities” is resurrected (without due reference) to present another old idea as new and without the saving grace of his acknowledgement to Marx’s analysis of capitalism, which was based on the dialectical relationship between “productive forces” and “exploitation.”³ Exploitation in the Marxist sense has characterised pre-capitalist societies and capitalism’s distinctiveness lies in its specific mechanisms of exploitation. Exploitation in capitalism mutually and inseparably constitutes both exploitation within nations and the process of exploitation of nations by

other nations. Neither of the interpretations is acknowledged or engaged with. Instead, the straw man fallacy prevails.

A false dichotomy is evident in the implicit understanding of philosophical traditions in the classification of liberalism and utilitarianism as two tightly compartmentalised and oppositional strands. These two traditions have historically not only drawn from each other but the liberal roots of utilitarianism and the utilitarian roots of liberalism are inseparable (Lloyd Thomas 1980; Hardin 1986). Despite this, utilitarianism is often presented as distinct from liberalism because of two reasons. First, this differentiation provides a cosy continuum of the false binary between economic (utilitarianism) and political (liberalism) philosophy. Second, utilitarianism forms the foundations of the method that Roy has internalised—cost–benefit analysis. The fallacies of this method are many and the Kelman–Solow exchange is instructive here, especially on the intangibility of costs and benefits which relates directly to Roy’s understanding of “benefits” from skills and knowledge.⁴ But the biggest problem lies in the precept that as long as benefits outweigh costs, the phenomenon under assessment is favourable even when it is acknowledged that those bearing the costs and those benefiting may be different. The ethical compunction for practitioners of the method is eliminated through the separation of the abstract economic from the concrete social.

A ‘Peoples’ History

The greatest twist of ideological jugglery comes in the notion of the “people.” People-centred history and the agency of the people and people–nation have been one of the battlefields of historiography in the 20th century—on the question of what drives social transformation and change. The radical tradition(s) in history writing (Marxism being only one important constituent) for much of the later part of the 20th century moved to people-centric history rejecting state-centric approaches.⁵ Roy eulogises the people as the source of ideas, openness, innovation and change but his people are very different from those

in the radical tradition—they are the settlers as carriers of useful knowledge, skilled immigrants from Europe and the rising class of Indian capitalists. The rulers are the people in this epistemic appropriation of not just concept but also agency. If this is not an exercise in politics and ideology, what is?

From the general problems of the historiography and ideological precepts that Roy relies on, we now move to a few specific problems with his method. A series of conceptual and methodological fallacies follow with conflation of historical time, a fallacious methodological approach to causality, and the inconsistent use of data.

For example, Roy (2015: 54) argues that “India had free trade thrust upon it and yet it specialised in agricultural exports to a more limited extent than most tropical countries.” This is presented as a stylised fact based on the assumption that tropical countries should be exporting primary commodities irrespective of historical time. For which period of India’s colonial past is this assertion valid? If this is a reference to the early period, then the fact is explained not by geographical teleology but by the extent of development of both manufacturing and trade in the Indian subcontinent (Habib 1969a). In 1800, the Indian sub continent accounted for 19.7% of world manufacturing output. In 1900, its share was 1.7% (Bairoch 1993).

Fallacious method is also evident in the attempt to show that the colonial government was a “small government” and keen to maintain an open economy compared to the government in independent India. Roy asserts this on the basis of one time point, 1931, and two ratios: tax–gross domestic product (GDP) (3%) and public expenditure–GDP (5%). This is compared to 1981 when government expenditure was 22% of GDP in India, an increase that in fact would be observed for any government if those two specific years 1931 and 1981 were taken as points of comparison.⁶ Roy thus does away with both linear and historical time by using one time point to generalise over at least one century and comparing with another time point a good 50 years later—in which the

preoccupations of the government in India have changed substantively in content and context, not to mention the differences between the colonial and the independent Indian state. This is despite Roy borrowing the critique of NIE for having compressed history into two dates, one which is the cause and the other the effect leaving hundred years in between unaccounted for.

In any case how can 1931, when the colonial government was hardly interested in an “open economy” of the free-trade kind and had erected an elaborate system of racially discriminatory tariff protection⁷ (Tyabji 2000), be a reference point for openness? The tenuous causal link between small government and open economy would not stand the test of time also for South Korea—the poster boy of the openness tradition (Cornia 2014).

How does expenditure–GDP ratio indicate the size of the state? Here is the most banal conceptual conflation derived from the dominant neoclassical instrumentalist approach to the state—the state and government collapse into one. The colonial state is what the colonial government does, rather than an institution (in which the executive arm of the government and its bureaucracy are one of the many apparatuses) in a specific social and historical context. The government of the British Crown in colonial India was after all an extension of the overarching imperial state apparatus. Can the colonial state apparatus be understood without its fundamental links to the British state, which presided over an empire where different arms in different

Permission for Reproduction of Articles Published in EPW

No article published in EPW or part thereof should be reproduced in any form without prior permission of the author(s).

A soft/hard copy of the author(s)'s approval should be sent to EPW.

In cases where the email address of the author has not been published along with the articles, EPW can be contacted for help.

parts of the world were all geared towards the larger interest of maintaining social order, stability of property relations and contractual predictability of economic and political gains across the imperium (Wood 2003)? Why not estimate the size of that state in all its economic, social and political dimensions and then locate the Indian subcontinent's role in this giant enterprise? That methodological route is of course closed by the compulsions of closedness of ideology, perspective and method which (we shall see in the rest of the article) permeates the entire analytical framework of the ahistorical politics of imperialist historiography.

Openness, Economic Nationalism

The nebulous concept of "openness" constitutes the method's core. A O Krueger and Jagdish Bhagwati's attempts in 1978 to define a measure of trade orientation (bias) were based on the ratios of effective exchange rates of imports and exports. Krueger had then conceded that by this definition, it is possible to have a liberalised economy with very high tariffs, but two decades later abandoned her own proposition to argue that "growth prospects for developing countries are greatly enhanced through an outer-oriented trade regime and fairly uniform incentives...for production across exporting and import-competing goods" (Krueger 1997: 1). The ideology of free trade had trumped methodological rigour. Within neoclassicism itself, there have been very rigorous debates on the validity of the concept of openness, none of which informs the openness frame.⁸ Neither does the context of capitalism nor its uneven phases or levels of development in individual countries. However, the attempt to do history with the fundamentally ahistorical neoclassical framing of the issue runs into obvious inconsistencies in counterposing openness to economic nationalism as binaries.

To make the case that colonialism opened India to the flow of skills, knowledge and technology, one has to first establish that the subcontinent was closed to these in the precolonial period despite the networks of trade and commerce

that stretched across and through the subcontinent. If Roy accepts that many pre-British Empires in India also had a small government and unregulated markets, then why was British colonialism necessary to facilitate openness? The answer, that it alone had the ability to impose political unity on India and integrate her with the global markets, conflates market integration with openness—using the latter to deny the significance of the former.

The necessity-of-colonialism argument requires a number of counterfactuals to hold for the Indian case that were clearly not necessary elsewhere in the world. It would have to be true that in the absence of the political integration of India on a subcontinental scale and its subjugation by the British, in two centuries between 1757 and 1947 there would have been no possibility of either the subcontinent's history throwing up a "unification" of the German or Italian kind or for its different parts to be open to flows from Britain, in the sense many countries in Europe were in the 19th century without being integrated through the creation of a single centralised state. It further has to be assumed that Indians were fundamentally incapable of not only developing the skills that they came to receive through colonialism but also would have rejected them had colonial rule not forcibly demonstrated their value to them. The upshot of this people-centred history is that the people of the Indian subcontinent, left to themselves, would not have been capable of making any history unless colonialism endowed them with that ability.

Further, if such great significance is to be attached to the integration created through the construction of a British Empire for the flow of skills, how can the significance to the politically shaped character of that integration, and the totality of the flows and transactions it resulted in, be denied for explaining the polarisation that took place within the Empire? The flows were not unidirectional and were characterised by fundamental asymmetries. Other regions, which were relatively more autonomous of Britain and adopted economic nationalism were able to make more out of the flows

from Britain during the same period than India could despite being open.

If the argument is that India was not self-sufficient in possessing the conditions for industrialisation in 1850, the same could be said for every country at the point that their modern industrialisations took off, including Britain. It is also true that the development of modern factory industry in the 19th century in many parts of the world, and not just India, "gained" from the flows from Britain—which at the beginning of the century had a monopoly over industrialisation, went on to become the "workshop of the world" and ended the century as the largest exporter of capital even as the us and Germany had displaced it from leadership on the industrialisation front. The point is that they gained much more, and such a comparative exercise would not support any unadulterated adulation of openness over economic nationalism.

The sense in which the term "openness" is employed for the period after 1850 is with respect to a greater integration of the subcontinent with world trade under a liberal free-trade regime, argued to have an enabling effect on the Indian economy. However, this free-trade view of openness has an even more spurious linkage with development given the history of capitalist development across the world.

Protectionism is neither a product of economic nationalism as an idea that came with the decolonisation of the South, nor that of the 20th century import substitution industrialisation (ISI) policies. Trade protection in Europe has a long history going back to the medieval period. Early instances of this were the increasing discrimination against the Flemish merchants in the Champagne Fairs in the 13th century, including bans and exorbitantly high import duties (Abu-Lughod 1989). Without such protective measures French textile production stood no chance against the threat posed by the superior woollen textiles of Bruges and Ghent.

England fought the Hundred Years' War with France in the 14th–15th centuries vowing to protect the Flemish industries and merchants against French tyranny;

ironically the war ended with the irreversible decline of Flemish industries. The frequent English embargoes on wool exports to Flemish regions, especially those coming under French influence, were a widely used tool in the warfare (Abu-Lughod 1989). Apart from internal labour unrests, the decline of Flemish textiles was primarily because of the heavy duties on raw wool exports from England and ban on use of foreign cloth and the warfare over staple rights to trade in woollen textiles (Dobb 1946). All this effectively converted England from a raw wool exporter to the centre of woollen textile industry in Europe and led to the simultaneous collapse of the industries of Bruges and Ghent (Abu-Lughod 1989).

The lessons of protectionism leading to this initial success in securing manufacturing advantage over the already established Flemish industries through monopoly and restrictive practices were never lost on the English till the maturity of English capitalism. The subsequent charters in the 15th and 16th centuries incorporating large monopoly trade companies went a long way in facilitating adventures in the New World, unscrupulous plunders and the process of capital accumulation. The audacious idea of developing an industry (cotton textiles) with a raw material (cotton) that could not be produced at home gained currency in England with the acquisition of cotton-growing colonies in the Americas in the 16th century. That cotton textiles emerged as the leading industry later in the Industrial Revolution bears testimony to the fact that the foundations of capitalism lay in early colonialism.

Protectionism continued to remain an integral and necessary component of capitalism, mediated through colonialism, till the first half of the 19th century. H H Wilson observed:

It is also a melancholy instance of the wrong done to India by the country on which she has become dependent. It was stated in evidence [in 1813] that the cotton and silk goods of India ... could be sold for a profit in the British market at a price ... 50 to 60 per cent. lower than those fabricated in England. It consequently became necessary to protect the latter by duties of 70 and 80 per cent on their value or by positive prohibition. Had

this not been the case, ...the mills of Paisley and Manchester would have been stopped in their outset, and could scarcely have been again set in motion, even by the power of steam. They were created by the sacrifice of the Indian manufacture... (Mill's *History of British India*, Wilson's continuation as cited in Dutt 1902: 262–63).

The clamour for free trade in England began only in the early half of the 19th century when English industries had attained a competitiveness far ahead of her rivals. The political leadership in England's closest rivals in terms of industrialisation—us and Germany—were no more convinced about the free-trade doctrine than India and many other ex-colonies were at the time of their political independence. The following us presidential statement elaborates this lucidly:

For centuries England has relied on protection, has carried it to extremes and has obtained satisfactory results from it... After two centuries, England has found it convenient to adopt free trade because it thinks that protection can no longer offer it anything... my knowledge of our country leads me to believe that within 200 years, when America has gotten out of protection all that it can offer, it too will adopt free trade (Ulysses Grant, 18th USA president, 1869–77, cited in Frank 1967: 164).

Were the us and German political leadership of the late 19th century, when they industrialised rapidly, blinded by left-nationalist politics and captive to a politics of competitive patriotism?

Liberalism, characterised by the so-called period of free trade after 1846 (when the Corn Laws were finally abolished in Britain), and till the Great Depression, is exclusive to Britain and her colonies (forcibly imposed by Britain). Britain's competitive edge in industries also declined with the newly industrialising countries in this same period of free trade as she maintained her supremacy through financial and capital lending interests (Mukherjee 2010).

The neo-liberal search for that mythical period in the history of capitalism, when an economy has emerged as industrially competitive and undergone a progressive economic transition primarily based on liberal trade policies, thus remains elusive. The importance of protective, restrictive and strategic trade

policies has been so important for industrialisation historically that every country that benefits from these wishes to prevent others from traversing that path (Chang 2002). It is no wonder that the us, Germany and most advanced capitalist countries work overtime to sermonise developing countries regarding the virtues of free-trade. Their efforts are strengthened by those academicians and policy-makers from ex-colonies, who repeatedly revisit this debate based on methodological denial of their own economic histories, and that of the colonial masters.

Cost–Benefit of Colonialism

Denying their importance for explaining India's economic backwardness, the drain is rechristened as the cost of services received, the benefit of which was a process far removed from deindustrialisation—a great dynamism of the secondary sector, including the development of industrial capitalism. Why was colonial rule then necessary if India was paying for these services—or was that rule itself the service being paid for? Leaving aside this obvious question, let us examine the three components that constitute the argument.

The denial of deindustrialisation in 19th century colonial India primarily hinges on two arguments. First, the votaries of deindustrialisation have disproportionately focused on cotton textiles. Second, there was a significant reorganisation of the handicrafts sector (outside cotton textiles but also in whatever remained of textile handicrafts) in the face of competition and artisanal skills survived through this process. This also led to an improvement in productivity and therefore was not something negative as far as industrialisation and development is concerned (Roy 1999, 2015).

The debate on whether destruction of handicrafts was a necessary precursor to capitalist development in India is an old one (originally between Daniel Thorner and Amiya Bagchi). There is also no doubt that the trends in deindustrialisation were uneven across regions in India and various handicraft sectors due to a range of factors enumerated by Bagchi (2010). A more diversified study of the secondary sector in such circumstances

can enrich the discussion on industrialisation and deindustrialisation. Ignoring the macroeconomic employment trends and pitching the debate on whether artisanal skills survived or not, amounts to deflecting attention from the central argument of the deindustrialisation hypothesis. This consistently has been about the declining employment capacity of handicrafts since the beginning of the 19th century and handicrafts and modern industry together after the latter developed. The fact of this decline, which even Roy registers elsewhere (Roy 1999: 17, Table 2.1), underlay the importance attached to the trends in cotton spinning and weaving, the largest secondary sector activity accounting for 62.3% of secondary workers in Gangetic Bihar (Bagchi 2010: 99, Table 4.5). That this continued up to 1931 has been recognised by scholars with polar opposite assessments of colonial rule (Roy 1999; Chattopadhyay 1975). That therefore there was a process with asymmetric and opposite effects on Britain and India cannot be countered by quibbles over its characterisation.

No one has claimed that all forms of handicrafts and associated skills were completely obliterated during colonial rule. The contention that handicraft sector after the 1850s was more efficiently organised and experienced productivity increases does not in any way contradict the centrality of the destruction caused by imports to explain the overarching macroeconomic trend of contraction in employment in the secondary sector in the 19th century. Avoiding that eventuality could have been possible only if the new branches of handicrafts that emerged with the reorganisation had compensated for any employment losses in other segments, or modern industry expanded to the extent needed to create enough new employment. That either of these occurred in colonial India is yet to be demonstrated.

This leads us to the second constituent of the argument—the characterisation of Indian industrial development after 1850 as “extraordinary.” This is based on the rate of expansion of the modern factory sector inevitably exaggerated by the narrow base from which that began,

while simultaneously eliminating from the picture the destructive effects on traditional industry. The result, however, presents this process as anything but impressive. At independence, India had one of the lowest per capita incomes of the world, 75% of the workforce was in agriculture and the modern factory sector accounted for barely 8% of output and less than 3% of employment. India's narrow industrial sector was still dominated by the industries and core technologies of the first Industrial Revolution, more than half a century after the second Industrial Revolution.

The absurdity of the framework would have emerged even if it was carried to its logical conclusion—and the cost in terms of the tribute paid for a century before that impressive industrialisation began and continued to do so for the next nine decades being compared with its benefits. Such a relative exercise could not have escaped the conclusion that India's must have been one of the most costly processes of industrial development in history. Colonialism would then again be necessary for explaining why this was the case—unless of course one attributed such high costs to the racist premise of the fundamental limitations of Indians!

Hiding the ‘Drain’

The treatment of the “drain of wealth” as payment for services rather than as a unilateral transfer, the third and final prop of the argument, adds insult to injury. While it is recognised that the monetary system was tightly controlled by the secretary of state for India in London, the intricate link between the revenue management and the trade surpluses in goods that colonial India consistently maintained is ignored. The process of India paying for her own exports rather than earning from them began ever since the company gained control over revenue collection in Bengal in 1765. Under company rule this was a fairly straightforward system where part of the land revenues were earmarked as “investments made abroad” and used to buy Indian exports—converting what earlier was a bilateral exchange into a unilateral transfer.

In the first half of the 19th century, these transfers were primarily in the form of opium, on which the company had a trade monopoly. To make a case against the drain one has to be able to show that somewhere along the way there was something which restored the bilateral nature of Indian exports. This is not possible because the only change over time was that the drain essentially happened in the form of different commodities in different phases, which made it imperative for India to always maintain an overall export surplus.⁹ Under British Crown rule, when the straightforward system of “tribute transfer” was no more possible with diversification of trade, the system of council bills was introduced as a medium of payment for any import from India by foreign trading companies. The council bills were financed in India by the home charges, a part of Indian revenues. Thus, all the foreign exchange that was due to come into the Indian economy found its way to the secretary of state's office in London. This was one of the most innovative imperial ideas which helped to maintain the fiscal–trade linkage in the colony (Patnaik 1984).

The assertion that the export surplus in goods trade financed the deficit in skills and services trade has a fundamental fallacy as it slips into balance of payment accounting problems. If India was never paid in foreign exchange for the merchandise trade surplus, how could she use that non-existent foreign exchange (existing in Britain) to pay for service imports? The only way the argument could stand is if the engineers, foremen, doctors, lawyers, scientists, etc (skills which India supposedly did not possess) came to India and worked without any payment, that is, provided free service or had been paid in Britain by the British government.

One failure of British rule—on the agrarian front—appears in Roy's account, which could be counted among the “free (dis)services” Britain provided to her Indian colony. However, that failure is not attributed to imperial imperatives and consequent actions like Land Revenue Settlements fundamentally geared towards maximising revenue

collection and extraction of agricultural surplus. There is no explanation for why the poverty-stricken agricultural sector came to be the one which produced the surplus that paid the high price for the skills necessary for industrialisation. Nor is it explained how a dynamic industrial sector emerged in such a context given the historically observed and theoretically established importance of agrarian change for industrialisation. A peculiar notion of dynamism which has no relationship with the rate of economic expansion is expressed thus—the “great paradox of colonial India was that national income grew at an exceedingly slow pace throughout.” This, however, is a paradox only because the explanation staring in the face has been discarded methodologically—the continued backwardness of Indian agriculture combined with the contractionary effects of both the drain and deindustrialisation and the limited enclave-like development of modern industrial capitalism—all outcomes which can be squarely linked with British colonialism.

On the Legacy of Colonialism

An assessment of the colonial impact on India cannot be done by conveniently identifying the mere presence of elements of “modernism” in 1947 that did not exist in 1750. This is like saying that the fact that a person's hands and feet are tied explains why she is able to crawl some distance! The two centuries of British rule in India covered a period which witnessed large-scale changes in the world economy. These included dramatic shifts in the relative position of the Indian subcontinent—from being one of the great manufacturing regions of the world to one specialised in primary commodities. Yes, India as a nation did not exist before colonialism; but it also emerged at the end of colonial rule as one of the most economically backward nations. Yes, a modern factory sector emerged during the colonial period; but in nearly a century it produced nothing that even remotely resembled the industrial revolutions that other parts of the world experienced. India became, through colonialism, part of the process through which so much changed globally,

but in playing that role its own impetus for progress was thwarted, often even before this could arise. In that sense, colonialism acted as a regressive force in Indian history, or a conservative force at best. Unlike Roy's characterisation of it, as a progressive force, this conclusion needs no assumption about what would have happened in the absence of colonialism.

If India's industrial capitalism is part of that legacy of colonialism, so are many characteristics of that capitalism and its internal and international contexts which continue to hold back its capacity to deliver progress to the Indian people. The simplistic door-shut-door-open methodological approach to identifying stages in Indian economic history is incapable of assessing the post-independence history of Indian capitalism and its uninterrupted interaction with global capitalism—and the continuities and changes that accompanied it. For example, Roy's story of India closing itself immediately after independence is mere assertion bereft of any material evidence. On the contrary, the evidence points to the opposite, whether one looks at policy or outcomes.

In 1949, Nehru assured foreign investors that their investment would be treated at par with similar Indian enterprises. Displacement of metropolitan capital was only peripherally on the agenda of the state and was not even a key feature of either the First or Second Five Year Plans. In 1957, the first of a series of tax concessions were granted to foreign firms, affecting salaries, wealth tax, and tax on super-profits. This was followed by the announcement that the “51% rule” requiring majority Indian ownership was no longer required. Double taxation avoidance agreements were signed with a number of North European countries, Japan and the us by 1964. Thus state policies in this period arguably reflected an even more liberal attitude towards the private sector and “foreign interests” than under British rule (Das Gupta 2015, forthcoming).

There is also sufficient work on post-independence economic history which shows that foreign capital in India proliferated under the ISI regime (Bose 1965;

Malyarov 1983; Negandhi 1966). In 1948, companies registered abroad but operating in India (63%) and Indian subsidiaries of foreign companies (21%) accounted for most of the total foreign direct investment. In 1955, 18.1% of foreign capital was invested in branches of foreign companies, 70.8% in foreign-controlled companies and only 10% was in Indian-controlled companies. Foreign investment amounted to 38.7% of gross capital formation in the economy in 1955 and profits from it were shared between foreign and Indian investors in a ratio of 15.9:1. Whereas foreign capital accounted for 29% of fixed investment in the private corporate sector between 1948 and 1953, this relative proportion increased to 32% in 1960–61.

The number of foreign collaborations in India also increased dramatically from 81 to 302 between 1957 and 1964, the peak period of planning—in the fields of industrial machinery, heavy chemicals, pharmaceuticals, synthetic oil, iron and steel and aircraft manufacturing. The United Kingdom (UK) was still the leader, but with a declining share, while us's share was increasing. Despite tax concessions, taxation rates on profits were high in India compared to other countries. But earnings ratios of foreign companies in India after tax was much higher compared to other countries (Kidron 1965; Negandhi 1966).

Instead of providing evidence of discriminatory outcomes against foreign capital, the existing corpus of literature, from different perspectives, converges on the viability of foreign capital's operations in India in the first two decades after independence. Roy's cavalier assertions about foreign capital right after independence are bereft of historical rigour.

If India's independence had any positive economic significance in the period before 1991 according to Roy, it was limited to the impact on agriculture which was, however, more than neutralised by the closing of India to the world. This is a strange argument indeed. There is no doubt that the state in independent India did relatively better on the agrarian front than the colonial state and managed to arrest the declining trend in per capita foodgrain production witnessed during

the last half century of colonial rule. Roy's interpretation of this success, however, does not place any emphasis on the post-independence delinking of Indian agriculture from the global market in the making of the result. At the same time that which has been widely recognised as an important constraining factor on India's industrialisation—the great failure of the land reforms programme—is not even a footnote in this story.

The treatment of post-independence agriculture mirrors the method of examination of deindustrialisation and industrial development in the colonial period—the big picture is missed by looking with a microscope for signs of dynamism. Yet this approach is abandoned when it comes to the industrial sector after independence because there it would be difficult to explain how the closed economy generated the great diversification of the industrial structure through a diffusion of technology from abroad that had not been possible in the open past.

True to the consistent approach of avoiding what is inconsistent in the story, what the much vaunted openness has meant for Indian agriculture and industry after 1991 is completely ignored. The widely talked about agrarian crisis that set in from the mid-1990s and its linkage with the liberalisation policies finds no place in the assessment of the value of openness (Patnaik 2007b; Reddy and Mishra 2007).

Equally striking is the complete neglect of the widely noted stagnation/decline of the manufacturing share in GDP, also from the mid-1990s but at a level more or less attained before 1980. That India is one among many developing countries experiencing premature deindustrialisation under globalisation alongside the post-industrialisation deindustrialisation underway in advanced economies (Rodrik 2015) is of course not an idea that this method can engage with. Because, then the application of contemporary conceptions about what constitutes deindustrialisation would not permit the denial of the same in colonial India. The reconstruction of the past to make the case for the present ignores what the present itself says about

itself and the lessons it may offer for understanding the past.

In Conclusion

Instead of dealing with contemporary reality, what is dished out is a fiction in the form of the apprehension that Indian businessmen are fearful of foreign competition would use the nationalist rhetoric to block the current embracing of openness. That the capitalist class in India today is one of the most aggressive votaries and beneficiaries of global integration is self-evident. The ahistoricity of the method is incapable of explaining the evolution of world capitalism and the process within it by which Indian capitalists who were yesterday's economic nationalists have become today's globalisers.

The modern education system under colonial rule, which excluded most of the poor population, is another free service that Britain offered India. It created an elite intellectual class in colonial India. While some members of this class, exposed to European principles of society and governance, challenged the British claims to superiority and their domination over Indians, many others chose to become "brown sahibs." The latter, along with zamindars and other local extractive and parasitic classes, felt genuinely unhappy when British rule came to an end in 1947. Today under the hegemony of neo-liberalism and reflecting the legacy of colonialism is a new breed of brown sahibs who do not mind rediscovering the virtues of the long British rule in India if it serves their present interests of benefiting by collaborating with international finance capital. It is these two groups of sahibs that this one-sided neutrality in method willingly obliges in its ideological jugglery of empire sans imperialism, colonialism sans capitalism, and historiography without history.

NOTES

- 1 Most starkly in the discussion on agriculture after independence (see last section).
- 2 Patnaik (1971, 1982, 1987, 1999, 2007a), Bagchi (1972, 1982, 2002, 2004, 2005), Habib (1969a, 1969b, 1995, 2006) to cite just a few.
- 3 For a comprehensive analysis, see K Marx, On the Question of Free Trade, Speech before the Democratic Association of Brussels, 9 January

- 1848; F Engels, Preface to English edition of Marx's speech on Free Trade 1888; Also see Marx (1954) and Schumpeter (1934 and 1976)
- 4 See Kennedy (1981), Kelman (1981). Also see R M Solow's reply to Kelman in the March/April volume of the *AEI Journal of Government Policy and Society Regulation*.
- 5 For an overview of the diversity, see Galeano (1973), Zinn (1970, 1980 and 1985), Horna (2013) and the volumes of the People's History of India series edited by Irfan Habib.
- 6 In the advanced economies, the average increased from less than 20% of GDP before the Great Depression to around 43% in 1980, levels which continued thereafter (See Tanzi and Ludger Schuknecht (2000)).
- 7 Also see Bagchi 1972.
- 8 See Krueger (1978 and 1998); Bhagwati (1978), For detailed surveys of "openness" in economic literature see Edwards (1993), Rodriguez and Rodrik (2001) and Rodriguez (2006).
- 9 See Mukherjee, 2010, for a rich discussion of these changing forms of "drain."

REFERENCES

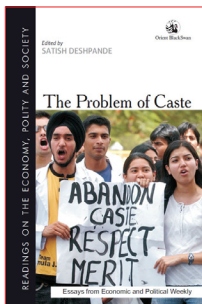
- Abu-Lughod, J L (1989): *Before European Hegemony, The World System AD 1250–1350*, New York: Oxford University Press.
- Bagchi, A K (1972): *Private Investment in India: 1900–1939*, Cambridge: Cambridge University Press.
- (1982): *The Political Economy of Underdevelopment*, Cambridge: Cambridge University Press.
- (2002): *Capital and Labour Redefined: India and the Third World*, London: Anthem Press.
- (2004): *The Developmental State in History and in the Twentieth Century*, Delhi: Regency Press.
- (2005): *Perilous Passages: Mankind and the Global Ascendancy of Capital*, Lanham, Maryland: Rowman and Littlefield.
- (2010): *Colonialism and Indian Economy*, Delhi: Oxford University Press.
- Bairoch, P (1993): *Economics and World History: Myths and Paradoxes*, Chicago, Illinois: University of Chicago Press.
- Bhagwati, J (1978): *Anatomy and Consequences of Exchange Control Regimes*, Pennasacola, Florida: Ballinger Press.
- Bose, A (1965): Foreign Capital, *Economic History of India: 1857–1956*, Singh V B (ed), Delhi: Allied Publishers.
- Chang, H-J (2002): *Kicking Away the Ladder*, London: Anthem Press.
- Chattopadhyay, R (1975): "De-industrialisation in India Reconsidered," *Economic & Political Weekly*, Vol 10, No 12, pp 523–31.
- Cornia, G A (2014): "The Role of Selected Policy Instruments in Reducing Income Inequality," *UN World Economic and Social Survey*, http://www.un.org/en/development/desa/policy/cdp/11_cornia-wess-2014-14-dec.pdf
- Das Gupta, C (2010): "Globalisation, Corporate Legal Liability and Big Business Houses in India," *Cambridge Journal of Economics*, Vol 34, No 5, pp 895–913.
- (2015 forthcoming): *State and Capital in Independent India*, New Delhi: Cambridge University Press.
- Davis, M (2001): *Late Victorian Holocausts: El Nino Famines and the Making of the Third World*, London: Verso.
- Dirks, N B (2006): *The Scandal of Empire: India and the Creation of imperial Britain*, Cambridge (Mass): Harvard University Press.
- Dobb, M (1946): *Studies in the Development of Capitalism*, London: Routledge and Kegan Paul.
- Dutt, R C (1902): *The Economic History of India, Under Early British Rule*, Vol 1, London: Kegan Paul.

- Edwards, S (1993): "Openness, Trade Liberalization and Growth in Developing Countries," *Journal of Economic Literature*, 31 (3), pp 1358–93.
- Frank, A G (1967): *Capitalism and Underdevelopment in Latin America*, New York: Monthly Review Press.
- Galeano, E (1973): *Open Veins of Latin America*, New York: Monthly Review Press.
- Habib, I (1969a): "Potentialities of Capitalistic Development in the Economy of Mughal India," *Journal of Economic History* 29, pp 32–78.
- (1969b): Problems of Marxist Historical Analysis Enquiry 3, pp 52–67.
- (1995): *Essays in Indian History: Towards a Marxist Perception*, Delhi: Tulika.
- (2006): *A People's History of India-Vol 28: Indian Economy 1858–1914*, Delhi: Tulika.
- Hardin, R (1986): "The Utilitarian Logic of Liberalism," *Ethics*, Vol 97, No 1, pp 47–74.
- Horna, H (2013): *People's History of Latin America*, Markus: Weiner Publishers.
- Kelman, S (1981): "Cost-Benefit Analysis: An Ethical Critique," *AEI Journal of Government Policy and Society Regulation*, January–February, pp 33–40.
- Kennedy, D (1981): "Cost–Benefit Analysis of Entitlement Problems: A Critique," *Stanford Law Review*, No 33, pp 387–445.
- Kidron, M (1965): *Foreign Investment in India*, Delhi: OUP.
- Krueger, A O (1978): *Foreign Trade Regimes and Economic Development: Liberalization Attempts and Consequences*, Pennasacola, Florida: Ballinger Press.
- (1997): "Trade Policy and Economic Development: How We Learn," *American Economic Review*, Vol 87, No 1, pp 1–22.
- (1998): "Why Trade Liberalisation Is Good for Growth," *Economic Journal*, 108.
- Lloyd Thomas, D A (1980): "Liberalism and Utilitarianism," *Ethics*, Vol 90, No 3, pp 319–34.
- Marx, Karl (1954): *Capital: A Critique of Political Economy* Vol I, Moscow: Progress Publishers.
- Mukherjee, A (2010): "Empire: How Colonial India Made Modern Britain," *Economic & Political Weekly*, Vol 45, No 50, pp 73–82.
- Malyarov, O V (1983): *The Role of the State in the Socio-Economic Structure of India*, Delhi: Vikas.
- Negandhi, A R (1966): *The Foreign Private Investment Climate in India*, Bombay: Vora & Co.
- Patnaik, U (1971): "Capitalist Development in Agriculture: A Note," *Economic & Political Weekly* Vol 6, No 39.
- (1982): Neo-Marxian Theories of Capitalism and Under-development: Towards a Critique, *Social Scientist* 10(11).
- (1984): "Transfer of Tribute and the Balance of Payments in the CEHI," *Social Scientist*, Vol 12, No 12, pp 43–55.
- (1987): *Peasant Class Differentiation: A Study in Method*, Delhi: OUP.
- (1999): *The Long Transition*, Delhi: Tulika.
- (2007a): *The Agrarian Question in Marx and His Successors*, Vol I, Delhi: Left Word.
- (2007b): Neoliberalism and Rural Poverty in India, *Economic & Political Weekly*, 42 (30).
- Reddy, D N and S, Mishra (2007): 'Crisis in Agriculture and Rural Distress in Post-Reform India,' *India Development Report 2008*, 40–53; Government of India Ministry of Finance – Report of the Expert Group on Agricultural Indebtedness, 2007, R Radhakrishna (ed).
- Rodriguez (2006): Openness and Growth: What Have We Learned, *UN World Economic and Social Survey Background Paper* 20.
- Rodriguez, F and D Rodrik (2001): Trade Policy and Economic Growth: A Skeptic's Guide to the Cross-National Evidence, *NBER Macroeconomics Annual* 2000.
- Rodrik D (2015): "Premature Deindustrialization," *NBER Working Paper* 20935, February.
- Roy, T (nd): "Maxims," *Tirthankarroy.net*, http://tirthankarroy.net/maxims.html, accessed on 1 June 2015.
- (1999): *Traditional Industry in the Economy of Colonial India*, Cambridge University Press.
- (2015): "The Economic Legacies of Colonial Rule in India," *Economic & Political Weekly*, Vol 50, No 15, pp 51–59.
- Sarkar, S (2002): *Beyond Nationalist Frames: Relocating Postmodernism, Hindutva, History*, Delhi: Permanent Black.
- Schumpeter J A (1934), *The Theory of Economic Development*, New Brunswick and London: Transaction Press.
- (1976): *Capitalism, Socialism and Democracy*, London: Allen & Unwin.
- Tanzi, Vito and Ludger Schuknecht (2000): *Government Spending in the 20th Century: A Global Perspective*, Cambridge: Cambridge University Press.
- Tyabji N (2000): *Industrialisation and Innovation: The Indian Experience*, Delhi: Sage.
- Wood, E M (2003): *The Empire of Capital*, New Delhi: LeftWord.
- Zinn, H (1970): *The Politics of History*, Boston, Massachusetts: Beacon Press.
- (1980): *A People's History of the United States: 1492–Present*, New York: Harper & Rowe.
- (1985): "What Is Radical History?" *The Vital Past: Writings on the Uses of History*, S Vaughn (ed), Athens, Georgia: University of Georgia Press.

The Problem of Caste

Edited by

SATISH DESHPANDE



Pp xi + 425 Rs 595
ISBN 978-81-250-5501-3
2014

Caste is one of the oldest concerns of the social sciences in India that continues to be relevant even today.

The general perception about caste is that it was an outdated concept until it was revived by colonial policies and promoted by vested interests and electoral politics after independence. This hegemonic perception changed irrevocably in the 1990s after the controversial reservations for the Other Backward Classes recommended by the Mandal Commission, revealing it to be a belief of only a privileged upper caste minority – for the vast majority of Indians caste continued to be a crucial determinant of life opportunities.

This volume collects significant writings spanning seven decades, three generations and several disciplines, and discusses established perspectives in relation to emergent concerns, disciplinary responses ranging from sociology to law, the relationship between caste and class, the interplay between caste and politics, old and new challenges in law and policy, emergent research areas and post-Mandal innovations in caste studies.

Authors: Satish Deshpande • Irawati Karve • M N Srinivas • Dipankar Gupta • André Béteille • Rajni Kothari • Kumkum Roy • Sukhadeo Thorat • Katherine S Newman • Marc Galanter • Sundar Sarukkai • Gopal Guru • D L Sheth • Anand Chakravarti • Carol Upadhyia • Ashwini Deshpande • Meena Gopal • Baldev Raj Nayar • Gail Omvedt • Mohan Ram • I P Desai • K Balagopal • Sudha Pai • Anand Teltumbde • Surinder S Jodhka • Ghanshyam Shah • Susie Tharu • M Madhava Prasad • Rekha Pappu • K Satyanarayana • Padmanabh Samarendra • Mary E John • Uma Chakravarti • Prem Chowdhry • V Geetha • Sharmila Rege • S Anandhi • J Jeyaranjan • Rajan Krishnan • Rekha Raj • Kancha Ilaiah • Aditya Nigam • M S S Pandian

Orient Blackswan Pvt Ltd

www.orientblackswan.com

Mumbai • Chennai • New Delhi • Kolkata • Bangalore • Bhubaneswar • Ernakulam • Guwahati • Jaipur • Lucknow • Patna • Chandigarh • Hyderabad

Contact: info@orientblackswan.com

A Goal Programming Model for Selection and Scheduling of Advertisements on Online News Media

Prerna Manik*

*Department of Operational Research
University of Delhi, Delhi, India
prernamanik@gmail.com*

Anshu Gupta

*School of Business, Public Policy and Social Entrepreneurship
Ambedkar University, Delhi, India
anshu@aud.ac.in*

P. C. Jha

*Department of Operational Research
University of Delhi, Delhi, India
jhac@yahoo.com*

Kannan Govindan

*Centre for Sustainable Engineering Operations Management
Department of Technology and Innovation
University of Southern Denmark, Denmark
kgov@iti.sdu.dk*

Received 14 March 2013

Revised 27 May 2015

Accepted 27 May 2015

Published 31 March 2016

Digital revolution has resulted in a paradigm shift in the field of marketing with online advertising becoming increasingly popular as it offers the reach, range, scale and interactivity to organizations to influence their target customers. Moreover, web advertisement is the primary revenue stream for several websites that provide free services to internet users. The website management team needs to do a lot of planning and optimally schedule various advertisements (ads) to maximize revenue, taking care of advertisers' needs under system constraints. In this paper, we have considered the case of news websites that provide news to its viewers for free with ads as the primary source of their revenue. The considered news website consists of many webpages with different banners for advertisement. Each banner consists of different number of partitions and

*Corresponding author.

cost per partition varies for different rectangular banners. Many ads compete with each other for their placement on a webpage on a specific banner, based on partition requirement, at specific time interval(s). Here, we have formulated a mixed integer 0–1 linear programming advertisement scheduling problem to maximize the revenue over planning horizon divided into time intervals under various system and technical constraints. A case is presented to show the applicability of the model. Branch and bound integer programming and goal programming techniques have been used to solve the formulated problem.

Keywords: Online advertising; web advertisement; revenue maximization; rectangular banner; mixed integer 0–1 linear programming model; advertising scheduling problem; branch and bound programming technique; goal programming approach.

1. Introduction

Every firm uses the set of marketing tools also known as marketing mix to pursue its marketing objectives in the target market (Borden, 1964). According to McCarthy and Perreault (1999), these tools are also known as 4 Ps of marketing: product, price, place, and promotion. Advertising is a critical promotional tool tactically utilized by firms to not only create awareness but also for branding and positioning of their products and services with a view to boost sales and deepen customer loyalty. Firms can convey their advertising messages to customers through television, newspapers, magazines, internet, etc. In this digital era, internet has become a key medium for communication and is rapidly replacing the traditional media. In addition to growing number of internet users, the other reasons why web advertising is gaining importance include traceability, cost effectiveness, reach and interactivity. So while marketers adopt multi-channel campaigns, clearly internet advertising is on a strong upward trajectory. US based analyst firm e-Marketer, has also predicted double-digit growth in internet advertising through 2015. According to report from GroupM (available at wpp.com), the advertising expenditure on web alone has hit \$99 billion in 2012 representing a 16.2% increase over the previous year and accounting for 19.5% global measured advertising expenditures. The continually growing importance of internet advertising has coerced attracted many researchers to do study in this field. Researchers have given a great deal of attention on the models concerning web advertising that study the effectiveness of web advertisements (ads) (Manchanda *et al.*, 2006; Chatterjee *et al.*, 2003; Srivastava and Mishra, 2011) and scheduling of web advertising (Dasgupta *et al.*, 2009; Karmarkar and Dutta, 2010; Boskamp *et al.*, 2011; Marszalkowski and Drozdowski, 2012). An optimization model for scheduling ads on various web pages of a news website for a given planning horizon has been advocated in this paper.

Web advertising began with “banner ads”. As the web gained more popularity, different types of web advertising came into existence, such as pop-up and pop-under ads, floating ads, unicast ads, streaming sidebar ads, pull down banner ads, commercial websites, internet sponsorships, paid keyword search listing, advergames, mobile advertising (Faber *et al.*, 2004) and many more new forms are continuously

emerging with progressing time. However, banner ads still continue to remain popular and constitute a major proportion of display related revenues. The Internet Advertising Bureau (IAB), dedicated to the growth of the interactive advertising marketplace, reported a 17% increase (\$10.6 to \$12.4 billion) in third quarter of 2014 digital advertising revenues in the US over third quarter of 2013. Moreover, the ever increasing quarterly revenue growth trends (Q1 1996–Q1 2013), reported by IAB in the press release on 18th December, 2014, can be attributed to growing recognition of web advertising by marketers and reflects that it is a major source of revenue for several websites. This paper restricts the study to banner ads only. McCandless (1998) has defined banner ads as a small, rectangular, graphic image which is linked to a target (advertisers) web page. Multifarious kinds of banners having different sizes and shapes are used in web ads. Rectangular-shaped banner ads are the most common type of banner ads. These banners usually appear on the side, top, or bottom of a screen as a distinct, clickable image (McCandless, 1998). Also the banners provide space sharing options. For example in Fig. 1(a), two banner ads of “99acres.com” on extreme top left and “makemytrip” on extreme top right share the top banner space. Also in Fig. 1(b) side banner space is shared between two ads by “Mist Valley” and “Shaadi.com”.

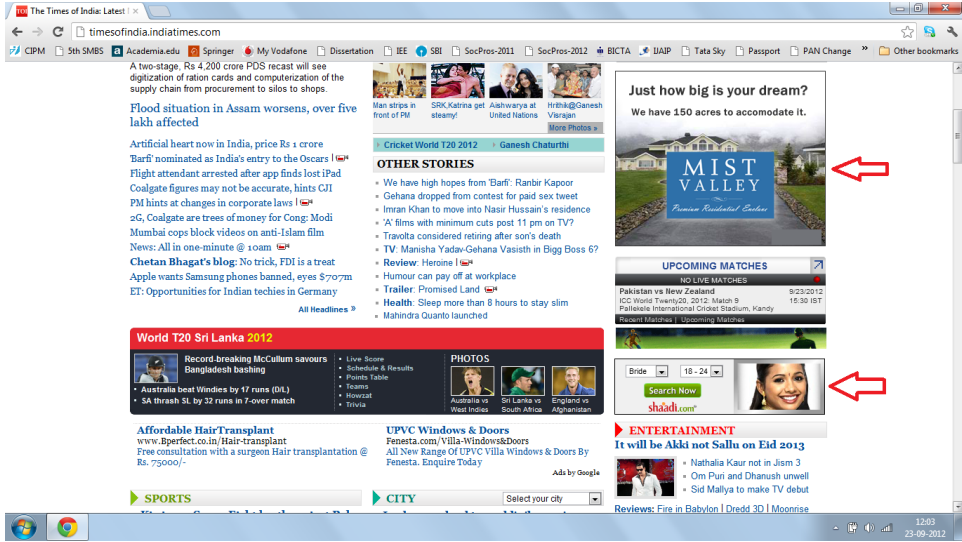
With ads on the webpages as the primary source of revenue, several websites provide free services to its users. For instance, Songs.PK and Beemp3.com allow the users to download mp3 tracks for free. There are sites like 123greetings.com and



(a)

Fig. 1. (a) Screen shot of a top banner ad and (b) screen shot of a side banner ad.

Source: <http://www.timesofindia.com> (Date Clicked: September 23, 2012).



(b)

Fig. 1. (Continued)

Passionup.com which allow users to send e-cards at no cost. Besides, there are also web portals such as Yahoo! and Rediff which not only provide content including the latest news, entertainment, and sports information to their users, but also give them access to various services like mail, maps, groups and messenger, search engines, web directories, etc. Since revenue from ads placed on the web pages is one of the major sources of revenue for such websites, hence optimal placement of ads is of utmost significance.

Our study focuses on the development of an optimization model for scheduling banner ads from different advertisers on various webpages of a news website for a given planning horizon. Every ad appears for a specific time period in the planning horizon as per advertiser's requirements and the cost paid. Multiple banners of different dimension may be available on every page of the website. Every banner may in turn be partitioned into several partitions depending on the dimensionality requirement of the advertisers and technical constraints. For example if the required dimension for an ad is $3\text{ cm} \times 6\text{ cm}$ it cannot be placed on a banner of size $2\text{ cm} \times 8\text{ cm}$. Also the advertiser may be interested to advertise on a specific webpage only such as sport shoes ad on a sports related webpage. Accordingly, in a given planning horizon, a set of ads compete for each banner on every webpage. Since a webpage can accommodate only limited number of ads, the web service provider may not be able to place all the ads that are competing in a given time interval. The optimization model proposed in this paper can be used to schedule the ads from different advertiser over multiple banners and webpages considering the time

slots and size requirements of the ads maximizing the revenue of the website owners from banner ads.

Mathematically, the formulated model is a mixed integer 0–1 linear programming model (McCarl and Spreen, 2011). Due to non-convex nature of the constraint set, convex programming approach cannot be used to solve the model. Branch and bound method, Balas’adaptive algorithm, Lagrangian relaxation and heuristics are some of the methods discussed in the literature to solve such models. These methods are iterative search methods over the feasible solutions and require either explicitly or implicitly complete enumeration. These algorithms can guarantee global optimality only through an enumerative search. The proposed model finds application in real life problems where several ads compete for different banners on the same or different page. Hence, the number of variables and constraints involved becomes very large. Complete enumeration of such large problems is very difficult and sometimes not possible due to scale of the problem. Several optimization software such as LINGO, CPLEX, MATLAB, Mathematica with inbuilt modules are available for solving mixed integer 0–1 models. These software have been extensively used in the literature to solve various models (Kumar *et al.*, 2006; Boskamp *et al.*, 2011; Gupta *et al.*, 2011; Deane and Agarwal, 2012; Manik *et al.*, 2015), wherein solution is obtained within a specified tolerance factor (for, e.g., tolerance factor for LINGO is 5%). Depending on the available data in a given situation the model may or may not provide a feasible solution. When the model is feasible, branch and bound integer programming algorithm is used to solve the model. Increase in number of constraints results in reduction of feasible area and consequently may lead to an infeasible solution to the problem. Goal programming approach (GPA) (Steuer, 1986) can be used in case an infeasible solution is obtained for the model to attain a compromised solution. The goal model can also be programmed and solved using optimization software. Here, we have coded the models on LINGO 14.0 Software (Thiriez, 2000) to obtain the solution.

Rest of the paper is organized as follows. In Sec. 2, we discuss the literature review. Section 3 presents model formulation and solution methodology. A case study has been discussed in Sec. 4 to validate the model. Section 5 concludes the paper.

2. Literature Review

Numerous researches have been done in the field of web ad scheduling. One of the foremost areas of emphases has been on the effectiveness of web ads. A general framework was pronounced by Yager (1997) aimed at competitive selection of ads on web sites. The study described the methodology of how to use intelligent agents which aid in the determination of the appropriateness of displaying a given ad to a visitor at a site using very specific information about potential customers. These intelligent agents were built using fuzzy system modeling. A model for web advertising was proposed which made optimal use of the general capability available

for instantaneous processing of information in real time. Intern.com Corp., Kohda and Endo (1996), Marx (1996), Dreze and Zufryden (1997) and Risden *et al.* (1998) tackled the issue of increasing the effectiveness of web ads. Intern.com Corp., Novak and Hoffman (1997) and McCandless (1998) described web advertising theories and terminologies.

Other researchers viz. Aggarwal *et al.* (1998), Adler *et al.* (2002), Kumar *et al.* (2006) considered the issue of optimizing the ad space on the web. A framework for optimizing the management of ads on web servers was described by Aggarwal *et al.* (1998). A minimum cost flow model was used to optimize the assignment of ads to the predefined standard sizes of banners on webpages. Adler *et al.* (2002) presented a heuristic called SUBSET-LSLF for optimal scheduling of ads on web pages with the objective of minimizing the total space required to place all the ads. Their research was extended by Dawande *et al.* (2003) with more realistic models and improved algorithms. They discussed placement of multiple ads in multiple banners with variable frequency. In this paper, the authors have considered two types of problems, i.e., the MINSPACE problem that minimizes the maximum fullness among all banners in a feasible schedule and also the MAXSPACE problem. Further, Dawande *et al.* (2005) extended their previous work into a multi-period problem. Menon and Amiri (2004), Amiri and Menon (2006) further extended the Maxspace model. They discussed the concept of placement of ads on a banner under the cost per thousand impression (CPM) pricing model.

Freund and Naor (2004) formulated an ad placement problem that dealt with space and time sharing by ads on the internet. They considered a web page containing a rectangular display area (e.g., a banner) in which ads may appear. The display area could be utilized efficiently by allowing several small ads to appear simultaneously side by side, as well as by cycling through a schedule of ads, allowing different ads to be displayed at different times. A customer who desired to purchase advertising space specified an ad size and a display count that indicated the number of times their ad should appear during each cycle. The scheduler may accept or reject any given ad, but must be able to schedule all accepted ads within the given time and space constraints. Each ad had a non-negative profit associated with it, and the objective was to schedule a maximum-profit subset of ads. They presented a $(3+\varepsilon)$ -approximation algorithm for the general problem, as well as $(2+\varepsilon)$ -approximation algorithms for two special cases.

Amiri and Menon (2006) formulated an ad scheduling problem where the customers were allowed to specify a set of acceptable display frequencies. They employed the Lagrangian decomposition-based solution approaches to provide good schedules in a reasonable period of time.

Kumar *et al.* (2007) considered a hybrid pricing model, where the price advertisers pay was a function of the number of exposures of the ad and the number of clicks on the ad. The objective was to maximize the website revenue by optimally scheduling the ads. Two versions of the problem were formulated static and dynamic and a variety of efficient solution techniques were proposed that provided

near-optimal solutions to these problems. In the dynamic version, the schedule of ads changed based on individual user click behavior. This was shown by using a theoretical proof under special circumstances and an experimental demonstration under general conditions that an adapted schedule based on user click behavior consistently outperformed one that did not. For both of these versions, they examined the sensitivity of the revenue with respect to the model parameters.

Huang *et al.* (2008) proposed an efficient approach for multi-QoS constrained web services selection. First, in order to collect the users preference, they proposed a user preference model. Extending this model, they developed a correlation model of candidate services in order to reduce the search space. Based on these two models, they proposed a heuristic algorithm aimed at finding a feasible solution for multi-QoS constrained web services selection with high performance and high precision.

Kumar and Sethi (2009) proposed a model for finding the optimal dynamic subscription fee and the ad level over a given planning horizon for web content providers, where the revenue was generated from both subscription fees and ads, with the objective of maximizing the total profit of an online content provider and they used the optimal control theory to solve the formulated problem. Solutions to two variants of the problem were proposed. First, they considered the subscription fee to be changing dynamically, whereas the ad level was static over the planning horizon. However, they optimized the static ad level along with the optimal trajectory of the subscription fee. This variant of the problem was then extended to consider the case when both the subscription fee and the ad level were optimized dynamically.

Roels and Fridgeirsdottir (2009) proposed a model to dynamically select which advertising requests to accept. The model schedules accepted advertising impressions to viewers maximizing revenue, accounting for uncertainty in advertising requests and website traffic.

Boskamp *et al.* (2011) formulated the problem to maximize the revenue by optimally allocating multiple ads on a web banner. The formulated problem was a two-dimensional, single, orthogonal, knapsack problem, which they applied to pixel ad. The formulated problem was NP-hard, and due to the temporal constraints that web applications need to fulfill, they proposed several heuristic algorithms for generating allocation patterns and used MATLAB to run simulation.

Lu *et al.* (2011) proposed a model for scheduling banner ads in which they applied a feasible time window to each candidate order, and scheduled ads into various predefined banner spaces on the webpage. This approach allowed different pricing strategies according to banner types and was contrary to previous research models that scheduled and priced by banner space sharing. In their model, each order for ad space demanded a certain frequency for each type of banner. The goal was to select requests and schedule demands to achieve maximum ad capacity utilization. Due to the computational complexity of the studied problem, they developed a three-phase heuristic to cope with the problem. In addition, an upper bound on profits was also developed.

In optimization-oriented research on display advertising, Aksakalli (2012) discussed three main categories of problems (i) ad scheduling and placement optimization (ii) revenue management and pricing optimization and (iii) studies on overall display advertising effectiveness.

Another set of models discuss the optimization of revenue through placement of ads on the web. Palade and Banerjee (2011) gave a model in which online ads placed at different positions on a web page used to get different number of “hits” depending on the position the ad occupied and the time at which it was scheduled. Here the model was solved using an ant colony based algorithm for assigning bidders to click generating ad-slots. The objective was to maximize the profit obtained from click on ads, under budget constraints for bidders and scheduling constraints on the slots.

Deane and Agarwal (2012) extended the work of Adler *et al.* (2002), Dawande *et al.* (2003, 2005), Kumar *et al.* (2006), Menon and Amiri (2004) and Amiri and Menon (2006). They modeled variable display frequencies, which may vary between a lower and an upper bound. Their results indicated that this change could mean significantly improved space utilization relative to the fixed-display frequency model and consequently higher revenues for the publishers. They solved the formulated problem with the help of the heuristics. Further, Deane (2012) incorporated ad targeting in online ad scheduling problem. They applied independently, genetic algorithm, augmented neural network and hybrid algorithm comprising the techniques to solve the problem. Deane and Agarwal (2013) further formulated problem of scheduling online ads to maximize revenue under non-linear pricing.

Albers and Passen (2013) studied storyboarding where advertisers wish to present sequences of ads (stories) uninterruptedly on a major ad position of a web page. In storyboarding, while a user surfs the web and visits a particular website, a single advertiser controls a major ad position for a certain continuous period of time. These time slots can be used by the advertiser to showcase a range of products and build a linear story line. Typically several advertisers compete for the ad position, depending on the users browsing history and current actions. The goal of an ad server is to maximize the revenue by allocating advertisers to the time slots of a users browsing session.

Kumar *et al.* (2006) addressed the problem of scheduling ads on a webpage in order to maximize revenue, for which they maximized the utilization of space available to place the ads. They used CPLEX and hybrid genetic algorithms to solve the problem. The model considered only a particular side banner space on a specific page whose width was fixed and length could vary. The rectangular dimensions could thus be reduced to single dimension as the other dimension, i.e., width was assumed to be of unit size. All or some ads that can fit in this banner should therefore have the width of unit size. However, in practice banner ads that compete to be placed on a rectangular banner may be of varying rectangular dimensions. Second, in reality, the varying dimension of the banner can be a real value and need not necessarily be an integral multiple of the defined unit length. Therefore, the problem that

maximizes the space utilization may not be the true representative of the revenue maximization problem. Gupta *et al.* (2011) overcame the limitations of the model formulated by Kumar *et al.* (2006). They considered the set of ads competing to be placed on various rectangular slots/banners (that may have varying rectangular dimensions) in a given planning horizon on various webpages of a news website in order to maximize the revenue, where the revenue was generated from the costs different advertisers pay to place their ads on the website. Also this model took into consideration ad display frequencies between a lower and an upper bound. The model was programmed and solved on LINGO. However, the model formulated by Gupta *et al.* (2011) allowed an ad to appear more than once on the same webpage at any time. Manik *et al.* (2015) extended the model formulated by Gupta *et al.* (2011) to incorporate the restriction on the selection of an ad on the same webpage more than once at any instant of time. They coded and solved the model using LINGO. In case, the model resulted in an infeasible solution, GPA was applied which was also coded on LINGO.

Table 1 summarizes the key work in the area of web ad scheduling and also highlights the literature gap arising there from. This paper is an extended version of the study by Gupta *et al.* (2011) and addresses various gaps existing in the literature.

2.1. Literature gap

A major limitation of the web ad scheduling problems existing in the literature is that most of them do not simultaneously incorporate various real life constraints like:

- (a) Restriction on selection of an ad on a webpage more than once in a time interval.
- (b) Assigning an ad to minimum and maximum number of time slots if selected to be scheduled over the planning horizon so that an ad leaves the desired impression.
- (c) An ad competing in specific time intervals over the planning horizon for enhanced cost effectiveness of advertising by reaching out to the target customers.
- (d) Partition requirement by ads of varying dimensions thereby facilitating partition based costing that provides greater flexibility.
- (e) Banner sharing — webpages comprise of numerous banner of varying dimensions that can accommodate more than one ad in a given time interval based on the partition requirement of the ads. Banner sharing not only translates into additional revenue for the web service provider but also results in economical placement of ads in desirable position for the advertisers.

In this paper, we formulate an ad scheduling problem for a given set of competing ads over planning horizon to maximize the revenue incorporating all the above-mentioned aspects.

Table 1. Summary of literature review.

Reference	Objective	Frequency constraint	Banner sharing	Ads competing in each time unit	Partition requirement by ads	Restriction on repetition of an ad ^a	Solution methodology
Yager (1997)	Competitive selection of ads on web sites using very specific information about potential customers	No	No	No	No	No	Use of intelligent agents through fuzzy system modeling
Aggarwal et al. (1998)	Optimizing the scheduling of ads on web servers to the predefined standard size banners on webpages	No	No	No	No	No	Minimum cost flow model
Freund and Naor (2004)	Web ad placement problem dealing with space and time sharing to schedule a maximum-profit subset of ads	Yes	Yes	No	No	No	$(3+\epsilon)$ and $(2+\epsilon)$ approximation algorithms
Adler et al. (2002)	Optimal scheduling of ads on web pages with an objective of minimizing the total space required to place all the ads	No	No	No	No	No	SUBSET-LSLF heuristic
Amiri and Menon (2006)	Web ad scheduling problem where the customers were allowed to specify a set of acceptable display frequencies	Yes	No	No	No	No	Lagrangian decomposition-based solution approaches
Kumar et al. (2006)	Web ad scheduling problem to maximize revenue by maximizing the utilization of space available to place the ads	Yes	Yes	No	No	No	Hybrid genetic algorithms

Table 1. (Continued)

Reference	Objective	Frequency constraint	Banner sharing	Ads competing in each time unit	Partition requirement by ads	Restriction on repetition of an ad ^a	Solution methodology
Kumar <i>et al.</i> (2007)	Web ad scheduling problem to maximize the website revenue under a hybrid pricing model	Yes	Yes	No	No	No	Successive slot knapsack heuristic
Kumar and Sethi (2009)	Model for finding the optimal dynamic subscription fee and the ad level to maximize the total profit of an online content provider	No	No	No	No	No	Optimal control theory
Roels and Fridgeirs-dottir (2009)	Model to dynamically select which advertising requests to accept	No	No	No	No	No	Dynamic programming
Boskamp <i>et al.</i> (2011)	Problem to address allocation of multiple ads on a web banner to maximize the revenue of the allocated ads	No	No	No	No	No	Heuristic algorithms for generation allocation patterns
Lu <i>et al.</i> (2011)	Model for scheduling banner ads by applying a feasible time window to each candidate order	No	No	No	No	No	Three-phase heuristic
Gupta <i>et al.</i> (2011)	Web ad scheduling problem to maximize the revenue generated from the costs different advertisers pay	Yes	No	No	No	No	LINGO

(Continued)

Table 1. (Continued)

Reference	Objective	Frequency constraint	Banner sharing	Ads competing in each time unit	Partition requirement by ads	Restriction on repetition of an ad ^a	Solution methodology
Palade and Banerjee (2011)	Model to maximize the profit obtained from click on ads, under budget constraints for bidders and scheduling constraints on the slots	No	No	No	No	No	Ant colony algorithm
Deane (2012)	Web ad scheduling problem incorporating ad targeting	Yes	No	No	No	No	GA, augmented neural network and hybrid algorithm
Manik et al. (2015)	Web ad scheduling problem to maximize the revenue, with the restriction on the selection of an ad on the same webpage more than once at any instant of time	Yes	No	No	No	Yes	GPA
The Proposed Model	Extension of above with banner and time sharing options	Yes	Yes	Yes	Yes	Yes	GPA

Note: ^aRestriction on repetition of an ad on any webpage more than once in a time interval.

3. Problem Description

With growing popularity of the internet, many websites have surfaced that provide free services to its users. For such websites, advertising is the major source of revenue generated from the cost different advertisers pay to place their ads on different rectangular banners of different webpages of a website at different times. For these websites, revenue maximization through optimal selection and scheduling of ads on various rectangular banners of different webpages at distinct time units is critical. In this paper, we propose a web ad scheduling problem for a news website.

3.1. Web ad scheduling model

Table 2 provides variables and their semantic meaning used in the model formulation. Scheduling of ads on web is usually done daily, fortnightly, weekly, monthly or quarterly and so on. Consider for example that the ads are updated every hour, then there will be 24 time units in a day. And if the scheduling is to be done for say one week then there will be a total of $24 \times 7 = 168$ time units. An ad which appears on a banner in a time interval may be replaced by another competing ad during subsequent time intervals. Figure 2 illustrates a pictorial representation of a single webpage (say webpage 3) embedding 2 rectangular banners (i.e., $m_3 = 2$)

Table 2. Variables and their semantic meaning.

Notation	Semantic meaning
N	Total number of webpages
m_j	Number of rectangular banners on j th webpage
R_{ij}	Number of partitions in i th rectangular banner of j th webpage
K	Total number of ads
T	Total number of time units over the planning horizon
C_{ij}	Cost per unit partition of i th rectangular banner on j th webpage per unit time
S	Set of K ads
S_{ijt}	Set of ads which compete for i th rectangular banner on j th webpage at t th time unit; $S_{ijt} \subseteq S \forall ijt$
A_k	The k th ad
w_k	Minimum time units for which k th ad appears in all the rectangular banners over the planning period
W_k	Maximum time units for which k th ad appears in all the rectangular banners over the planning period
a_k	Number of partitions required by k th ad (in every appearance)
Variables	
x_{ijklt}	1 if k th ad is placed on l th partition of i th rectangular banner of j th webpage at t th time unit; 0 otherwise
y_{ijkt}	1 if k th ad is placed on i th rectangular banner of j th webpage at t th time unit; 0 otherwise
z_k	1 if k th ad is selected to be placed; 0 otherwise

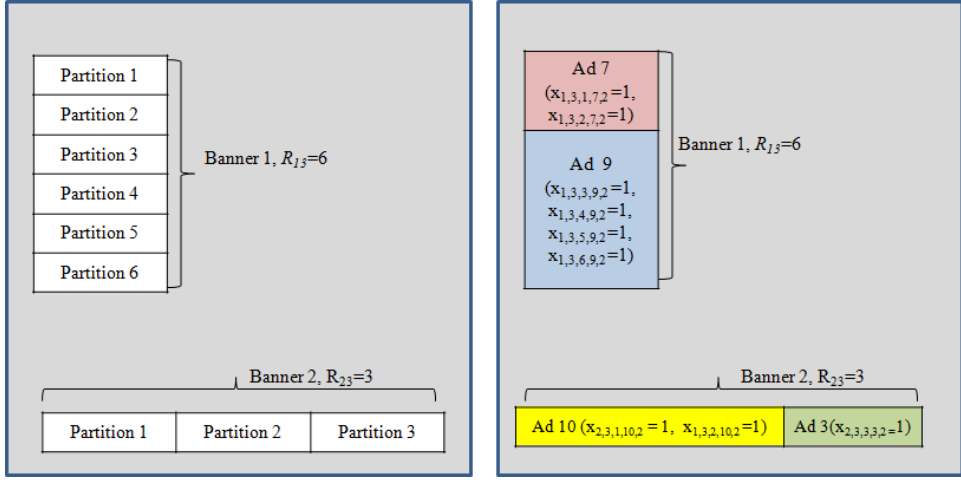


Fig. 2. Pictorial representation of webpage 3 embedding 2 rectangular banners with different number of partitions before and after placement of ads at time unit 2 ($i = 2, j = 3, t = 2$).

having $6(= R_{13})$ and $3(= R_{23})$ partitions respectively at time unit 2 before and after placement of ads using the proposed model. It is assumed that number of partitions required by each ad is constant over the planning horizon.

Whenever an advertiser wants to advertise on web they give their preference of the webpages and banners. Further, depending on the ad size, the cost of a unit partition on the selected banners, and budget, advertisers specify minimum and maximum time length for which they want to advertise if the ad is selected to be placed. w_k and W_k represents the minimum and maximum time units respectively for which k th ad appears over the planning period added over all rectangular banners on which it appears if selected. For example, if an ad with $w_k = 5$ and $W_k = 7$ is selected to be placed at rectangular banner 1 of webpage 2 at time unit 3, then that ad can appear at least 4 more times and at most 6 more times during the planning horizon on other banners of other webpages. If in one time unit the ad appears on two different banners then its appearance count is 2 in that time unit.

3.1.1. Model formulation

In order to maximize the revenue, the problem faced by the web service provider is to select ads to be placed on different rectangular banners of varying sizes on multiple webpages of a website at distinct time units from the available sets of ads that compete for different banners on different webpages at various time units based on the partition requirement. Here, we have considered a website consisting of n webpages, where j th webpage consists of m_j number of rectangular banners (each consisting of different number partitions) at each time unit. All banners are assumed to be partitioned into partitions of same size. One partition defines one

unit space on a banner. However measurement of length and width of partitions may be interchanged. For example, standard size of a partition can be $2\text{ cm} \times 3\text{ cm}$ or $3\text{ cm} \times 2\text{ cm}$.

The set $S = \{A_1, A_2, \dots, A_K\}$ is the set of K ads that compete for the ad space over the planning period. Subset S_{ijt} of S is the set of ads that competes to be placed on i th banner of j th webpage at t th time unit. Advertisers specify preference of webpages, banners and size of the ads to the ad scheduler. The requirement of size is given based on the banner and partition sizes available on the preferred webpages and banners. An advertiser may also provide time slot preferences. In reference to the preferences given by the advertisers and technical constraints, the set S_{ijt} is formed. For example, if an ad with 6 partition requirement wants to appear on the 3rd webpage of a website on banner 1 with 8 partitions (assuming 6 partitions together have dimension equal to the size of the ad) at time period 2, then it is part of the subset S_{132} (set of ads competing for 1st, rectangular banner of 3rd webpage at time unit 2). On the other hand, if the same ad has given requirement to appear on any of the 3 rectangular banners 1, 2 or 3 on webpage 3, with 4, 6 and 3 partitions respectively at time period 2 (technical constraint), then it is a part of the subsets S_{132} , S_{232} and S_{332} (set of ads competing for 1st, 2nd and 3rd rectangular banner of 3rd webpage at time unit 2). Note that an ad can be a member of any subset S_{ijt} only if it can fit on the banner i of webpage j as per the banner partitioning. An advertiser k , where $A_k \in S_{ijt}$, pays cost C_{ij} per unit partition/per unit time to place his ad on i th banner of j th webpage.

Now consider that we have in total $\sum_{j=1}^n m_j$ number of banners in each time interval and each banner has different number of partitions. The web ad scheduler wants to maximize the revenue generated by placing ads on the website over a planning horizon. News website may generate revenues from other paid services and ads other than banner ads. Scope of this paper is limited to revenue generated from banner ads. Advertising revenue on a website is a function of how much traffic the website is able to attract and the manner in which web service provider decide to present ads to the visitors. In case of news websites, advertising revenue depends on the costs per partition that advertisers pay for placing their ads on i th banner of j th webpage at t th time unit. Cost of placing ads on webpages with high traffic is higher than those with low traffic. Also, the cost on a particular banner may depend on the placement of the banner on the page as well as the click rates. The objective here is to maximize the revenue to be generated from the ads

$$\text{Maximize Revenue (R)} = \sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{k \in S_{ijl}} \sum_{t=1}^T C_{ij} x_{ijlkt}. \quad (1)$$

Constraint to ensure that k th ad is assigned to at least w_k time slots if selected to be scheduled over the planning horizon is

$$\sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{t=1}^T x_{ijlkt} \geq w_k \times a_k \times z_k \quad \forall k \in S_{ijl}. \quad (2)$$

Constraint to ensure that k th ad is assigned to at most W_k time slots if selected to be scheduled over the planning horizon is

$$\sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{t=1}^T x_{ijklkt} \leq W_k \times a_k \times z_k \quad \forall k \in S_{ijt}. \quad (3)$$

The following constraint ensures that the number of partitions required by k th ad, which if chosen to be placed on i th rectangular banner of j th webpage at t th time unit is exactly equal to the number of partitions allocated on i th banner of j th webpage at t th time unit

$$\sum_{l=1}^{R_{ij}} x_{ijklkt} = a_k \times y_{ijklkt} \quad \forall i, j, t, k \in S_{ijt}. \quad (4)$$

To ensure that the total number of partitions required by all the ads that are selected to be placed on i th rectangular banner of j th webpage at t th time unit does not exceed number of partitions available in i th banner of j th webpage (i.e., R_{ij}), we have

$$\sum_{l=1}^{R_{ij}} \sum_{k \in S_{ijt}} x_{ijklkt} \leq R_{ij} \quad \forall i, j, t. \quad (5)$$

The following constraint ensures that if an ad is selected to be placed on a webpage at any given time period then that ad cannot appear again on that webpage at the same time period

$$\sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} x_{ijklkt} = a_k \quad \forall j, t, k \in S_{ijt}. \quad (6)$$

The following constraint ensures that at a particular time unit, for each partition on each banner on a webpage, not more than one ad can be placed

$$\sum_{k \in S_{ijt}} x_{ijklkt} \leq 1 \quad \forall i, j, l, t. \quad (7)$$

The following constraint ensures that number of times ad k appears (if it is selected) over the planning horizon can be one or more than one

$$\sum_{k \in S_{ijt}} z_k \geq 1. \quad (8)$$

Combining (1)–(8) the banner ad scheduling model can be formulated as

$$\begin{aligned} \text{Maximize} \quad & R = \sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{k \in S_{ijt}} \sum_{t=1}^T C_{ij} x_{ijklkt}, \\ \text{Subject to} \quad & \sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{t=1}^T x_{ijklkt} \geq w_k \times a_k \times z_k \quad \forall k \in S_{ijt}, \end{aligned}$$

$$\begin{aligned}
 & \sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{t=1}^T x_{ijklkt} \leq W_k \times a_k \times z_k \quad \forall k \in S_{ijt}, \\
 & \sum_{l=1}^{R_{ij}} x_{ijklkt} = a_k \times y_{ijkt} \quad \forall i, j, t, k \in S_{ijt}, \tag{P1} \\
 & \sum_{l=1}^{R_{ij}} \sum_{k \in S_{ijt}} x_{ijklkt} \leq R_{ij} \quad \forall i, j, t, \\
 & \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} x_{ijklkt} = a_k \quad \forall j, t, k \in S_{ijt}, \\
 & \sum_{k \in S_{ijt}} x_{ijklkt} \leq 1 \quad \forall i, j, l, t, \\
 & \sum_{k \in S_{ijt}} z_k \geq 1.
 \end{aligned}$$

(P1) is a mixed integer 0–1 linear programming model (McCarl and Spreen, 2011). Due to the non-convex nature of the constraint set, convex programming approaches do not apply here. Implicit or explicit iterative search procedures such as branch and bound method, Balas’ adaptive algorithm, Lagrangian relaxation and heuristics are some of the methods discussed in the literature to solve such models. The constraint set of model (P1) may or may not have feasible solution. In case a feasible solution of model (P1) exists then it can be solved using the optimization software such as LINGO, MATLAB, Mathematica, etc. Here, we have coded the model on LINGO 14.0 professional version and branch and bound integer programming method is used to solve the model.

In case the feasible solution does not exist a compromised feasible solution can be obtained, we can use several available methods like Isolating an Irreducible Infeasible System (IIS), where an infeasible set of constraints becomes feasible if any constraint is removed; finding a Maximum Feasible Subset (Max FS), where we find a maximum cardinality subset of constraints that is feasible; GPA, etc. Goal programming (Steuer, 1986) can be used to solve the problems in the scenario where decision makers have more than one goal or objective (with feasible/infeasible solution) or if the single-objective linear programming problem results in an infeasible solution. In the latter case, the decision maker seeks the best acceptable solution (closest feasible solution), given the various criteria that must be satisfied. Methods like IIS and Max FS completely remove the constraints which make the constraint set infeasible and also difficult to program and solve. Here, we use goal programming (Steuer, 1986) to solve the model as it does not remove the constraint but provide a compromised solution. In case if a particular constraint cannot be

removed or compromised it can be made rigid constraint in goal programming and other constraints may be traded-off. Also GPA is appropriate for this study due to simplicity of formulation and coding as compared to IIS and Max FS methods. The goal model for the model (P1) is also solved using the software support LINGO.

3.2. Solution methodology

To solve the model (P1), we require to form the sets S and S_{ijt} . Then one requires to collect the data for the parameters like length of planning period (T), N , m_j , R_{ij} , C_{ij} , a_k , w_k , W_k . Using the collected data the model can be programmed on the software and solved. Reader may refer to the reference (McCarl and Spreen, 2011) to study the integer programming method to solve the model. In case the model provides infeasible solution, an equivalent goal model of the model (P1) has to be formulated.

3.2.1. Goal programming approach

In goal programming formulation, deviations from the objective and constraints are minimized subject to constraints and targets on objectives. Goal programming minimizes the amount by which goal can be violated. The model is solved in two stages. First, we solve the problem using constraints set only and then the goal of an objective is incorporated. Problem (P1) can be solved in two stages as follows:

Minimize $g_0(\eta, \rho, x, y, z)$

$$= \sum_{k \in S_{ijt}} (\eta_k^1 + \rho_k^2) + \sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{k \in S_{ijt}} \sum_{t=1}^T (\eta_{ijkt}^3 + \rho_{ijkt}^3) + \sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{t=1}^T \rho_{ijt}^4$$

$$+ \sum_{j=1}^n \sum_{k \in S_{ijt}} \sum_{t=1}^T (\eta_{jkt}^5 + \rho_{jkt}^5) + \sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{t=1}^T \rho_{ijlt}^6 + \eta^7,$$

Subject to $\sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{t=1}^T x_{ijlkt} + \eta_k^1 - \rho_k^1 = w_k \times a_k \times z_k \quad \forall k \in S_{ijt},$

$$\sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{t=1}^T x_{ijlkt} + \eta_k^2 - \rho_k^2 = W_k \times a_k \times z_k \quad \forall k \in S_{ijt},$$

$$\sum_{l=1}^{R_{ij}} x_{ijlkt} + \eta_{ijkt}^3 - \rho_{ijkt}^3 = a_k \times y_{ijkt} \quad \forall i, j, t, k \in S_{ijt}, \quad (P2)$$

$$\begin{aligned}
 & \sum_{l=1}^{R_{ij}} \sum_{k \in S_{ijt}} x_{ijklkt} + \eta_{ijt}^4 - \rho_{ijt}^4 = R_{ij} \quad \forall i, j, t, \\
 & \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} x_{ijklkt} + \eta_{jkt}^5 - \rho_{jkt}^5 = a_k \quad \forall j, t, k \in S_{ijt}, \\
 & \sum_{k \in S_{ijt}} x_{ijklkt} + \eta_{ijlt}^6 - \rho_{ijlt}^6 = 1 \quad \forall i, j, l, t, \\
 & \sum_{k \in S_{ijt}} z_k + \eta^7 - \rho^7 = 1, \\
 & \eta_k^1, \eta_k^2, \eta_{ijkt}^3, \eta_{ijt}^4, \eta_{jkt}^5, \eta_{ijlt}^6, \eta^7, \rho_k^1, \rho_k^2, \rho_{ijkt}^3, \rho_{ijt}^4, \rho_{jkt}^5, \rho_{ijlt}^6, \rho^7 \geq 0,
 \end{aligned}$$

where, η and ρ are over- and under-achievement (positive- and negative-deviational) variables from the goals for the objective/constraint function and $g_0(\eta, \rho, x, y, z)$ is goal objective function corresponding to rigid constraint functions.

The choice of deviational variable in the goal objective functions which has to be minimized depends upon the following rule. Let $f(X)$ and b be the function and its goal respectively and η and ρ be the over- and under-achievement (positive-and negative-deviational) variables then

- if $f(X) \leq b$, ρ is minimized under the constraints $f(X) + \eta - \rho = b$,
- if $f(X) \geq b$, η is minimized under the constraints $f(X) + \eta - \rho = b$,
- if $f(X) = b$, $\eta + \rho$ is minimized under the constraints $f(X) + \eta - \rho = b$.

Let $(\eta^0, \rho^0, x^0, y^0, z^0)$ be the optimal solution for the problem (P2) and $g_0(\eta^0, \rho^0, x^0, y^0, z^0)$ be its corresponding objective function value then finally goal programming problem can be formulated using optimal solution of the problem (P2) through the problem (P1) as follows:

Minimize $g(\eta, \rho, x, y, z) = \eta^8,$

Subject to $\sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{t=1}^T x_{ijklkt} + \eta_k^1 - \rho_k^1 = w_k \times a_k \times z_k \quad \forall k \in S_{ijt},$

$$\sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{t=1}^T x_{ijklkt} + \eta_k^2 - \rho_k^2 = W_k \times a_k \times z_k \quad \forall k \in S_{ijt},$$

$$\sum_{l=1}^{R_{ij}} x_{ijklkt} + \eta_{ijkt}^3 - \rho_{ijkt}^3 = a_k \times y_{ijkt} \quad \forall i, j, t, k \in S_{ijt},$$

$$\sum_{l=1}^{R_{ij}} \sum_{k \in S_{ijt}} x_{ijklkt} + \eta_{ijt}^4 - \rho_{ijt}^4 = R_{ij} \quad \forall i, j, t, \tag{P3}$$

$$\sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} x_{ijklkt} + \eta_{jkt}^5 - \rho_{jkt}^5 = a_k \quad \forall j, t, k \in S_{ijt},$$

$$\sum_{k \in S_{ijt}} x_{ijklkt} + \eta_{ijlt}^6 - \rho_{ijlt}^6 = 1 \quad \forall i, j, l, t,$$

$$\sum_{k \in S_{ijt}} z_k + \eta^7 - \rho^7 = 1,$$

$$\sum_{j=1}^n \sum_{i=1}^{m_j} \sum_{l=1}^{R_{ij}} \sum_{k \in S_{ijt}} \sum_{t=1}^T C_{ij} x_{ijklkt} + \eta^8 - \rho^8 = R^*,$$

$$g_0(\eta, \rho, x, y, z) = g_0(\eta^0, \rho^0, x^0, y^0, z^0),$$

$$\eta_k^1, \eta_k^2, \eta_{ijk}^3, \eta_{ijl}^4, \eta_{jkt}^5, \eta_{ijlt}^6, \eta^7, \eta^8, \rho_k^1, \rho_k^2, \rho_{ijk}^3, \rho_{ijl}^4, \rho_{jkt}^5, \rho_{ijlt}^6, \rho^7, \rho^8 \geq 0,$$

where R^* is the aspiration level aspired by the management on revenue. The target on maximum revenue can be set by management based on the revenue in the previous planning periods or finding the maximum profit that can be obtained in a planning period. For obtaining an upper bound on the revenue, if we assume that space on all available banners is filled completely in all the time slots, we can calculate the maximum revenue from each banner using the values of C_{ij} and R_{ij} . Both models (P2) and (P3) can be programmed on LINGO and solved. Solution process is further illustrated with a case study in Sec. 4.

4. Case Study

A hypothetical case study for scheduling ads on multiple webpages of a news website is presented here to validate the proposed model. A planning horizon of one week is considered in which ads are updated periodically in a time slot of 2 h. We consider a news website which consists of five webpages. The number of rectangular banners on these webpages is $m_1 = 3, m_2 = 2, m_3 = 3, m_4 = 4$ and $m_5 = 2$. The number of partitions on these banners is $R_{11} = 6, R_{21} = 4, R_{31} = 6, R_{12} = 7, R_{22} = 5, R_{13} = 4, R_{23} = 5, R_{33} = 5, R_{14} = 4, R_{24} = 5, R_{34} = 5, R_{44} = 6, R_{15} = 7, R_{25} = 4$ and the cost per partition of these banners is $C_{11} = '500, C_{21} = '500, C_{31} = '450, C_{12} = '450, C_{22} = '450, C_{13} = '400, C_{23} = '300, C_{33} = '250, C_{14} = '250, C_{24} = '250, C_{34} = '200, C_{44} = '200, C_{15} = '200$ and $C_{25} = '150$. A pictographic representation of how the partitions are entrenched in the banners is illustrated in Fig. 3.

A set of 150 ads, $S = \{A_1, A_2, \dots, A_{150}\}$ compete to be placed on these webpages in a planning horizon which is assumed to be 1 week. Now, a week consists of 7 days and each day consists of 24 h. Since ads are updated every 2 h on the webpage, in this case we have $84 (= 7 \times (24/2))$ time slots to schedule ads. Demonstrating sets of ads competing for i th banner on j th webpage at all time units is not feasible considering the length of the paper, therefore, we have presented the data pertaining

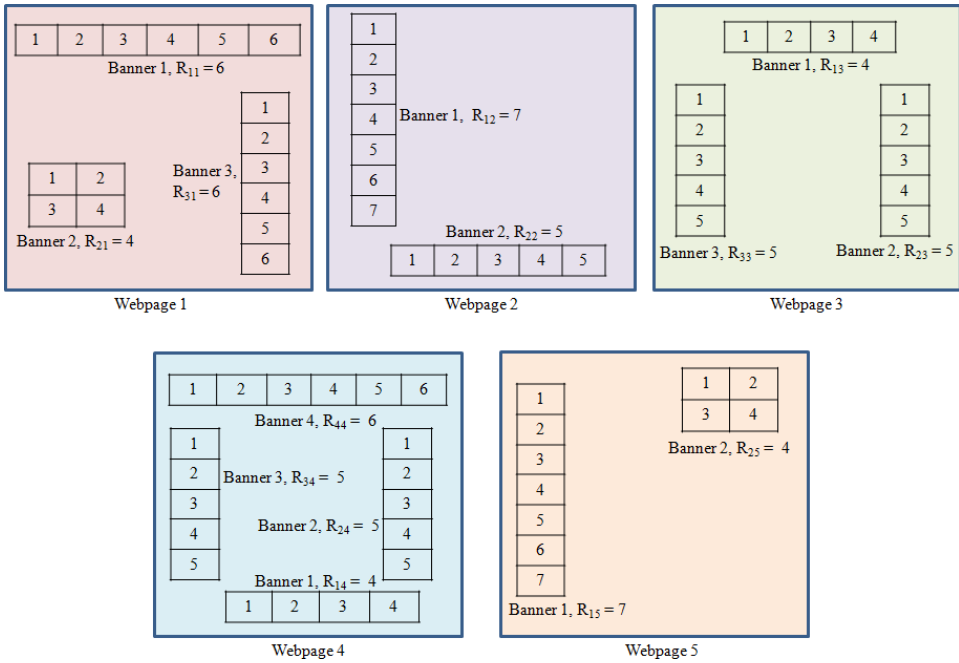


Fig. 3. Illustration of partitions in the banner.

to randomly selected time units in Appendix A. Minimum and maximum frequencies and partition requirement for the ads are listed in Table 3.

When model (P1) is solved on LINGO Software using integer programming algorithm with the data specified above and in Table 3, we obtain an infeasible solution. Hence, GPA is used to obtain a compromised solution. Target on revenue is taken to be ‘20,07,600 which is the maximum revenue that can be obtained if all banners are full throughout the planning horizon. The compromised solution obtained after applying GPA for time slots 1–10 is given in Table 4. Rest of the solution table for time slots (11–84) is given in Appendix A (Table A.1).

As mentioned in the previous section, the model has been solved first using branch and bound method. In case, the model gives an infeasible solution, goal programming is used to solve the model. In both the cases model is coded and solved on LINGO 14.0 (Thiriez, 2000). It is a comprehensive tool designed to build and solve large scale linear, nonlinear, quadratic, stochastic and integer optimization models easily and more efficiently. Advantages of using LINGO are ease of coding and its powerful built-in global solver that automatically selects the suitable solver for the specific problem. The coded model was run on an 8 GB RAM computing machine and it took 1 h 14 min to solve the hypothetical case. As the proposed model is a mixed integer 0–1 linear programming model, the computational time of the model grows much higher as the model application scale increases as compared to a linear model with the similar scale. Professional version of LINGO Software does

Table 3. Frequency and partition requirement table.

Ads (A_k)	w_k	W_k	a_k	Ads (A_k)	w_k	W_k	a_k	Ads (A_k)	w_k	W_k	a_k	Ads (A_k)	w_k	W_k	a_k
A_1	7	50	3	A_{39}	11	26	6	A_{77}	5	39	5	A_{115}	13	50	2
A_2	9	58	5	A_{40}	9	50	2	A_{78}	4	69	4	A_{116}	11	47	3
A_3	11	70	6	A_{41}	13	62	4	A_{79}	4	28	4	A_{117}	8	32	7
A_4	15	60	7	A_{42}	5	30	3	A_{80}	2	33	2	A_{118}	15	62	3
A_5	12	50	4	A_{43}	8	50	5	A_{81}	5	40	2	A_{119}	7	42	2
A_6	15	40	5	A_{44}	10	40	3	A_{82}	11	50	3	A_{120}	9	50	2
A_7	11	48	4	A_{45}	12	52	4	A_{83}	9	50	3	A_{121}	8	50	4
A_8	14	50	3	A_{46}	9	45	2	A_{84}	7	42	4	A_{122}	6	30	3
A_9	13	60	2	A_{47}	7	32	7	A_{85}	10	50	7	A_{123}	13	48	5
A_{10}	8	30	2	A_{48}	12	58	6	A_{86}	8	45	6	A_{124}	10	40	6
A_{11}	7	38	4	A_{49}	5	29	4	A_{87}	6	30	5	A_{125}	7	32	2
A_{12}	11	45	7	A_{50}	10	36	5	A_{88}	5	26	2	A_{126}	6	32	5
A_{13}	9	40	5	A_{51}	2	28	2	A_{89}	5	35	2	A_{127}	8	40	3
A_{14}	8	50	3	A_{52}	3	28	3	A_{90}	10	34	4	A_{128}	5	35	4
A_{15}	5	48	2	A_{53}	7	60	7	A_{91}	13	42	7	A_{129}	10	50	2
A_{16}	12	50	2	A_{54}	2	30	2	A_{92}	8	30	6	A_{130}	15	60	5
A_{17}	11	35	7	A_{55}	4	46	4	A_{93}	5	27	2	A_{131}	6	30	4
A_{18}	14	48	5	A_{56}	6	57	6	A_{94}	12	38	3	A_{132}	14	55	6
A_{19}	7	34	6	A_{57}	3	36	3	A_{95}	9	26	4	A_{133}	9	30	4
A_{20}	6	42	4	A_{58}	2	35	2	A_{96}	6	30	4	A_{134}	15	65	5
A_{21}	8	39	2	A_{59}	4	40	4	A_{97}	13	52	3	A_{135}	7	45	5
A_{22}	5	35	3	A_{60}	2	55	2	A_{98}	7	30	2	A_{136}	10	50	2
A_{23}	5	45	3	A_{61}	5	30	5	A_{99}	9	40	5	A_{137}	6	36	4
A_{24}	8	40	4	A_{62}	7	40	7	A_{100}	10	30	5	A_{138}	15	65	6
A_{25}	7	52	5	A_{63}	6	40	6	A_{101}	14	55	4	A_{139}	8	40	3
A_{26}	10	46	7	A_{64}	3	48	3	A_{102}	6	32	3	A_{140}	7	40	3
A_{27}	12	50	6	A_{65}	4	36	4	A_{103}	15	65	4	A_{141}	10	65	2
A_{28}	5	32	5	A_{66}	2	95	2	A_{104}	8	32	4	A_{142}	9	45	4
A_{29}	8	35	4	A_{67}	7	50	7	A_{105}	9	40	6	A_{143}	11	52	5
A_{30}	7	32	3	A_{68}	6	31	6	A_{106}	15	80	2	A_{144}	8	41	7
A_{31}	6	46	3	A_{69}	5	34	5	A_{107}	10	40	2	A_{145}	12	52	5
A_{32}	10	58	2	A_{70}	4	54	4	A_{108}	8	36	4	A_{146}	7	47	6
A_{33}	5	20	7	A_{71}	3	23	3	A_{109}	7	31	6	A_{147}	10	55	2
A_{34}	11	36	3	A_{72}	2	60	2	A_{110}	5	24	3	A_{148}	9	45	4
A_{35}	7	24	2	A_{73}	2	40	2	A_{111}	15	59	7	A_{149}	5	30	4
A_{36}	10	30	4	A_{74}	4	35	4	A_{112}	9	42	5	A_{150}	7	47	3
A_{37}	5	27	5	A_{75}	7	24	7	A_{113}	14	50	5				
A_{38}	8	30	4	A_{76}	6	28	6	A_{114}	8	42	4				

not impose limitation on the number of variables and constraints while solving the model; however, it is restricted by the size of the primary memory. Computational time also depends on the RAM size.

The revenue generated by this placement of ads comes out to be ‘19,59,600. It can be seen from Table 4 that when users access webpage 1 of news website for 3rd and 4th hours of day 1, i.e., at $t = 2$, ads A_{115} (requiring 2 partitions) and A_{148} (requiring 4 partitions) appear in the first banner of that webpage, i.e., ads share the 6 partitions available in slot S_{11} . Again it can be seen from Table A.1

Table 4. GPA solution (ads allotted to banner i of webpage j in time slots 1–10).

Time slots (t)	Banners																			
	Slot 11	Slot 21	Slot 31	Slot 12	Slot 22	Slot 13	Slot 23	Slot 33	Slot 14	Slot 24	Slot 34	Slot 44	Slot 15	Slot 25						
1	A44, A147	A46, A60	A102, A127	A35, A46, A107	A57, A72	A73, A106	A57, A72	A22, A119	A73, A136	A10, A82	A94, A129	A146	A44, A142	A32, A119						
2	A115, A148	A16, A106	A83, A127	A53	A15, A23	A66, A147	A22, A119	A64, A98	A10, A129	A22, A9, A119	A9, A116	A14, A94	A86	A32, A60						
3	A97, A116	A15, A107	A66, A148	A58, A97, A98	A34, A35	A49	A82, A141	A52, A147	A88, A147	A40, A122	A42, A66	A79, A119	A97, A104	A10, A115						
4	A56	A84	A39	A41, A118	A52, A72	A35, A58	A10, A80	A8, A40	A66, A98	A81, A115	A97, A119	A15, A72, A147	A16, A64	A21, A129						
5	A93, A147	A120, A66	A118, A129	A33	A15, A150	A54, A115	A81, A110	A94, A129	A32, A120	A134	A35, A110	A72, A95	A91	A66, A141						
6	A51, A73	A66, A65	A8, A118	A17	A46, A93	A10, A40	A103, A125	A115, A147	A51, A147	A126	A66, A110	A15, A89, A98	A8, A147	A60, A66						
7	A82, A94	A121	A78, A147	A69, A107	A44, A80	A9, A106	A97, A107	A44, A115	A136, A147	A135	A139, A141	A71, A116	A8, A21	A106, A115						
8	A93, A141	A115, A106	A78, A81	A72, A129	A58, A94	A98, A141	A112, A119	A52, A115	A66, A115	A61	A110, A147	A82, A83	A73, A120	A15, A119						
9	A32, A115	A73, A81	A14, A118	A14, A98	A15, A73, A97	A70, A73	A32, A140	A44, A58	A21, A66	A142	A121	A32, A40, A73	A85	A72, A106						
10	A97, A116	A101	A58, A125	A78, A88	A32, A106	A119, A147	A43	A77	A106, A129	A113	A82, A120	A39	A21, A52, A119	A35, A141						

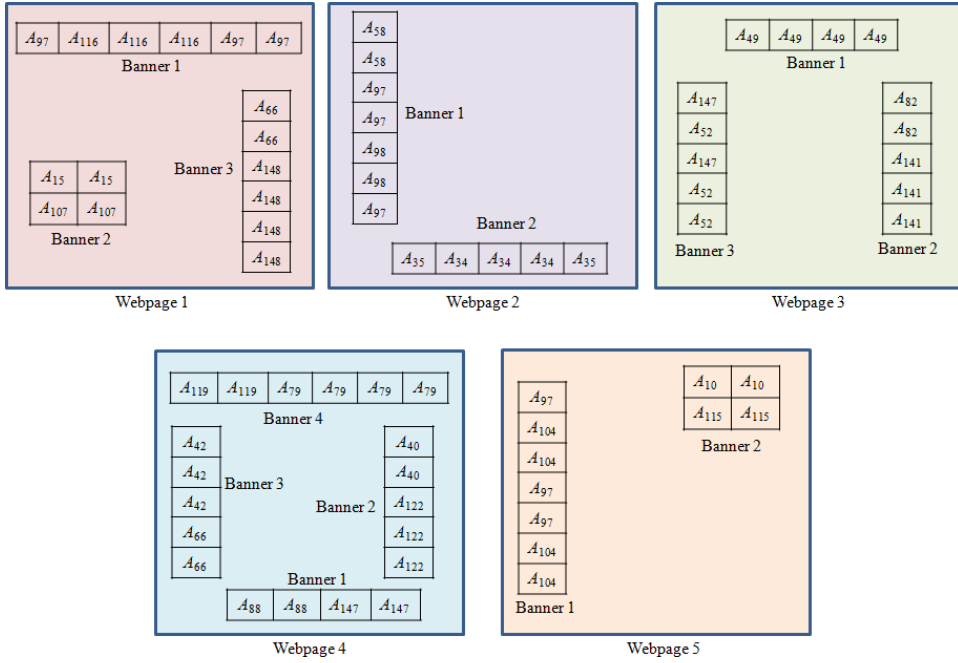


Fig. 4. Display of ads on a news website at time unit $t = 3$.

that at time unit $t = 54$, i.e., during sixth hour of day 5, ads A_{15} , A_{58} and A_{147} appear in 4th banner of webpage 4. Similarly, time schedule of other ads can be interpreted from the Tables 4 and A.1. To give a clear picture of how the ads are actually displayed to the users in accordance with the schedule shown in Tables 4 and A.1, a pictorial representation of the selected ads at time unit $t = 3$ is shown in Fig. 4.

As can be seen from Fig. 4, A_{97} and A_{116} appear in first banner of webpage 1. But the two ads have not been allotted consecutive partitions. As visible, ad A_{97} has been allotted partitions 1, 5 and 6 and ad A_{116} has been allotted partitions 2, 3 and 4. But when the ads are actually displayed on the website they appear in the consecutive partitions and not in parts. Here, we assume that the internal rearrangement of ads can be done to place them in consecutive partitions. A pictorial representation of the selected ads on the news website at time unit $t = 3$ after internal rearrangement is shown in Fig. 5. Here as the set S_{ijt} is formed based on the advertiser's requirement and size and shape of the banners, the internal rearrangement is possible in all cases.

Now in first banner of webpage 1, ad A_{97} appears in partitions 1, 2 and 3 and ad A_{116} appears in partitions 4, 5 and 6. Similarly display of other ads post internal rearrangement can be seen in Fig. 5.

This shows that when the developed model is applied to the real life data sets pertaining to the ads having varying partition requirements competing to be placed

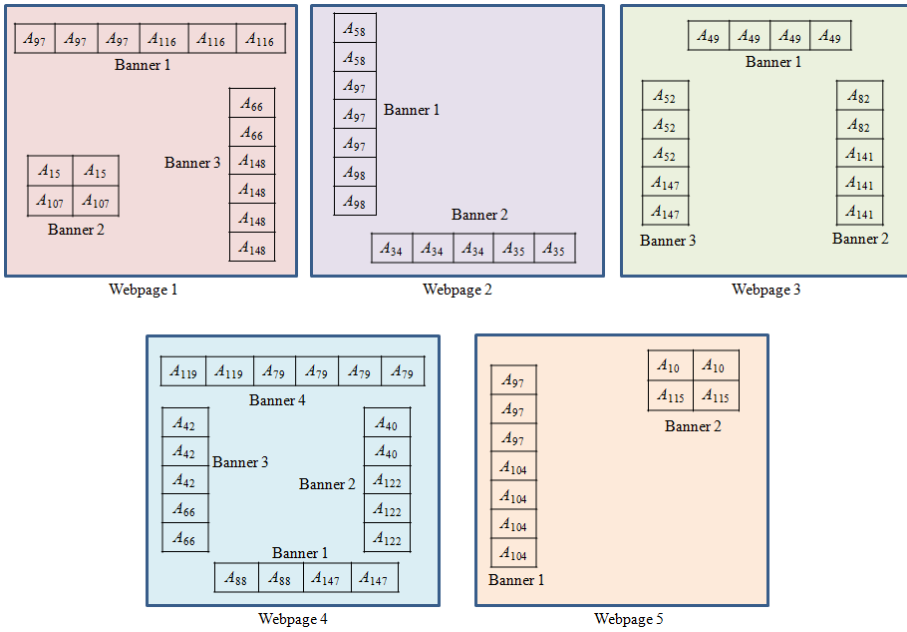


Fig. 5. Display of ads on a news website after internal rearrangement at time unit $t = 3$.

on various banners of different webpages of a website at distinct time units, it results in the best possible placement of the ads on different webpages of a website over the planning horizon under system constraints such that the revenue for the web service provider is maximized.

5. Conclusions

In this paper, we have formulated a mixed integer 0–1 linear programming model for scheduling banner ads on a news website. Different advertisers compete at different time slots for placing their ads on the rectangular banners available on the webpages of the website. Each rectangular banner in turn consists of different number of partitions for which a subset of ads can compete. Set of ads competing for a particular banner in a specified time slot is formed based on advertiser’s requirements and technical constraints. The optimal schedule of ads in different time slots of a given planning horizon on the various webpages of a news website is determined, incorporating slot sharing and the restriction on the selection of an ad on the same webpage more than once at any instant of time in such a way that the revenue is maximized. Here, the revenue is calculated from the cost per unit partition that advertisers pay to place their ads on the website. Branch and bound integer programming method and goal programming methods are used to solve the models. Optimization software support LINGO is used to code and obtain the model solution. A case study is presented in the paper to show the application of the problem.

One of the key contributions of our study is the direct incorporation of a differential pricing program which charges different prices for alternative banner placements and different time intervals. This offers an interesting extension to the basic MaxSpace problem proposed earlier in the literature.

A limitation of our study is that we have not considered advertising budgets in our model. While we have considered the advertisers concerns in constraining the number of impressions between a lower and an upper limit, we have not taken into account any concerns that the advertisers may have with respect to total cost of an ad campaign. These aspects may be considered in the future extension of this work. Other limitation of the study is that only branch and bound integer programming method and goal programming in case of infeasibility is explored to obtain the solution. A further study could do a comparative study of different methods and development of heuristics to solve the model. Also, the web ad scheduling problem may be further explored considering other types of web ads, priority-based scheduling, etc.

Appendix A

Sets of ads competing for i th banner on j th webpage at first time unit

$$S_{111} = \{A_2, A_{44}, A_{45}, A_{50}, A_{55}, A_{61}, A_{79}, A_{80}, A_{86}, A_{90}, A_{127}, A_{147}, A_{149}\},$$

$$S_{211} = \{A_2, A_{44}, A_{45}, A_{50}, A_{55}, A_{61}, A_{79}, A_{80}, A_{86}, A_{90}, A_{127}, A_{147}, A_{149}\},$$

$$S_{311} = \{A_{13}, A_{16}, A_{51}, A_{68}, A_{79}, A_{86}, A_{98}, A_{102}, A_{109}, A_{127}, A_{128}, A_{129}, A_{149}\},$$

$$S_{121} = \{A_6, A_{35}, A_{37}, A_{43}, A_{46}, A_{48}, A_{61}, A_{65}, A_{81}, A_{87}, A_{92}, A_{107}, A_{116}, \\ A_{118}, A_{134}, A_{146}\},$$

$$S_{221} = \{A_{11}, A_{22}, A_{34}, A_{40}, A_{44}, A_{51}, A_{55}, A_{57}, A_{58}, A_{64}, A_{72}, A_{74}, A_{101}, A_{137}, A_{145}\},$$

$$S_{131} = \{A_7, A_{15}, A_{20}, A_{32}, A_{36}, A_{45}, A_{51}, A_{66}, A_{73}, A_{79}, A_{84}, A_{90}, A_{93}, A_{101}, A_{106}, \\ A_{115}, A_{120}, A_{133}, A_{137}, A_{141}, A_{149}\},$$

$$S_{231} = \{A_7, A_{20}, A_{37}, A_{40}, A_{51}, A_{57}, A_{58}, A_{72}, A_{84}, A_{90}, A_{101}, A_{112}, A_{115}, A_{118}, A_{129}, \\ A_{133}, A_{137}, A_{139}, A_{147}\},$$

$$S_{331} = \{A_5, A_6, A_{21}, A_{22}, A_{35}, A_{49}, A_{50}, A_{55}, A_{72}, A_{74}, A_{87}, A_{100}, A_{102}, A_{119}\},$$

$$S_{141} = \{A_{15}, A_{36}, A_{41}, A_{58}, A_{59}, A_{73}, A_{78}, A_{103}, A_{104}, A_{136}, A_{142}, A_{148}, A_{149}\},$$

$$S_{241} = \{A_2, A_5, A_{10}, A_{40}, A_{52}, A_{55}, A_{58}, A_{82}, A_{102}, A_{116}, A_{137}, A_{143}\},$$

$$S_{341} = \{A_5, A_{15}, A_{30}, A_{37}, A_{42}, A_{43}, A_{55}, A_{64}, A_{65}, A_{69}, A_{87}, A_{94}, A_{100}, \\ A_{116}, A_{129}, A_{133}\},$$

$$S_{441} = \{A_3, A_5, A_{18}, A_{19}, A_{22}, A_{25}, A_{27}, A_{29}, A_{32}, A_{39}, A_{63}, A_{65}, A_{80}, A_{83}, A_{84}, A_{100}, A_{109}, A_{116}, A_{132}, A_{142}, A_{146}, A_{148}\},$$

$$S_{151} = \{A_1, A_{15}, A_{16}, A_{20}, A_{25}, A_{29}, A_{33}, A_{34}, A_{44}, A_{48}, A_{49}, A_{54}, A_{67}, A_{69}, A_{77}, A_{92}, A_{94}, A_{100}, A_{122}, A_{128}, A_{129}, A_{142}, A_{148}, A_{150}\},$$

$$S_{251} = \{A_7, A_{32}, A_{49}, A_{54}, A_{73}, A_{79}, A_{88}, A_{95}, A_{96}, A_{119}, A_{128}, A_{133}, A_{148}\}.$$

Sets of ads competing for i th banner on j th webpage at 20th time unit

$$S_{1120} = \{A_{23}, A_{39}, A_{43}, A_{50}, A_{56}, A_{68}, A_{73}, A_{74}, A_{80}, A_{81}, A_{86}, A_{108}, A_{114}, A_{122}, A_{131}, A_{143}\},$$

$$S_{2120} = \{A_{35}, A_{49}, A_{60}, A_{66}, A_{73}, A_{80}, A_{81}, A_{88}, A_{89}, A_{101}, A_{104}, A_{106}, A_{107}, A_{119}, A_{120}, A_{125}, A_{142}, A_{147}\},$$

$$S_{3120} = \{A_{18}, A_{30}, A_{34}, A_{39}, A_{50}, A_{56}, A_{73}, A_{81}, A_{88}, A_{95}, A_{105}, A_{126}, A_{142}, A_{145}, A_{147}\},$$

$$S_{1220} = \{A_1, A_{18}, A_{27}, A_{28}, A_{31}, A_{33}, A_{36}, A_{39}, A_{43}, A_{46}, A_{51}, A_{60}, A_{67}, A_{70}, A_{72}, A_{85}, A_{106}, A_{107}, A_{139}, A_{143}, A_{144}, A_{146}, A_{148}\},$$

$$S_{2220} = \{A_{10}, A_{25}, A_{70}, A_{90}, A_{97}, A_{99}, A_{123}, A_{141}, A_{142}, A_{145}, A_{149}\},$$

$$S_{1320} = \{A_9, A_{10}, A_{36}, A_{40}, A_{45}, A_{51}, A_{54}, A_{59}, A_{65}, A_{73}, A_{78}, A_{80}, A_{96}, A_{101}, A_{104}, A_{128}\},$$

$$S_{2320} = \{A_{52}, A_{84}, A_{99}, A_{103}, A_{107}, A_{110}, A_{126}, A_{130}, A_{147}, A_{150}\},$$

$$S_{3320} = \{A_{29}, A_{38}, A_{40}, A_{41}, A_{74}, A_{83}, A_{93}, A_{94}, A_{95}, A_{104}, A_{127}, A_{136}\},$$

$$S_{1420} = \{A_{10}, A_{11}, A_{24}, A_{40}, A_{49}, A_{54}, A_{55}, A_{66}, A_{84}, A_{88}, A_{93}, A_{96}, A_{101}, A_{108}, A_{115}, A_{120}, A_{128}, A_{137}\},$$

$$S_{2420} = \{A_{18}, A_{20}, A_{28}, A_{35}, A_{44}, A_{61}, A_{94}, A_{98}, A_{130}, A_{133}\},$$

$$S_{3420} = \{A_{13}, A_{20}, A_{41}, A_{44}, A_{57}, A_{61}, A_{82}, A_{83}, A_{84}, A_{95}, A_{100}, A_{112}, A_{115}, A_{120}, A_{133}, A_{141}, A_{147}, A_{149}\},$$

$$S_{4420} = \{A_{16}, A_{48}, A_{60}, A_{78}, A_{79}, A_{89}, A_{98}, A_{116}, A_{131}, A_{146}, A_{149}\},$$

$$S_{1520} = \{A_{17}, A_{25}, A_{34}, A_{45}, A_{52}, A_{62}, A_{66}, A_{100}, A_{144}, A_{149}\},$$

$$S_{2520} = \{A_{36}, A_{45}, A_{54}, A_{65}, A_{101}, A_{104}, A_{106}, A_{121}, A_{125}, A_{133}, A_{142}\}.$$

Sets of ads competing for i th banner on j th webpage at 54th time unit

$$S_{11\ 54} = \{A_3, A_7, A_{10}, A_{16}, A_{43}, A_{49}, A_{52}, A_{54}, A_{57}, A_{59}, A_{69}, A_{87}, A_{97}, A_{112}, A_{134}, A_{138}, A_{148}, A_{150}\},$$

$$S_{21\ 54} = \{A_5, A_9, A_{10}, A_{29}, A_{38}, A_{41}, A_{45}, A_{55}, A_{58}, A_{79}, A_{80}, A_{88}, A_{89}, A_{101}, A_{103}, A_{104}, A_{115}, A_{128}, A_{137}, A_{142}, A_{147}\},$$

$$S_{31\ 54} = \{A_{10}, A_{18}, A_{30}, A_{58}, A_{70}, A_{74}, A_{80}, A_{82}, A_{83}, A_{93}, A_{97}, A_{108}, A_{113}, A_{115}, A_{126}, A_{130}, A_{137}\},$$

$$S_{12\ 54} = \{A_8, A_{19}, A_{23}, A_{31}, A_{38}, A_{44}, A_{48}, A_{49}, A_{52}, A_{53}, A_{62}, A_{72}, A_{83}, A_{89}, A_{103}, A_{104}, A_{109}, A_{119}, A_{130}, A_{136}, A_{138}, A_{140}\},$$

$$S_{22\ 54} = \{A_6, A_{11}, A_{13}, A_{14}, A_{24}, A_{31}, A_{54}, A_{61}, A_{69}, A_{70}, A_{95}, A_{96}, A_{110}, A_{112}, A_{123}, A_{130}, A_{133}, A_{140}\},$$

$$S_{13\ 54} = \{A_7, A_{20}, A_{24}, A_{32}, A_{45}, A_{46}, A_{66}, A_{70}, A_{79}, A_{81}, A_{95}, A_{101}, A_{104}, A_{106}, A_{121}, A_{133}, A_{136}, A_{141}\},$$

$$S_{23\ 54} = \{A_{21}, A_{24}, A_{29}, A_{41}, A_{43}, A_{69}, A_{72}, A_{97}, A_{100}, A_{115}, A_{130}, A_{139}, A_{140}, A_{143}\},$$

$$S_{33\ 54} = \{A_{10}, A_{11}, A_{20}, A_{30}, A_{42}, A_{97}, A_{106}, A_{112}, A_{120}, A_{128}, A_{130}, A_{143}, A_{150}\},$$

$$S_{14\ 54} = \{A_7, A_{10}, A_{11}, A_{20}, A_{40}, A_{41}, A_{45}, A_{59}, A_{72}, A_{80}, A_{90}, A_{98}, A_{120}, A_{141}, A_{149}\},$$

$$S_{24\ 54} = \{A_5, A_{35}, A_{41}, A_{46}, A_{51}, A_{59}, A_{79}, A_{102}, A_{110}, A_{113}, A_{116}, A_{121}, A_{122}, A_{135}, A_{140}, A_{148}\},$$

$$S_{34\ 54} = \{A_7, A_{10}, A_{21}, A_{24}, A_{36}, A_{51}, A_{69}, A_{80}, A_{81}, A_{102}, A_{112}, A_{114}, A_{122}, A_{130}, A_{133}, A_{135}, A_{145}\},$$

$$S_{44\ 54} = \{A_3, A_6, A_{15}, A_{20}, A_{25}, A_{34}, A_{45}, A_{56}, A_{58}, A_{60}, A_{77}, A_{81}, A_{98}, A_{99}, A_{112}, A_{124}, A_{126}, A_{138}, A_{147}, A_{148}\},$$

$$S_{15\ 54} = \{A_9, A_{11}, A_{15}, A_{19}, A_{24}, A_{26}, A_{48}, A_{59}, A_{69}, A_{73}, A_{76}, A_{79}, A_{85}, A_{87}, A_{90}, A_{99}, A_{101}, A_{116}, A_{121}, A_{127}, A_{143}\},$$

$$S_{25\ 54} = \{A_7, A_{16}, A_{21}, A_{24}, A_{41}, A_{60}, A_{70}, A_{104}, A_{108}, A_{121}, A_{131}, A_{133}, A_{137}, A_{149}\}.$$

Sets of ads competing for i th banner on j th webpage at 65th time unit

$$S_{11\ 65} = \{A_7, A_{10}, A_{13}, A_{25}, A_{38}, A_{43}, A_{44}, A_{49}, A_{79}, A_{83}, A_{93}, A_{101}, A_{102}, A_{112}, A_{120}, A_{126}\},$$

$$S_{21\ 65} = \{A_{16}, A_{21}, A_{29}, A_{32}, A_{41}, A_{46}, A_{55}, A_{59}, A_{70}, A_{78}, A_{80}, A_{81}, A_{84}, A_{95}, A_{96}, \\ A_{98}, A_{103}, A_{120}, A_{128}, A_{147}, A_{148}\},$$

$$S_{31\ 65} = \{A_{23}, A_{43}, A_{61}, A_{63}, A_{68}, A_{70}, A_{96}, A_{101}, A_{110}, A_{112}, A_{133}, A_{148}\},$$

$$S_{12\ 65} = \{A_{10}, A_{12}, A_{17}, A_{18}, A_{20}, A_{25}, A_{31}, A_{44}, A_{51}, A_{54}, A_{56}, A_{64}, A_{73}, A_{83}, A_{88}, \\ A_{101}, A_{112}, A_{114}, A_{120}, A_{121}, A_{127}, A_{128}, A_{130}\},$$

$$S_{22\ 65} = \{A_2, A_7, A_{10}, A_{23}, A_{24}, A_{29}, A_{72}, A_{100}, A_{110}, A_{125}, A_{133}, A_{136}, A_{149}\},$$

$$S_{13\ 65} = \{A_{20}, A_{38}, A_{45}, A_{58}, A_{84}, A_{88}, A_{89}, A_{93}, A_{98}, A_{104}, A_{125}, A_{133}\},$$

$$S_{23\ 65} = \{A_5, A_6, A_{23}, A_{24}, A_{57}, A_{61}, A_{64}, A_{96}, A_{116}, A_{119}, A_{135}, A_{145}\},$$

$$S_{33\ 65} = \{A_7, A_{23}, A_{32}, A_{42}, A_{54}, A_{58}, A_{78}, A_{80}, A_{102}, A_{107}, A_{122}, A_{126}, A_{139}, A_{143}\},$$

$$S_{14\ 65} = \{A_5, A_{36}, A_{51}, A_{54}, A_{58}, A_{65}, A_{74}, A_{81}, A_{93}, A_{96}, A_{115}, A_{121}, A_{125}, A_{131}, \\ A_{136}, A_{141}, A_{147}\},$$

$$S_{24\ 65} = \{A_{11}, A_{13}, A_{25}, A_{29}, A_{34}, A_{35}, A_{73}, A_{87}, A_{88}, A_{102}, A_{134}, A_{137}, \\ A_{141}, A_{142}, A_{149}\},$$

$$S_{34\ 65} = \{A_{23}, A_{28}, A_{29}, A_{58}, A_{78}, A_{79}, A_{81}, A_{100}, A_{102}, A_{103}, A_{137}, A_{139}, A_{145}, A_{148}\},$$

$$S_{44\ 65} = \{A_6, A_{14}, A_{16}, A_{28}, A_{30}, A_{34}, A_{38}, A_{50}, A_{54}, A_{64}, A_{72}, A_{82}, A_{83}, A_{93}, A_{118}, \\ A_{129}, A_{137}, A_{147}\},$$

$$S_{15\ 65} = \{A_3, A_{10}, A_{22}, A_{23}, A_{24}, A_{32}, A_{35}, A_{38}, A_{54}, A_{56}, A_{66}, A_{70}, A_{84}, A_{96}, A_{99}, \\ A_{101}, A_{107}, A_{134}\},$$

$$S_{25\ 65} = \{A_7, A_{21}, A_{35}, A_{41}, A_{51}, A_{55}, A_{74}, A_{79}, A_{89}, A_{90}, A_{95}, A_{103}, A_{121}, A_{125}, A_{148}\}.$$

Sets of ads competing for i th banner on j th webpage at 84th time unit

$$S_{11\ 84} = \{A_9, A_{18}, A_{20}, A_{37}, A_{46}, A_{58}, A_{65}, A_{68}, A_{70}, A_{73}, A_{80}, A_{83}, A_{95}, \\ A_{107}, A_{139}, A_{148}\},$$

$$S_{21\ 84} = \{A_{10}, A_{11}, A_{15}, A_{20}, A_{21}, A_{29}, A_{51}, A_{54}, A_{74}, A_{79}, A_{89}, A_{93}, A_{95}, A_{96}, A_{98}, \\ A_{106}, A_{142}, A_{149}\},$$

$$S_{31\ 84} = \{A_{28}, A_{89}, A_{92}, A_{94}, A_{114}, A_{125}, A_{126}, A_{127}, A_{128}, A_{141}, A_{147}, A_{148}\},$$

$$S_{12\ 84} = \{A_4, A_8, A_{10}, A_{19}, A_{40}, A_{43}, A_{51}, A_{64}, A_{65}, A_{76}, A_{77}, A_{83}, A_{113}, A_{118}, A_{126}, \\ A_{129}, A_{130}, A_{137}, A_{138}, A_{140}, A_{144}, A_{146}\},$$

$$S_{22\ 84} = \{A_2, A_{11}, A_{21}, A_{25}, A_{31}, A_{42}, A_{77}, A_{81}, A_{98}, A_{102}, A_{107}, A_{122}, A_{126}, A_{133}, \\ A_{134}, A_{137}, A_{145}, A_{150}\},$$

$$S_{13\ 84} = \{A_{10}, A_{11}, A_{15}, A_{20}, A_{32}, A_{40}, A_{54}, A_{59}, A_{72}, A_{78}, A_{80}, A_{84}, A_{90}, A_{93}, \\ A_{95}, A_{125}, A_{148}\},$$

$$S_{23\ 84} = \{A_{18}, A_{37}, A_{42}, A_{44}, A_{98}, A_{102}, A_{112}, A_{120}, A_{123}, A_{126}, A_{128}, \\ A_{133}, A_{149}, A_{150}\},$$

$$S_{33\ 84} = \{A_7, A_{15}, A_{21}, A_{25}, A_{28}, A_{38}, A_{60}, A_{69}, A_{71}, A_{90}, A_{96}, A_{103}, A_{108}, \\ A_{123}, A_{127}, A_{148}\},$$

$$S_{14\ 84} = \{A_7, A_{15}, A_{24}, A_{32}, A_{35}, A_{38}, A_{41}, A_{49}, A_{58}, A_{66}, A_{79}, A_{96}, A_{98}, \\ A_{103}, A_{121}, A_{125}\},$$

$$S_{24\ 84} = \{A_6, A_{13}, A_{15}, A_{21}, A_{23}, A_{24}, A_{32}, A_{36}, A_{49}, A_{57}, A_{69}, A_{81}, A_{82}, A_{130}\},$$

$$S_{34\ 84} = \{A_{23}, A_{31}, A_{49}, A_{51}, A_{55}, A_{69}, A_{70}, A_{74}, A_{122}, A_{128}, A_{136}, A_{141}\},$$

$$S_{44\ 84} = \{A_2, A_{24}, A_{31}, A_{34}, A_{56}, A_{59}, A_{76}, A_{92}, A_{113}, A_{116}, A_{135}, A_{136}, A_{147}\},$$

$$S_{15\ 84} = \{A_{16}, A_{20}, A_{24}, A_{30}, A_{38}, A_{40}, A_{46}, A_{53}, A_{56}, A_{59}, A_{63}, A_{69}, A_{72}, A_{75}, A_{89}, \\ A_{92}, A_{97}, A_{111}, A_{114}, A_{132}, A_{135}, A_{137}, A_{140}, A_{142}, A_{150}\},$$

$$S_{25\ 84} = \{A_{10}, A_{21}, A_{32}, A_{36}, A_{38}, A_{41}, A_{49}, A_{58}, A_{60}, A_{66}, A_{70}, A_{72}, A_{73}, \\ A_{129}, A_{131}, A_{136}\}.$$

Table A.1. GPA solution (ads allotted to banner i of webpage j in time slots 11–84).

Time slots (t)	Banners																					
	Slot 11	Slot 21	Slot 31	Slot 12	Slot 22	Slot 13	Slot 23	Slot 33	Slot 14	Slot 24	Slot 34	Slot 44	Slot 15	Slot 25								
11	A10, A73, A107	A60, A81	A76	A10, A54, A72	A40, A97	A10, A66	A108	A9, A15	A35, A129	A57, A119	A52, A141	A79, A136	A67	A72, A141								
12	A8, A122	A9, A72	A15, A110	A97, A116	A40, A98	A54, A66	A77	A10, A32	A9, A54	A44, A136	A35, A83	A80, A93, A141	A72, A20	A20								
13	A106, A107, A147	A55	A76	A9, A66, A106	A120, A122	A60, A141	A97, A106	A44, A89	A9, A66	A97, A120	A130	A10, A60	A46, A72, A140	A9, A115								
14	A109	A32, A147	A39	A23, A58, A89	A97, A120	A46, A147	A66, A106	A8, A40	A15, A66	A52, A147	A42, A120	A84, A106	A46, A66, A54, A147	A147								
15	A82, A106	A66, A129	A39	A63	A60, A119	A35, A66	A72, A97	A10, A14	A98, A147	A107, A140	A72, A82	A115, A116	A10, A28	A32, A107								
16	A31, A97	A36	A94, A107	A75	A45	A72, A106	A58, A94	A42, A66	A35, A60	A2	A73, A140	A114, A120	A32, A35, A66, A106	A106								
17	A114, A115	A72, A125	A35, A60, A80	A128, A150	A97, A125	A72, A141	A130	A31, A32	A93, A136	A28	A2	A118, A147	A15, A34, A129, A141	A141								
18	A44, A97	A119, A129	A130	A15, A32, A102	A46, A122	A72, A119	A107, A110	A60, A136	A32, A60	A22, A120	A71, A115	A82, A107	A9, A143	A11								
19	A63	A32, A136	A24, A120	A45, A57	A61	A10, A141	A8	A93, A119	A10, A89	A80, A97	A102, A120	A113	A82, A106, A136	A115, A136								
20	A39	A60, A66	A73, A81, A147	A72, A106, A107	A10, A97	A9, A51	A107, A150	A40, A83	A10, A120	A35, A44	A83, A147	A60, A89, A98	A66, A100	A121								
21	A83, A116	A58, A147	A10, A80, A141	A12, A82, A118	A50	A10, A147	A9, A141	A31, A80	A131	A64, A66	A103	A35, A72, A106	A84, A107	A72, A141								
22	A39	A41	A66, A72, A106	A9, A119	A10, A110	A60, A147	A66, A110	A43	A10, A35	A50	A83, A147	A73, A107, A14, A73, A119	A35, A136	A136								

(Continued)

Table A.1. (Continued)

Time slots (<i>t</i>)	Banners														
	Slot 11	Slot 21	Slot 31	Slot 12	Slot 22	Slot 13	Slot 23	Slot 33	Slot 14	Slot 24	Slot 34	Slot 44	Slot 15	Slot 25	
23	A83, A97	A121	A74, A141	A33	A130	A51, A106	A116, A120	A112	A21, A60	A89, A119	A69	A32, A66, A141	A14, A54, A66, A72		
24	A9, A93, A147	A51, A106	A10, A29	A14, A60, A72	A40, A122	A9, A72	A80, A83	A60, A94	A32, A115	A58, A102	A66, A116	A9, A46, A141	A16, A58, A21, A60		
25	A20, A58	A9, A120	A54, A102	A10, A100	A97, A141	A40, A106	A64, A141	A120, A122	A10, A107	A77	A83, A141	A40, A79	A9, A10, A15, A32		
26	A15, A120, A129	A32, A141	A7, A106	A54, A119, A147	A66, A97	A46, A66	A140, A147	A115, A122	A60, A147	A31, A32	A35, A150	A87	A73, A115, A15, A66		
27	A51, A59	A72, A32	A10, A102	A16, A100	A57, A141	A10, A120	A18, A120	A73, A94	A32, A98	A46, A118	A31, A73	A107, A125, A147	A32, A72, A108		
28	A96, A106	A9, A16	A35, A98, A107	A66, A119, A129	A98, A122	A73, A125	A89, A97	A110, A136	A10, A72	A32, A147	A44, A66	A83, A141	A73, A103		
29	A97, A147	A72, A35	A60, A89, A129	A11, A120	A32, A122	A66, A141	A46, A71	A83, A115	A40, A89	A83, A120	A57, A106	A10, A32, A60	A64, A66, A106		
30	A10, A125	A46, A81	A105	A75	A102, A107	A10, A125	A57, A106	A22, A58	A60, A115	A122, A129	A73, A82	A32, A142	A27		
31	A10, A81, A129	A15, A115	A76	A10, A52, A81	A35, A97	A9, A58	A83, A98	A130	A72, A115	A14, A21	A35, A82	A10, A66, A80	A10, A32, A119		
32	A21, A72, A81	A131	A15, A46, A88	A10, A60, A94	A106, A110	A10, A51	A40, A127	A42, A80	A93, A115	A10, A31	A40, A127	A60, A66, A106	A8, A115, A147		
33	A42, A52	A121	A44, A129	A9, A72, A140	A82, A115	A98, A120	A73, A141	A74	A10, A147	A8, A8	A44, A120	A42, A57	A25, A66		

Table A.1. (Continued)

Time slots (t)	Banners														
	Slot 11	Slot 21	Slot 31	Slot 12	Slot 22	Slot 13	Slot 23	Slot 33	Slot 14	Slot 24	Slot 34	Slot 44	Slot 15	Slot 25	
34	A ₆₆ , A ₉₃ , A ₉₈	A ₅₄ , A ₇₃	A ₉ , A ₂₀	A ₃₃	A ₈ , A ₁₁₉	A ₃₅ , A ₆₆	A ₉₉	A ₆	A ₇₂ , A ₁₀₆	A ₅₈ , A ₁₃₉	A ₁₀ , A ₅₂	A ₆₄ , A ₁₁₈	A ₂₂ , A ₁₄₂	A ₄₆ , A ₁₂₀	
35	A ₁₁₀ , A ₁₀₆	A ₈₈ , A ₁₂₅	A ₂₁ , A ₃₅ , A ₁₄₇	A ₈₈ , A ₁₃₅	A ₁₃	A ₁₃₇	A ₈₇	A ₆	A ₇₃ , A ₁₂₀	A ₂₁ , A ₇₁	A ₁₃₀	A ₆₆ , A ₉₇	A ₁₃₆ , A ₁₄₀ , A ₁₄₁	A ₇₂ , A ₁₄₇	
36	A ₆₆ , A ₁₂₉ , A ₁₄₁	A ₃₂ , A ₈₉	A ₄₆ , A ₆₀ , A ₈₈	A ₄₆ , A ₁₄₂	A ₉ , A ₉₇	A ₆₆ , A ₇₃	A ₁₃₄	A ₁₂₉ , A ₁₄₀	A ₆₆ , A ₁₂₀	A ₁₄ , A ₈₁	A ₃₁ , A ₅₄	A ₇₈ , A ₁₁₅	A ₆₀ , A ₆₆ , A ₁₁₀	A ₂₁ , A ₅₈	
37	A ₉ , A ₄₆ , A ₅₄	A ₃₂ , A ₁₁₉	A ₄₀ , A ₆₀ , A ₈₉	A ₈₃ , A ₁₀₄	A ₁₁₅ , A ₁₃₆	A ₉ , A ₆₆	A ₇₇	A ₆₉ , A ₄₀ , A ₁₂₉	A ₆₆ , A ₁₁₉	A ₄₂ , A ₈₉	A ₉₄ , A ₁₀₇	A ₂₂ , A ₁₁₈	A ₇₁ , A ₈₄	A ₈₉ , A ₁₀₆	
38	A ₉₂	A ₅₁ , A ₁₁₉	A ₅₄ , A ₆₀ , A ₆₆	A ₅₃	A ₁₁₉ , A ₁₂₂	A ₉ , A ₁₄₇	A ₂₃ , A ₁₂₀	A ₂₂ , A ₅₈	A ₁₀ , A ₇₂	A ₃₁ , A ₉₃	A ₅₈ , A ₁₂₉	A ₄₆ , A ₈₉ , A ₁₄₇	A ₁₆ , A ₁₂₂ , A ₁₄₁	A ₁₅ , A ₁₀₆	
39	A ₇₆	A ₁₅ , A ₇₃	A ₄₀ , A ₉₄	A ₈ , A ₁₀ , A ₆₆	A ₈₁ , A ₈₂	A ₄₆ , A ₁₄₁	A ₂₁ , A ₁₁₆	A ₃₂ , A ₉₇	A ₉₈ , A ₁₄₇	A ₇₂ , A ₉₇	A ₈ , A ₁₃₆	A ₃₈ , A ₁₀₆	A ₄₂ , A ₁₀₄	A ₃₂ , A ₇₃	
40	A ₆₀ , A ₁₀₆	A ₃₅ , A ₁₄₇	A ₁₀ , A ₁₄₉	A ₇₆	A ₆₁	A ₁₀ , A ₉₃	A ₅₁ , A ₉₇	A ₁₄ , A ₄₆	A ₅₁ , A ₁₂₅	A ₉ , A ₇₂	A ₁₁₂	A ₃₅ , A ₁₀₆ , A ₁₁₉	A ₃₁ , A ₃₅ , A ₆₆ , A ₈₀	A ₅₁ , A ₈₀	
41	A ₅₂ , A ₁₁₆	A ₈₁ , A ₁₄₁	A ₁₁₈ , A ₁₂₀	A ₃₃	A ₁₄ , A ₉₈	A ₃₅ , A ₄₆	A ₇₂ , A ₁₂₉	A ₃₀ , A ₆₀	A ₈₀ , A ₈₉	A ₁₁₅ , A ₂₂	A ₅₈ , A ₁₁₈	A ₁₆ , A ₃₂ , A ₁₂₀ , A ₁₂₂ , A ₇₂ , A ₇₂	A ₁₂₀ , A ₁₂₂ , A ₁₄₁	A ₂₉ , A ₁₂₉	
42	A ₁₀₈ , A ₁₁₉	A ₉ , A ₄₆	A ₃₂ , A ₃₅ , A ₁₃₆	A ₉ , A ₁₄ , A ₅₈	A ₄₀ , A ₁₂	A ₉ , A ₄₀	A ₁₀₇ , A ₁₂₂	A ₅₇ , A ₁₁₅	A ₁₀₆ , A ₁₂₀	A ₄₂ , A ₂₉	A ₆₀ , A ₁₁₈	A ₄₆ , A ₄₉	A ₁₄ , A ₁₃₉	A ₁₀₆ , A ₁₂₉	
43	A ₁₀₄ , A ₁₀₇	A ₉₈ , A ₁₂₉	A ₄₀ , A ₁₁₉ , A ₁₄₁	A ₉ , A ₆₀ , A ₉₇	A ₄₂ , A ₉₈	A ₃₂ , A ₇₃	A ₁₁₄	A ₆₀ , A ₁₄₁	A ₈₉ , A ₁₀₆	A ₃₄ , A ₇₂	A ₈₂ , A ₁₁₉	A ₉ , A ₄₉	A ₈ , A ₁₃₁	A ₅₈ , A ₁₄₇	

(Continued)

Table A.1. (Continued)

Time slots (<i>t</i>)	Banners														
	Slot 11	Slot 21	Slot 31	Slot 12	Slot 22	Slot 13	Slot 23	Slot 33	Slot 14	Slot 24	Slot 34	Slot 44	Slot 15	Slot 25	
44	A ₂₁ , A ₄₄ A ₁₀ , A ₁₂₅	A ₄₀ , A ₁₄₂	A ₅₃	A ₅₃	A ₄₆ , A ₇₁	A ₁₄₂	A ₃₅ , A ₁₄₁	A ₃₂ , A ₅₂	A ₄₀ , A ₇₂	A ₃₂ , A ₈₂	A ₉₄ , A ₁₂₅	A ₁₄₁ , A ₁₄₉	A ₃₂ , A ₄₄ , A ₁₄₇	A ₁₀ , A ₁₀₆	
45	A ₉ , A ₅₄ , A ₁₄₇	A ₁₀₆ , A ₁₂₅	A ₃₅ , A ₁₁₈	A ₃₁ , A ₄₆ , A ₁₁₉	A ₆₁	A ₁₅ , A ₁₂₅	A ₅₂ , A ₁₄₁	A ₁₁₆ , A ₁₂₀	A ₉ , A ₃₂	A ₁₅ , A ₁₂₂	A ₈₇	A ₂₉ , A ₈₁	A ₃₅ , A ₁₂₉	A ₁₀ , A ₁₃₆	
46	A ₇₂ , A ₁₂₇	A ₃₅ , A ₈₉	A ₇₆	A ₃₃	A ₇₇	A ₆₆ , A ₉₃	A ₉₄ , A ₁₄₇	A ₁₀ , A ₁₁₀	A ₁₀₈	A ₆₉	A ₁₀₆ , A ₁₄₀	A ₈₉ , A ₁₀₃	A ₈ , A ₃₅ , A ₇₂	A ₁₄₁ , A ₁₄₇	
47	A ₁₀ , A ₂₂	A ₆₀ , A ₆₆	A ₇₃ , A ₁₃₉	A ₇₈ , A ₈₁	A ₉₄ , A ₁₂₉	A ₃₂ , A ₁₂₅	A ₈₉ , A ₉₃	A ₃₅ , A ₁₄₇	A ₁₆ , A ₁₀₆	A ₇₇	A ₅₈ , A ₉₄	A ₃₉	A ₁₀ , A ₂₁ , A ₁₀₂	A ₇	
48	A ₃₂ , A ₅₈ , A ₆₆	A ₇₂ , A ₁₀₆	A ₁₅ , A ₁₁₀	A ₉₁	A ₂₁ , A ₈₃	A ₁₀₆ , A ₁₂₉	A ₈ , A ₂₁	A ₉₄ , A ₁₄₁	A ₁₀ , A ₁₀₆	A ₁₈	A ₁₅ , A ₅₇	A ₇₂ , A ₁₂₁	A ₁₄ , A ₄₁	A ₁₂₉ , A ₁₃₆	
49	A ₁₀ , A ₁₁₅ , A ₁₄₇	A ₇₂ , A ₁₂₀	A ₈₃ , A ₁₁₈	A ₇₂ , A ₁₄₇	A ₆₆ , A ₉₇	A ₁₅ , A ₁₁₅	A ₁₂₁	A ₃₅ , A ₇₂	A ₅₁ , A ₁₄₇	A ₅₈ , A ₁₂₅	A ₉ , A ₄₆	A ₁₁₅ , A ₁₁₆	A ₇₄ , A ₁₀₇	A ₄₆ , A ₆₀	
50	A ₁₀₁	A ₈₈ , A ₁₂₉	A ₁₁ , A ₆₆	A ₄₄ , A ₉₃	A ₁₀ , A ₁₁₉	A ₄₆ , A ₈₁	A ₈₂ , A ₁₄₁	A ₁₀₆ , A ₁₂₂	A ₉ , A ₄₆	A ₇₃ , A ₁₁₉	A ₁₀₀	A ₁₀₃ , A ₁₀₇	A ₄₀ , A ₄₆ , A ₁₁₆	A ₆₆ , A ₁₁₅	
51	A ₃₄ , A ₉₇	A ₄₀ , A ₆₆	A ₁₀₂ , A ₁₁₆	A ₈ , A ₁₅ , A ₆₀	A ₄₀ , A ₈₃	A ₁₀₆ , A ₁₂₅	A ₁₁₂ , A ₁₄₁	A ₈₃ , A ₁₄₁	A ₁₀₆ , A ₁₄₇	A ₂₁ , A ₁₄₁	A ₅₈ , A ₈₂	A ₃₂ , A ₈₄	A ₁₅ , A ₃₄ , A ₁₂₀	A ₁₀ , A ₆₀	
52	A ₈₈ , A ₁₁₈	A ₄₀ , A ₆₆	A ₂₀ , A ₁₂₉	A ₁₀ , A ₈₃	A ₉₈ , A ₁₂₇	A ₁₀₆ , A ₁₁₉	A ₁₀ , A ₁₂₇	A ₁ , A ₁₀₇	A ₈₉ , A ₁₁₅	A ₅₇ , A ₁₄₁	A ₁₀ , A ₅₁	A ₁₁₂	A ₆₂	A ₈₈ , A ₁₁₉	
53	A ₇₄ , A ₈₁	A ₄₆ , A ₆₆	A ₈₂ , A ₉₇	A ₄₆ , A ₅₄ , A ₁₀₇	A ₁₈	A ₈₁ , A ₁₀₆	A ₄₀ , A ₁₃₉	A ₆₆ , A ₁₁₀	A ₇₃ , A ₁₄₇	A ₄₆ , A ₁₁₆	A ₄₁	A ₈₀ , A ₉₆	A ₇₂ , A ₁₂₉ , A ₁₅₀	A ₉₆	

Table A.1. (Continued)

Time slots (t)	Banners																								
	Slot 11	Slot 21	Slot 31	Slot 12	Slot 22	Slot 13	Slot 23	Slot 33	Slot 14	Slot 24	Slot 34	Slot 44	Slot 15	Slot 25											
54	A ₅₂ , A ₅₄	A ₈₈ , A ₉	A ₁₀ , A ₅₈ , A ₁₁₅	A ₈ , A ₈₃	A ₅₄ , A ₁₁₀	A ₆₆ , A ₁₄₁	A ₇₂ , A ₉₇	A ₄₂ , A ₁₂₀	A ₁₀ , A ₉₈	A ₃₅ , A ₄₆	A ₁₃₀	A ₁₅ , A ₅₈ , A ₁₄₇	A ₉ , A ₁₂₁	A ₂₁ , A ₆₀											
55	A ₁₀₉	A ₆₆ , A ₁₃₆	A ₅₂ , A ₁₄₇	A ₁₀ , A ₅₈ , A ₁₄₁	A ₈₃ , A ₁₂₉	A ₄₆ , A ₁₀₆	A ₁₁₄	A ₁₃₀	A ₃₂ , A ₁₀₇	A ₂₂ , A ₈₉	A ₈₁ , A ₁₁₈	A ₇₆	A ₁₁₆ , A ₁₄₀	A ₁₀ , A ₁₀₆											
56	A ₆₄ , A ₁₀₂	A ₁₁₉ , A ₁₂₉	A ₁₅ , A ₃₂ , A ₁₂₅	A ₃₃	A ₉₄ , A ₁₁₅	A ₅₁ , A ₈₉	A ₂₁ , A ₈₃	A ₃₂ , A ₉₄	A ₉ , A ₁₄₁	A ₇₁ , A ₁₁₅	A ₂₃ , A ₆₆	A ₄₆ , A ₇₂ , A ₁₁₉	A ₃₅ , A ₁₄₅	A ₉ , A ₉₈											
57	A ₆₃	A ₆₆ , A ₁₁₅	A ₃₉	A ₆₆ , A ₁₂₀ , A ₁₄₇	A ₁₀ , A ₁₅₀	A ₅₈ , A ₁₄₇	A ₉₆	A ₆₀ , A ₈₂	A ₁₀ , A ₁₂₉	A ₃₁ , A ₉₈	A ₁₁	A ₄₀ , A ₇₂ , A ₈₉	A ₄₃ , A ₇₃	A ₁₀₆ , A ₁₄₇											
58	A ₈₈ , A ₁₁₄	A ₁₁	A ₁₁₃	A ₁₀ , A ₄₆ , A ₈₃	A ₄₀ , A ₁₁₅	A ₇₂	A ₉₇ , A ₁₂₀	A ₂₁ , A ₈₁	A ₁₀ , A ₁₂₉	A ₃₅ , A ₁₂₀	A ₅₂ , A ₁₁₅	A ₄₀ , A ₅₈ , A ₈₉	A ₁₄ , A ₁₀₆ , A ₁₂₀	A ₁₂₉ , A ₁₄₁											
59	A ₈₀ , A ₁₄₀	A ₇₂ , A ₁₀₆	A ₃₆ , A ₆₆	A ₆₅ , A ₈₂	A ₃₂ , A ₉₈	A ₅₄ , A ₇₃	A ₈₂ , A ₁₀₇	A ₅₀	A ₃₂ , A ₁₀₆	A ₆₀ , A ₉₃	A ₁₁₃	A ₅₇ , A ₆₆	A ₇₈ , A ₈₉	A ₁₀₇ , A ₁₁₉											
60	A ₅₁ , A ₉₄	A ₆₆ , A ₁₄₁	A ₃₅ , A ₄₁	A ₇₅	A ₁₀₇ , A ₁₁₆	A ₉ , A ₁₄₁	A ₅₂ , A ₇₂	A ₁₃₁	A ₆₆ , A ₁₄₇	A ₄₄ , A ₁₀₆	A ₅₇ , A ₅₈	A ₁₉	A ₁₀₀ , A ₁₂₀	A ₃₂ , A ₇₃											
61	A ₂₀ , A ₇₂	A ₅₁ , A ₁₄₇	A ₂₂ , A ₃₁	A ₈₀ , A ₈₈ , A ₁₄₇	A ₃₄ , A ₁₃₆	A ₉ , A ₁₁₅	A ₄₄ , A ₇₂	A ₈₁ , A ₁₁₈	A ₃₅ , A ₈₀	A ₆₀ , A ₈₃	A ₉ , A ₅₇	A ₁₅ , A ₅₈ , A ₆₆	A ₃₉	A ₄₆ , A ₁₀₆											
62	A ₁₁₂	A ₆₆ , A ₇₃	A ₇₂ , A ₁₁₈	A ₈₃ , A ₁₁₉ , A ₁₂₀	A ₅₄ , A ₁₁₆	A ₁₀₇ , A ₁₄₁	A ₆₆ , A ₉₇	A ₈₂ , A ₁₃₆	A ₉ , A ₉₃	A ₃₅ , A ₁₁₆	A ₄₂ , A ₁₄₁	A ₁₂₆	A ₈₅	A ₅₈ , A ₁₂₉											
63	A ₄₆ , A ₇₂ , A ₉₈	A ₃₂ , A ₆₆	A ₁₀₉	A ₅₂ , A ₅₈ , A ₁₂₉	A ₈₉ , A ₉₈	A ₆₀ , A ₁₀₆	A ₁ , A ₉₈	A ₁₁₃	A ₈₉ , A ₁₁₅	A ₁₅ , A ₇₂	A ₇₃ , A ₁₂₀	A ₄₀ , A ₆₆ , A ₁₁₉	A ₂₅ , A ₃₅	A ₆₆ , A ₁₂₉											

(Continued)

Table A.1. (Continued)

Time slots (t)	Banners														
	Slot 11	Slot 21	Slot 31	Slot 12	Slot 22	Slot 13	Slot 23	Slot 33	Slot 14	Slot 24	Slot 34	Slot 44	Slot 15	Slot 25	
64	A71, A106	A32, A66	A10, A58, A107	A70, A120	A112	A131	A113	A72, A116	A32, A73	A15, A136	A16, A118	A72, A106, A107	A23, A45	A106, A120	
65	A83, A93	A98, A120	A101	A51, A73, A127	A23, A165	A104	A116, A119	A32, A139	A115, A136	A102, A141	A81, A139	A72, A129, A147	A10, A32, A35	A21, A89	
66	A103, A136	A88, A115	A15, A60, A72	A10, A94, A120	A51, A118	A9, A32	A120, A139	A25, A139	A21, A72	A9, A97	A15, A60	A32, A129, A141	A15, A32, A119	A93, A120	
67	A124	A40, A106	A10, A98, A120	A35, A126	A32, A72	A73, A106	A35, A94	A143	A125, A129	A72, A73	A121	A11, A66	A75	A107, A129	
68	A70, A88	A98, A129	A76	A94, A101	A82, A129	A106, A147	A42, A54	A66, A118	A66, A129	A130	A104	A63	A73, A103	A9, A10	
69	A10, A97	A35, A72	A21, A80, A129	A33	A15, A44	A10, A120	A35, A51	A54, A110	A11	A123	A2	A57, A118	A73, A87	A66, A129	
70	A54, A60, A119	A66, A106	A68	A51, A107, A127	A8, A81	A98, A106	A66, A122	A94, A141	A72, A98	A66, A102	A8, A93	A71, A97	A94, A103	A120, A147	
71	A54, A98, A120	A66, A72	A113	A115, A145	A93, A110	A46, A72	A51, A102	A94, A120	A10, A32	A97, A147	A98, A116	A31, A57	A32, A89, A120	A73	
72	A132	A10, A35	A44, A127	A33	A23, A147	A66, A125	A60, A118	A31, A54	A106, A147	A14, A21	A10, A22	A35, A72, A141	A58, A81, A122	A89, A147	
73	A10, A60, A147	A120, A141	A39	A10, A66, A89	A118, A119	A66, A119	A82, A147	A64, A93	A81, A129	A72, A127	A112	A119, A125, A141	A15, A35, A118	A32, A141	

Table A.1. (Continued)

Time slots (t)	Banners														
	Slot 11	Slot 21	Slot 31	Slot 12	Slot 22	Slot 13	Slot 23	Slot 33	Slot 14	Slot 24	Slot 34	Slot 44	Slot 15	Slot 25	
74	A ₄₂ , A ₁₁₀	A ₈₁ , A ₁₄₁	A ₆₄ , A ₁₁₉	A ₁₀ , A ₄₂ , A ₉₃	A ₈ , A ₂₁	A ₁₀ , A ₃₂	A ₁₀₆ , A ₁₁₉	A ₂₁ , A ₁₁₂	A ₆₆ , A ₁₀₆	A ₅₂ , A ₇₂	A ₆₀ , A ₈₃	A ₁₀ , A ₄₆ , A ₅₄	A ₈₁ , A ₁₁₆ , A ₁₂₀	A ₁₁₉ , A ₁₃₆	
75	A ₃₅ , A ₈₀ , A ₁₁₅	A ₉₃ , A ₁₂₅	A ₄₂ , A ₁₂₇	A ₈₉ , A ₁₁₀ , A ₁₄₇	A ₉ , A ₁₂₀	A ₅	A ₇₂ , A ₁₁₈	A ₉₈ , A ₁₁₆	A ₆₆ , A ₉₃	A ₈ , A ₃₅	A ₉₇ , A ₁₄₇	A ₅₇ , A ₁₄₀	A ₁₁₃ , A ₁₄₁	A ₅₄ , A ₁₂₉	
76	A ₉ , A ₁₀₇ , A ₁₂₅	A ₈₈ , A ₉₈	A ₁₀ , A ₆₀ , A ₉₈	A ₇₅	A ₅₇ , A ₁₀₆	A ₆₆ , A ₇₃	A ₃₂ , A ₅₇	A ₁₀ , A ₉₄	A ₁₀₄	A ₆₄ , A ₁₄₇	A ₃₅ , A ₁₂₇	A ₇ , A ₁₂₉	A ₁₄ , A ₉₃ , A ₁₀₆	A ₆₆ , A ₁₄₇	
77	A ₃₅ , A ₁₁₅ , A ₁₂₅	A ₉ , A ₆₆	A ₁₁₆	A ₉₁	A ₄₆ , A ₆₆ , A ₈₂	A ₄₃ , A ₁₄₁	A ₃₅ , A ₁₄₁	A ₈₀ , A ₁₀₆	A ₈₀ , A ₁₀₆	A ₁₅ , A ₈₃	A ₁₃₉ , A ₁₄₁	A ₇₃ , A ₁₀₇ , A ₁₁₉	A ₂₁ , A ₉₄	A ₄₀ , A ₇₃	
78	A ₁₅ , A ₈₂	A ₆₀ , A ₇₂	A ₉₂	A ₁₄ , A ₁₅ , A ₃₂	A ₃₅ , A ₈₀	A ₇₂ , A ₁₁₅	A ₁₁₃ , A ₁₁₉	A ₇₂ , A ₁₂₉	A ₁₅ , A ₆₆	A ₃₁ , A ₆₆	A ₁₀₆ , A ₁₄₀	A ₃₂ , A ₁₀₇	A ₃₅ , A ₁₄₇	A ₉ , A ₆₆	
79	A ₆₀ , A ₆₆ , A ₉₈	A ₁₀ , A ₅₄	A ₉ , A ₁₁₈	A ₈₀ , A ₈₂ , A ₉₈	A ₃₁ , A ₁₄₇	A ₃₅ , A ₅₈	A ₆₆ , A ₈₂	A ₄₄ , A ₁₂₅	A ₁₁₅ , A ₁₄₅	A ₁₅ , A ₄₃	A ₁₀₇	A ₁₅ , A ₄₆ , A ₈₀	A ₁₀₄ , A ₁₂₉	A ₈₁ , A ₁₂₀	
80	A ₃₂ , A ₆₄	A ₁₀₆ , A ₁₁₅	A ₈₂ , A ₁₃₆	A ₃₃	A ₃₁ , A ₈₁	A ₈₀ , A ₉₃	A ₇₂ , A ₁₂₂	A ₁₅ , A ₉₄	A ₃₂ , A ₁₄₁	A ₄₂ , A ₁₀₇	A ₁₀ , A ₇₁	A ₁₁₄ , A ₁₂₉	A ₁₅ , A ₁₄₀ , A ₁₄₁	A ₄₆ , A ₁₀₆	
81	A ₄₆ , A ₁₀₆ , A ₁₄₁	A ₈₁ , A ₁₂₉	A ₁₀₅	A ₄₀ , A ₆₆ , A ₁₂₅	A ₃₅ , A ₉₇	A ₁₄₁ , A ₁₄₇	A ₃₂ , A ₉₄	A ₁₂₂ , A ₁₄₇	A ₆₆ , A ₁₁₅	A ₁₆ , A ₉₇	A ₃₄ , A ₁₁₉	A ₅₆	A ₈₅	A ₃₂ , A ₆₆	
82	A ₃₉	A ₉ , A ₁₄₁	A ₇₉ , A ₁₃₆	A ₇₆	A ₉₇ , A ₁₄₇	A ₂₁ , A ₅₈	A ₉₇ , A ₁₂₉	A ₆₀ , A ₁₁₆	A ₁₀ , A ₆₆	A ₇	A ₇₃ , A ₈₉ , A ₁₄₁	A ₃₀ , A ₈₀	A ₄₉		
83	A ₅₈ , A ₇₃ , A ₈₁	A ₃₂ , A ₅₁	A ₅₄ , A ₁₄₁ , A ₁₄₇	A ₈₅	A ₂₈ , A ₁₄₇	A ₄₆ , A ₁₄₁	A ₄₁ , A ₁₄₁	A ₁₃₆ , A ₁₄₇	A ₁₈ , A ₁₁₅	A ₃₄ , A ₁₁₅	A ₄₆ , A ₇₇	A ₅₈ , A ₇₇	A ₄₆ , A ₈₁		
84	A ₈₀ , A ₈₃	A ₁₅ , A ₁₀₆	A ₁₁₄ , A ₁₄₇	A ₅₁ , A ₆₄ , A ₁₂₉	A ₂₁ , A ₁₀₇	A ₃₂ , A ₅₄	A ₁₁₂ , A ₇₁	A ₁₅ , A ₅₈	A ₆	A ₁₂₂ , A ₁₄₁	A ₄₆ , A ₇₂	A ₃₁ , A ₁₄₇ , A ₁₅₀	A ₅₈ , A ₆₆		

References

- Adler, M, PB Gibbons and Y Matias (2002). Scheduling space-sharing for internet advertising. *Journal of Scheduling*, 5(2), 103–119.
- Aggarwal, CC, JL Wolf and PS Yu (1998). A framework for the optimizing of WWW advertising. *Trends in Distributed Systems for Electronic Commerce*, 1402, 1–10.
- Aksakalli, V (2012). Optimizing direct response in Internet display advertising. *Electronic Commerce Research and Applications*, 11(3), 229–240.
- Albers, S and A Passen (2013). New online algorithms for story scheduling in web advertising. *Automata, Languages, and Programming*, 7966, 446–458.
- Amiri, A and S Menon (2006). Scheduling banner advertisements with multiple display frequencies. *IEEE Transactions On Systems, Man, And Cybernetics*, 36(2), 245–251.
- Beemp3.com. Available at: <http://beemp3.com>.
- Borden, NH (1964). The concept of the marketing mix. *Journal of Advertising Research*, 4(2), 2–7.
- Boskamp, V, A Knoops, F Frasincar and A Gabor (2011). Maximizing revenue with allocation of multiple advertisements on a Web banner. *Computers & Operations Research*, 38(10), 1412–1424.
- Chatterjee, P, DL Hoffman and TP Novak (2003). Modeling the clickstream: Implications for web-based advertising efforts, *Marketing Science*, 22(4), 520–541.
- Dasgupta, A, A Ghosh, H Nazerzadeh and P Raghavan (2009). Online story scheduling in web advertising. In *Proc. 20th Annual ACM-SIAM Symposium on Discrete Algorithms*, Society for Industrial and Applied Mathematics, pp. 1275–1284, Philadelphia, PA, USA.
- Dawande, M, S Kumar S and C Sriskandarajah (2003). Performance bounds of algorithms for scheduling advertisements on a web page. *Journal of Scheduling*, 6(4), 373–393.
- Dawande, M, S Kumar and C Sriskandarajah (2005). Scheduling web advertisements: A note on the MINSPACE problem. *Journal of Scheduling*, 8(1), 97–106.
- Deane, J (2012). Hybrid genetic algorithm and augmented neural network application for solving the online advertisement scheduling problem with contextual targeting. *Expert Systems with Applications*, 39(5), 5168–5177.
- Deane, J and A Agarwal (2012). Scheduling online advertisements to maximize revenue under variable frequency. *Omega*, 40(5), 562–570.
- Deane, J and A Agarwal (2013). Scheduling online advertisements to maximize revenue under non-linear pricing. *Journal of Computer Information Systems*, 53(2), 85–92.
- Dreze, X and F Zufryden (1997). Testing web site design and promotional content. *Journal of Advertising Research*, 77–91.
- Emarketer.com. Available at: <https://www.emarketer.com/Coverage/AdvertisingMarketing.aspx>. [Accessed on 10, March 2013].
- Faber, RJ, M Lee and X Nan (2004). Advertising and the consumer information environment online. *American Behavioural Scientist*, 48(4), 447–466.
- Freund, A and J Naor (2004). Approximating the advertisement placement problem. *Journal of Scheduling*, 7, 365–374.
- Gupta, A, P Manik, S Aggarwal and PC Jha (2011). Optimal advertisement planning on online news media. In *Proc. Int. Congress on Productivity, Quality, Reliability, Optimization and Modelling*, SS Handa, U Shankar and AK Chakraborty (Eds.), Vol. 2, pp. 963–978. New Delhi: Allied Publishers Pvt. Ltd.
- Huang T, L Li and J Wei (2008). Efficient approach for web services selection with multi-QoS constraints. *International Journal of Cooperative Information Systems*, 17(3), 349–371.

- Internet Advertising Bureau. Available at: <http://www.iab.net>.
- Internet Advertising Revenue Press Release. Available at: http://www.iab.net/about_the_iab/recent_press_releases/press_release_archive/press_release/4403. [Accessed on 20 February, 2015].
- Intern.com Corp., Theories and methodology. Available at: <http://webreference.com/dev/banners/theories.html>.
- Karmarkar, S and G Dutta (2010). Multi-period revenue management model for internet advertising. *Journal of Revenue & Pricing Management*, 11(2), 225–239.
- Kumar, S, VS Jacob and C Sriskandarajah (2001). Hybrid genetic algorithms for scheduling advertisements on a web page. In *Proc. 22nd Int. Conf. Information Systems*, pp. 461–468.
- Kumar, S, VS Jacob and C Sriskandarajah (2006). Scheduling advertisements on a web page to maximize revenue. *European Journal of Operational Research*, 173(3), 1067–1089.
- Kumar, S, M Dawande and V Mookerjee (2007). Optimal scheduling and placement of internet banner advertisements. *IEEE Transactions on Knowledge and Data Engineering*, 19(11), 1571–1584.
- Kumar, S and SP Sethi (2009). Dynamic pricing and advertising for web content providers. *European Journal of Operational Research*, 197(3), 924–944.
- Lu, YT, BMT Lin and KT Fang (2011). Scheduling of banner advertisements subject to time windows. In *Proc. 41st Int. Conf. Computers & Industrial Engineering*, Los Angeles, California, USA, pp. 617–622.
- Manchanda, P, JP Dube, KY Goh and PK Chintagunta (2006). The effect of banner advertising on internet purchasing. *Journal of Marketing Research*, 43(1), 98–108.
- Manik, P, A Gupta and PC Jha (2015). A goal programming model for advertisement selection on online news media. *International Game Theory Review*, 17(2), 1–21.
- Marszalkowski, J and M Drozdowski (2012). Optimization of column width in website layout for advertisement fit. *European Journal of Operational Research*, 226(3), 592–601.
- Marx, W (1996). Study shows big lifts from animated ads. *Business Marketing*, November 1. Available at <http://webreference.com/dev/banners/research.html>.
- McCandless, M (1998). Web advertising. *IEEE, Intelligent Systems and their Applications*, 13(3), 8–9.
- McCarl, BA and TH Spreen (2011). *Applied Mathematical Programming Using Algebraic Systems*. US: Texas A & M University.
- McCarthy, EJ and WD Perreault (1999). *Basic Marketing: A Managerial Approach*, 13th Edition. RD Irwin.
- Menon, S and A Amiri (2004). Scheduling banner advertisements on the web. *INFORMS Journal on Computing*, 16(1), 95–105.
- Novak, TP and DL Hoffman (1997). New metrics for new media: Toward the development of web measurement standards. *World Wide Web*, 2(1), 213–246.
- Palade, V and S Banerjee (2011). Web ad-slot offline scheduling using an ant colony algorithm. In *IEEE 10th Int. Conf. Machine Learning and Applications and Workshops (ICMLA)*, Vol. 2, Conference Publishing Services (CPS), Honolulu, Hawaii, pp. 263–268.
- Passionup.com. Available at: <http://www.passionup.com>.
- Rediff.com. Available at: <http://www.rediff.com>.
- Risden, K, M Czerwinski, S Worley, L Hamilton, J Kubinieć, H Hoffman, N Mickel and E Loftus (1998). Internet advertising: Patterns of use and effectiveness. CHI'98., In *Proc. SIGCHI Conference on Human Factors in Computing Systems*, ACM Press/Addison-Wesley Publishing Co., Los Angeles, USA, pp. 219–224.

- Roels, G and K Fridgeirsdottir (2009). Dynamic revenue management for online display advertising. *Journal of Revenue & Pricing Management*, 8(5), 452–466.
- Songs.PK. Available at: [http:// www.songspk.pk](http://www.songspk.pk).
- Srivastava, V and SK Mishra (2011). A study on the effectiveness of internet advertisements. *Indian Journal of Marketing*, 42(6), 37–46.
- Steuer, RE (1986). *Multiple Criteria Optimization: Theory, Computation and Application*. New York: Wiley.
- The Times of India. Available at: <http://timesofindia.indiatimes.com>. [Accessed on 23 September, 2012].
- Thiriez, H (2000). OR software LINGO. *European Journal of Operational Research*, 12, 655–656.
- Yager, RR (1997). Intelligent agents for world wide web advertising decisions. *International Journal of Intelligent Systems*, 12(5), 379–390.
- Wpp.com. Available at: <http://www.wpp.com/wpp/press/2013/mar/27/global-internet-ad-spend-hit-99bn-in-2012/>. [Accessed on 12 March, 2013].
- Yahoo.com. Available at: <http://www.yahoo.com>.
- 123greetings.com. Available at: <http://www.123greetings.com>.

Biography

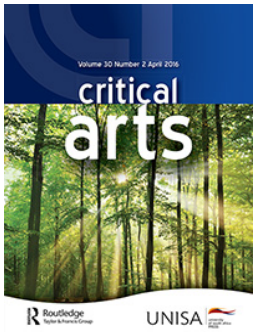
Dr. Prerna Manik obtained her PhD, MPhil and MSc degrees in the Operational Research from University of Delhi, Delhi, India in 2015, 2010 and 2009, respectively. She has also been awarded University Teaching Assistantship in the Department of Operational Research from University of Delhi. She is at present working as an Assistant Professor with K J Somaiya Institute of Management Studies and Research, Mumbai, India. Her research interests include Optimization, Marketing and Soft Computing.

Dr. Anshu Gupta obtained her PhD, MPhil and MSc degrees in Operational Research from University of Delhi, Delhi, India in 2009, 2005 and 2003, respectively. She is currently working as an Assistant Professor with School of Business, Public Policy and Social Entrepreneurship, Ambedkar University Delhi, India. She has also worked in the capacity of Assistant Professor at Department of Operational Research, University of Delhi. Her research interests include Modeling and Optimization in Software Reliability and Marketing. Prior to this she was a Research Fellow at Department of Operational Research, University of Delhi (2003–2008). She is a gold medalist in the Master’s Degree, 2003. She has co-authored a book Software Reliability Assessment with OR Applications, published by Springer. She has published several papers in the area of Software Reliability and Marketing. She is a member of the Society for Reliability Engineering, Quality and Operations Management.

Dr. P. C. Jha obtained his PhD, MPhil and MA degrees in Operational Research from University of Delhi, Delhi, India in 2004, 1988 and 1986, respectively. He is an Associate Professor in the Department of Operational Research, University of Delhi. He has contributed a chapter in edited book Handbook on Performability

Engineering, published by Springer. He has also co-authored a book Software Reliability Assessment with OR Applications, published by Springer. He has published more than 50 research papers in the areas of Software Reliability, Marketing and Optimization in Indian & International Journals and edited books. He has guided Master's projects, MBA and MPhil Dissertations and is supervising PhD students in Operational Research. His research interests include Modeling and Optimization in Software Reliability, Marketing and Supply Chain Management.

Dr. Kannan Govindan obtained his PhD (Supply chain Management), MEngg (Industrial Engg.) and BE (Mechanical) degrees in 2006, 2002 and 2001, respectively. He is the Professor in Operations & Supply Chain Management, Department of Technology and Innovation, University of Southern Denmark. He is Editor-In-Chief of several International Journals. He has received various honors, awards and fellowships. He is the author of the books Fuzzy Logic and Fuzzy Decision-Making Concepts and Applications; and Industrial Engineering and Management both published by Galgotia Publications, India. He has published more than 60 research papers in International Journals. His research interests include Purchasing, Logistics and Supply Chain Management, Environmental Supply Chain Management, Fuzzy set theory based MCDM applications in Supply Chain Management, Climate Change in Supply Chain Management, Sustainable Supply Chain Management, Pricing and contract based Reverse Logistics and Quality Engineering.



The musical journey – re-centring AfroAsia through an arc of musical sorrow

Sumangala Damodaran & Ari Sitas

To cite this article: Sumangala Damodaran & Ari Sitas (2016) The musical journey – re-centring AfroAsia through an arc of musical sorrow, *Critical Arts*, 30:2, 252-268, DOI: [10.1080/02560046.2016.1187792](https://doi.org/10.1080/02560046.2016.1187792)

To link to this article: <https://doi.org/10.1080/02560046.2016.1187792>



Published online: 05 Jul 2016.



Submit your article to this journal [↗](#)



Article views: 55



View related articles [↗](#)



View Crossmark data [↗](#)



The musical journey – re-centring AfroAsia through an arc of musical sorrow

Sumangala Damodaran and Ari Sitas

Abstract

The article weaves together the historical journey of a set of lament-like musical tropes from the seventh century AD to the 15th, to trace the commonalities in composition and performance. It argues that key to this transmission were women in servitude or slavery, and begins to explore the role of Africans in this long-distance transfer of symbolic goods.

Keywords: AfroAsia, Baghdad, historical traditions, India, journeys, lament, music, performers, slavery, women

The essential difference between cantejondo and flamenco is that the origin of the former must be sought in the primitive musical systems of India, that is, in the first manifestations of song, while the latter, a consequence of the first, cannot be said to acquire its definitive form until the eighteenth century.... The former is song imbued with the mysterious colour of primordial ages; the latter is relatively modern, its emotional interest eclipsed by that of the other. ... That is to say that, cantejondo, like the primitive musical systems of India, is merely a stammer, an emission, higher or lower in pitch, of the voice, a marvelous buccal undulation, that breaks out of the echoing prison of our tempered scale, will not suffer the cold rigid pentagram of our modern music, and makes the hermetic flowers of semitones open in a thousand petals.

(Federico García Lorca 1922)

Sumangala Damodaran is affiliated to Ambedkar University, Delhi. sumangaladamodaran@gmail.com;
Ari Sitas is affiliated to the University of Cape Town. Arisitas@gmail.com



30 (2) 2016

DOI: 10.1080/02560046.2016.1187792



ISSN 0256-0046/Online 1992-6049
pp.252–268

© Critical Arts Projects & Unisa Press

Lorca's insight in his lecture on the 'Deep song' is feisty, right within the vein leading to the heart of musical craft; somewhat inaccurate but poignant because as a musically gifted man who could play the piano (Lorca and Argentinita 1997) and write words infused with the echoes of the *cantejondo*, he could sense the pathways of this musical journey, a century earlier than this exploration. We, too, are in search of how to make the 'hermetic flowers of semitones open in a thousand petals'.

The broad challenge

A listener who is interested in tracing common nuances and inflections in musical expression across vast geographies and cultural formations is bound to come across an astounding set of melodies that bear a remarkable similarity to each other: an 'arc of the lament' or, for Lorca (1922), the trajectory of the *cantejondo*.

It then depends on where her and his sensory acuities were located, to start with: from the Indian subcontinent and neighbouring regions, the nuances would travel through West Asia to reach Mali via the Mediterranean, Ethiopia, Nubia, Southern Europe and North Africa. Or s/he could start the other way around, from Africa to travel to the East, covering vast landscapes all the way to the Punjab.

It is our strong contention that if we listen carefully for soundscapes and their associational clusters, although instrumentation, arrangements and notation differ, there was and is a familiarity that is uncanny. There appears to be a common *aesthetic constellation* that defines musicality.

This *constellation* is a creation of human interactions of the long *durée* of 700–1400 AD, a product of long-distance trade and travel in a world (Abu-Lughod 1991) that was quite vibrant 'before European hegemony'.

What might be this history of interaction and travel, and why is it important? How would this be related to the manner in which such an aesthetic constellation emerged? There is the realisation that this arc of sorrow and loss in music and the words that accompany its singing show remarkable commonality, despite significant variations from Kashmir or Kerala to Mali, and that interrogating how this might have come about might lead to new directions in understanding music, societal change as well as emotional landscapes.

We therefore reconstruct the actors and cultural formations of the long *durée* that made all this possible and bring them into sharp relief, as far as archives and scholarship permit, to reconstruct their lives, their social servitude, creativity, work, actual words and, where possible, their music. Since most were women slaves and/or women in servitude of all cultures and faiths from all imaginable slave routes, it will deepen the already exciting insights that, for instance, Suzanne Meyers Sawa (2002) has brought to light. Also, as historical and musicological work increases, a more refined picture is emerging: F. Mathew Caswell (2011) confirms our sense

that women from everywhere were at the epicentre of creativity in poetry and performance.

The broader music of which we are aware ‘talks’ about migration, separation, refugeedom, persecution and intense nostalgia through combinations which, in the Indian tradition, are classified under the Bhairavi family of scales or resemble the Phrygian mode in Greek music. This article proposes a set of ideas about the emergence of such musical forms and traditions around this minor note-based melodic family, through the travels of people and goods. It is located, as it should be, at the intersection of creative work and aesthetics, poetics and musicology and historical materialism.

The journey’s argument

Through the travels of this minor note-based melodic family, we argue the following:

1. Understanding the emergence and transformation of musical traditions (or more generally art traditions) has to necessarily be about a critique of canons, of the ‘ethno’ of ethnomusicology and of various centrisms, whether Euro-, Indo- or Islamo-centrisms.
2. Over and above the critique, it is necessary to provide a different mapping of how music moved and how each setting mimicked, transformed, enhanced and nudged it all through the long-distance movement of goods (symbolic or material) and people. It is the mapping of such aesthetic constellations that, we believe, provides interesting ways of understanding cultural transformations.
3. The carriers of the music, across all locations, were largely slaves, people in servitude, nomads and various other ‘subalterns’, many being women, although the histories of the creation of musical traditions usually attribute their development to male rulers, conquerors and male-centered conventions, especially for the medieval period.
4. Thus, what is seen as the Indian classical tradition is perhaps a profound sedentary elaboration of such travelling soundscapes; what became known as the European classical tradition needs to acknowledge influences from numerous ‘others’; what occurred in Ethiopia between the seventh and tenth centuries and in China during the Tang dynasty might be fascinating mutations of the very same, and so on. Therefore, we need a non-essentialist understanding of music as always on the move, *borrowed, elaborated, transformed, revolutionised and passed on within and across boundaries*. We also need to understand musicians and composers as bearers of an *aesthetic acuity* which is open to the world of formed and transformed sound. Of

course, in certain historical periods a canon becomes fixed, deviation is abhorred and masterful repetition of it becomes the marker of good music.

We present below some tentative narratives around the development of musical traditions in and between four centres: Persia from the sixth and seventh centuries AD, Kochi/Kerala from the seventh and ninth, Baghdad from the ninth and 11th, and Cordoba from the ninth century onwards. We can then talk about the acuties and sensibilities that are at the heart of all music, and also arrive at an egalitarian and self-reflexive understanding of the relationship between aesthetics and society.

The historical mapping of the journey

As mentioned, there is a pressing need to bracket ethnomusicology away, if this journey is to achieve its intended goal – to fathom how music moved and moves. This is a philosophical and socio-historical imperative, not an attempt to demean the work of the ethnomusicologist as such. Bruno Nettl's (1992, 2005) works are wonderful introductions to the field. Both are convincing and hearty, and the credo is that 'the study of music in culture' (2005: 12) that is a 'study of the world's music from a comparative and a relativistic perspective' (ibid: 13), is respectful and egalitarian. Yet, the bits in isolation of each other make the comprehension of the arc difficult and stifle any attempt to comprehend movement and change: we are left with Lorca's hermetic flowers. Although much can be gleaned from the revival of historical and comparative musicology (Lomax 1976; Stock 2006), our work does not classify, correlate or compare on the basis of empirical national-based musical data; though it might do so at a later stage. All we are trying to do is tease out the evidence of musical composition and formal acuties from a new historical perspective that is beginning to trace the Afro-Asian movements of people, symbolic goods and their interconnections.

A bracketing of ethnomusicology has to go hand in hand with the rejection of the West-centric idea of music and its relation to modernity. This is drenched in a high-brow and an elitist conception of the music of the Western Imperium, has been sharply articulated by Max Weber (1969) and was perversely supported by scholars like Theodor Adorno. For Weber, the 'beautiful', the 'profound' and even the 'ugly-as-sublime' were to be found in the West's compositional culture, that is, in the tension between the rationality and organisation of its harmonic structures and the intensified, lyrical expressivity it permitted and controlled at the same time.

To quote: 'without this quality modern music would have been neither technically nor meaningfully possible. Its meaning rests on the fact that tone successions are not treated as an indifferent series of semitones ...' (Weber 1958: 101–102). Weber's contrasting 'other' was demeaning. It was the 'unorganised conglomeration of nonrational tone successions'(ibid: 88).

Something distinctive did occur in Europe that enhanced compositional and organisational processes during the rise of bourgeois society. The road from the violin and the piano to Beethoven has been more than impressive. Adorno (2001: 342) has a point when he states: ‘Beethoven’s music is as much a part of the revolutionary emancipation of the bourgeoisie as it (also) anticipates the latter’s apologia.’ The achievement of a complex polyphony in his work was at the same time an uneasy acceptance of a declining status quo. Yet even this achievement was not a virgin birth, unrelated to the world around it.

More pressing, though, in this deliberation is the need to get rid of the idea that ethnic, national or civilisational adjectives are a scientific correlate of musicality. Understanding how ‘musicality’ moved over land or sea thus highlights the fascinating connections between far-flung places through music and musicians – connections that are not adequately acknowledged in historical or musicological work.

This period, from the sixth to the 14th century AD, was also the period when philosophies and theories of music performance practice were beginning to be written, reflecting and articulating many of the pathways. While this is the beginning also of canon formation and exclusive identification as ‘Islamic’ or ‘Indian’ or various other, apparently distinct systems, the texts themselves are starting to reflect the varied influences on the musical forms and, importantly, the kinds of people who created and carried the music.

However difficult the work for this journey might have been, it was made easier by a proliferation of archaeological and historical work that has shaken out the Eurocentrism that rendered most of the world an opaque mush. Most useful was work on long-distance trade and urban supply routes that by now spans millennia. For the novice, Andrew Sherratt et al’s (2004; see also Bauer 2011) *Arch Atlas* project is a quick demonstration of what makes our claims obvious. It visually reconstructs, in 500-year intervals, such long-distance and urban supply routes from 3500 BC to 1500 AD. Our story is captured by two, the map of 1000 AD and that of 1500 AD.

The movement of goods and people, the proliferation of urban centres and the centrality of the stations of our journey are obvious. Of the 14 cities in excess of 100 000 people in 1000 AD, the only one in today’s Europe was Cordoba, at 450 000. The megacity of the time was Baghdad at close to a million. By 1500, China in the Ming period was at the heart of all long-distance trade.

The Persia cosmopolis

So the journey starts from Persia, because in real time there was a Shirin and a Khusrow II, the fascinating empress and emperor of the late Sassanid period. There was no Farhad then, he was a later figuration, the work of poets and artists of the Islamic period. Khusrow was a Zoroastrian, Shirin was a Syriac Christian. It is

The musical journey – re-centring AfroAsia through an arc of musical sorrow

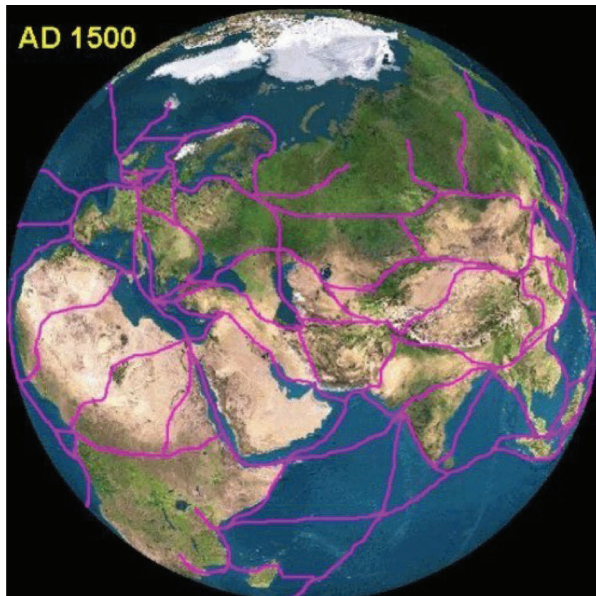


Figure 1: Map of 1000 AD

Source: Sherratt (2004).

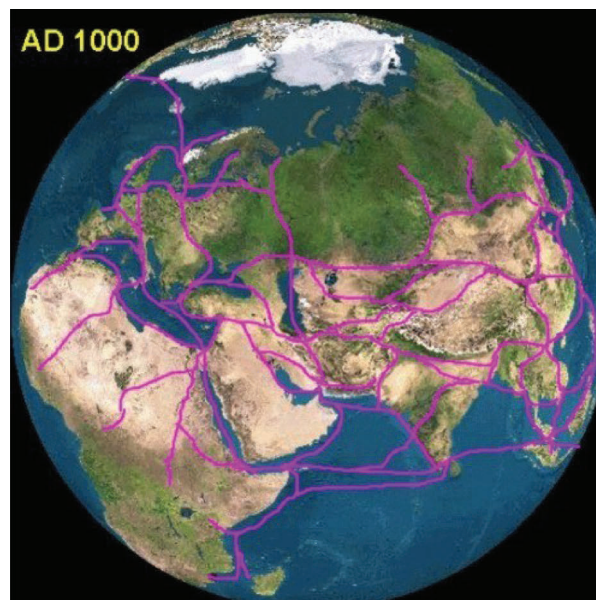


Figure 2: Map of 1500 AD

Source: Sherratt (2004).

hard to separate fact from fiction in their legendary love affair. One issue was that Ctesiphon's cultural formation was enticingly syncretic: Shirin's Greco-Aramean-Armenian and Christian traditions, Khusrow's ancient Persian literature and poetry received a serious boost – the very survival of ancient Greek texts on philosophy and music owed a great deal to the Sassanids and the Syrians.

The court gathered an array of musical and creative talent which was subsequently canonised as the foundation of classical Persian/Iranian music. Both the White Palace and Shirin's Gardens were mythologised in poem and song and for the four or five court musicians and composers. The key point was that they were a cosmopolitan ensemble, recruited from a variety of settings and brought into servitude. (Ferdowsi 2007: 816)

A century before Khusrow's reign, Bahram V imported thousands of musicians from India during King Shangol's reign – an experience that was fraught with socio-economic problems, but a wonderful complement to the Nestorians with their minor note laments (Buckley Ebrey, Walthall and Palais 2006). Along with the musicians already at the court, they were at the heart of a compositional renaissance, part of the apprenticeship of hundreds of musical composers and performers who were literally exported to China, Punjab, Kerala, Byzantium, Sudan/Nubia and Ethiopia. Most of them were status-linked chattel who were guaranteed a good life far away in other courts.

There are historical accounts of how such musicians were absorbed into the cultural formations of the Sui and Tang dynasties (sixth to tenth century AD). Apart from performances they were supposed to also provide musical training within a large section of the court that employed thousands of musicians. It is too early to speak about African musical presence in Sui or Tang China. The evidence of a large number of African slaves in the Chinese literature of the Tang dynasty is recorded with some relish in Chang Hsing-lang's (1930: 37–59) 'The importation of negro slaves to China under the Tang Dynasty' (618–901 AD), the unsystematic nature of the report gives only an impressionistic picture of their role in a number of lowly occupations. What it also reveals is a rudimentary awareness that the *Kun-lun* came from close to Libya and they were of two kinds: Abyssinians and people from 'Monomatoba', two centuries before the rise and decline of the Zimbabwe kingdom. We are convinced that no such 'importation' would have been bereft of music.

Back to the Sassanids: whereas this Persian musical energy was to be found in every urban concentration, its elaboration into a profound formal statement seems to have been closer to Khusrow's and Shirin's court and among the above circle of musicians. Whatever was bequeathed to them or borrowed was elaborated, enhanced and transformed not only to please the courtly audiences, but also to define poetic and musical excellence. The codification of the seven 'Royal modes' (Khursovani/

Xosrovani); their thirty *lahns* and the 360 *dastans* (melodies) that defined the classical style are attributed to Barbad and Nagisa, two prominent musicians.

The real Shirin, apart from her legendary devotion to Khusrow, was an ‘activist’ empress (Baum 2004). Realising that her people, the Christian Syriacs, were under prosecution and hardship, and knowing through her maritime networks that Syriac merchants and settlers were well ensconced in Kerala, she organised a mass overland migration through the Sassanid lands, across the Indian subcontinent to reach Kerala South and the heart of the spice trade.

That such Syriac and Sassanid networks were more than vibrant was an obvious fact: Cosmas Indicopleustis, a Syriac merchant and later a Sinai monk, was her contemporary and his celebrated account of voyages to Africa and India confirmed familiar migrations and terrains (Indicopleustis n.d.). When in 628 AD Khusrow was done for by the crisis his war against Byzantium had brought onto his subjects, his own son made sure he was killed and a truce negotiated. Shirin was to take her own life before the Moslem jihad engulfed them all. In the meantime, thousands of Christians and Zoroastrians took to the paths she had negotiated.

From the seventh century onwards, but particularly from the ninth century, the tale of Shirin and Khusrow came to be idealised as a fabulous love story. Later it was crafted as a symbol of nationhood and loss over several centuries across Persia, Turkey, Armenia, Azerbaijan, Byzantium, India and Afghanistan.

The South Indian interregnum

One crucial node that is missed in the analysis of musical traditions is the relationship of the Persian empires and the Arab world to the regions of Malabar and Kochi, in what came to be known as Kerala on the south-western tip of the Indian peninsula. As with Baghdad and Delhi, Kochi was an important cosmopolitan centre, given these connections and the varied communities of people who lived there between the fifth and 14th centuries.

There were multiple connections between what now is Delagoa Bay, the polities up the Limpopo (Mapungubwe) and Zambezi rivers, Madagascar, the areas of the Zanj (Zanzibar and now Tanzania), Axum and the West Coast of the Indian subcontinent, especially Kerala and Sri Lanka. From the fourth century on, the Sassanids were important carriers of cargo and people. Pius Malekandathil (2010), who documented the Persian maritime links with India, particularly Kerala, notes that the Sassanid connection with India’s western coast, through the ports of Gujarat, Konkan, South Canara, Malabar, Coromandel and Sri Lanka, were established from about the third century AD onwards.

The important point about Kerala’s religious pluralism is not lost in historical work. As already mentioned, Cosmas Indicopleustis attests to the sixth and seventh

century maritime interconnections between Syriac Christendom, Ethiopia, the island world of the Indian Ocean, Kerala, Gujarat and Sri Lanka. His *Christian topography* corroborates the existence of Syriac settlements in these places.

By the sixth century AD, migrations of Nestorian Christians and Zoroastrians from Persia to Kerala occurred, and in this period the politics of maritime trade between the Sassanids and the Byzantines unravelled. Byzantine's Emperor Justin roped in Ethiopian Christian traders to explore links with Kerala in an attempt to wrest trade control away from the Sassanids. This initiative, as Malekandathil (2010) documents, was foiled during the reign of Khosrow II, who pioneered important human, material and cultural links with India and whose story is vital to our narrative.

The historiography of the area during the years that interest us is scant – there are passing references about the Dravidian/Tamil polities and there are histories of Kerala Christians and Jews (scant references to Arabs and Persians/Parsees), with some reflection on liturgical traditions.

The surviving masterpiece of the Tamil south, the *Chilappathikaram* epic, which has been the subject of very serious musicological analysis by S. Ramanathan and Lewis Rowell (2000: 62, 135–136), remains hanging in the absence of a robust historiography:

... their teachings are both a fossil record of the music from which they arose and a tribute to human ingenuity in formalising the sensuous world of musical sound and translating it into concepts that can be taught, learned and remembered. And they are interrelated: in the case of Tamil music, there are probable connections to the ragas of modern South India, as well as possible historical links with the music of neighbouring West Asia and the eastward spread of Indic culture throughout the Southeast Asian mainland and archipelago. (Rowell 2000: 141, 154)

Rowell (*ibid*: 141) unpacks the historical layers of commentary to arrive at a clear description of the Tamil modal system, which he declares unique. In his effort to define the *differentia specifica* of the Tamilian system, he bends the stick too far, perhaps, in terms of uniqueness and distance *from* the Persian:

the Tamil scales were diatonic, with none of the chromatic tunings of the Persian scales to the west, and no hint of the equidistant scales and more restrictive sets of modal rotations heard today in various regions of Southeast Asia. For our purposes, the most appropriate comparisons are to the modes of the medieval Catholic Church and the scales of ancient Greece and India. (*ibid.*)

He goes on to state that there is no hint 'that these systems are the result of the spread of culture from one region to another' (*ibid*: 152), but concedes (*ibid*: 142) that the 'pattern of rotation reminds us of ancient Chinese practice in which the basic pentatonic scale was derived by ascending perfect fifths and then rearranged in consecutive steps within the compass of an octave'. Rowell also concedes that

those Phrygian and Dorian resolutions in the Tamilian system might echo the ancient Greek.

Our historical point is different and on the side of those who facilitate the opening of the ‘hermetic flowers of semitones’: Southern India and its Tamil world were not an insular or inert part of the world that received influences that, in turn, modified or rejected them. They were active parts of the whole world system of the time. Their poets and musicians were part and parcel of the construction of what was to become the ‘Persian’ tradition, or what the Tang Dynasty Chinese inaugurated as a tradition. If the music was discordant to Persian chromatic scales, it was not because of distance and/or ignorance, but perhaps precisely because of a politics of differentiation. But the minor notes of the lament were there even in the distinct Tamil system, especially in what Rowell terms the ‘New Tradition’.

The Baghdadi cosmopolis

Indian musicians were not absent from Baghdad’s ascendance. Baghdad emerged as a vibrant city a stone’s throw away from Ctesiphon on the ruins of the Sassanids. Its energy was incomparable:

Into the bazaars of the city came porcelain, silk and musk from China; spices, minerals and dyes from India and the Malay Archipelago; rubies, lapis lazuli, fabrics and slaves from the lands of the Turks in Central Asia; honey, wax, furs and white slaves from Scandinavia and Russia; ivory, gold dust and black slaves from Eastern Africa ... rice, grain and linen from Egypt; glass, metal ware and fruits from Syria; brocade, pearls and weapons from Arabia; silks, perfumes and vegetables from Persia. (Sawa 1989: 3)

It was a cosmopolitan and multicultural centre, also of science and translation. Nestorians and Syriac Christians translated the Greek classics, Persians, the wonderful poetry of the Sassanids, Indians texts of literature, mathematics and astronomy. And,

musicians, music theorists and music literateurs were from a variety of ethnic backgrounds, colours and creeds ... The music product was a conglomeration of musical styles (Near Eastern, Arabic, Persian and Byzantine), whereas music theory first blindly copied Greek models, then assimilated and moulded these models (ibid: 7)

This is the story of Baghdad – a highpoint of philosophical reflection in the ninth century. Baghdad’s refined aesthetic tastes and vibrant ethos came not only from its own inhabitants, but also from a constant movement of musicians and travellers who brought with them knowledge and experience from faraway lands.

There is a better picture now of the sociology of performance, the relationship between slavery, gender and manumission. A clearer picture exists of the role of the *Qiyān*, the women in servitude, their portraits as great poetesses, performers, singers and composers, and it is possible to start moving towards the explication of

the relationship between art and power (Caswell 2011). The task ahead is to connect a deepening historical sociology of gender with the profound musicology produced at the time and re-covered in the present.

There has been serious work about the emergence of various traditions and philosophies of music that point out the influences, confluences and distinctions. In Sawa's (Sawa 1989: iff) work, the genius of theoretician and performer Ibrahim al-Mawsili and his prowess as a composer take centre stage, and are reconstructed through the imposing sources of the time: al-Farabi's *Kitab-al-musiqā-al-kabir* (*The grand book of music*) and Abul-Faraj-Al-Isbahani's *Kitab-al-Aghani* (*Book of songs*).

It was in this vibrant context that al-Farabi matured, writing about 'logic, philosophy, ethics, politics, metaphysics, grammar, mathematics, music, alchemy, superstitions and astronomy' (ibid: 14). His Aristotelian influences have been well noted, but his stance is a polemical departure from them as he derives his musicology from actual Baghdadi compositional excellence, exemplified by master musicians like al-Mawsili and his compeers. This does not stop al-Farabi from offering a profound and showy explication of the classical Greek tone system in his *Grand book of music*, leaving it there as an encyclopaedic backdrop for future use, because he admired its logical perfection (ibid: 79).

Ibn Khaldun, the historical sociologist of the Islamic world, gives backbone to Sawa's multicultural reading of Baghdad, even though he is rather abrasive and dismissive about Arabic traditions.

[The Arabs] did not know anything except (poetry), because at that time, they practiced no science and knew no craft. The desert attitude was their dominant trait... Then, Islam made its appearance. (The Arabs) took possession of (all) the realms of the world. ...They had their well-known desert attitude and low standard of living. In addition, they possessed the thriving religion (of Islam) and that (Muslim) religious severity which is directed against all activities of leisure and all the things that are of no utility in one's religion or livelihood. Therefore, (music) was avoided to some degree. In their opinion, only the cadenced recitation of the Qur'an and the humming of poetry which had always been their way and custom, were pleasurable things [...]. Then, luxury and prosperity came to them, because they obtained the spoils of the nations. They came to lead splendid and refined lives and to appreciate leisure. The singers (now) left the Persians and Byzantines. They descended upon the Hijaz and became clients of the Arabs. They all sang accompanied by lutes, pandores, lyres, and flutes. The Arabs heard their melodious use of sound, and they set their poems to music accordingly... Eventually, in the days of the 'Abbasids, (the craft of singing) reached its perfection with Ibrahim b. al-Mahdi, Ibrahim al-Mawsili, (Ibrahim's) son Ishaq, and (Ishaq's) son Hammid. (The music) and the (musical) sessions of Baghdad during the ('Abbasid) dynasty have remained a topic of conversation down to the present time. (Ibn Khaldun 2004: 101–102)

Al-Farabi's classic as a treasure trove of musicology is matched only by contrast by al-Isbahani's book, 50 years in the making (running in its Cairo incarnation into 21 volumes!), which provides a monumental sociological and literary coverage (Sawa 1989: 1–2) of poetry, song, music and musicians and, most importantly, the context of performance as such.

Using al-Isbahani's work, Sawa reconstructs for us the centrality of the *majlis* (Sawa 1989: 35–42; see also Randel 1976) and the formal and informal gatherings they implied, the variety of song and texture, the rules governing slave and non-slave performers; the primacy of song and poetry over instrumental work; as 'music and song texts came from various eras, from the pre-Islamic down to Abbasid times' (Sawa 1989: 192). In conclusion, Sawa (ibid: 206) stresses the refinement of music and theory that occurred during the Abbasid era in a Baghdad that was flourishing. Much of this music, he asserts, is part of a living legacy and carries strong continuities into the present (ibid: 206).

The Abbasid era was also distinctive for its encouragement of cross-cultural influences, seen in music, from discussions on the 'scientific' nature of music (its importance in the universe, measurement of pitch intervals and the principles of construction of musical instruments) to its cosmological and metaphysical meanings (Racy 1976) and applications for healing and therapy. Arabic translations of Greek music treatises became available throughout the known world.

Ziryab, al-Andalus and the Afro-Mediterranean routes

The music of Baghdad moved, through human jealousy, to North Africa, Andalusia and Cordoba, to the areas where the Umayyads had spread or migrated. It was alleged that Ishaq al-Mawsili, son of the famed Ibrahim, ordered one of the principal carriers of the music, Abu-l-Hasan Ali-ibn Nafi (or Ziryab as he came to be known) out of Baghdad after Ziryab's petulant debut in Harun-ul-Rashid's court. In most sources about Ziryab we encounter a genius, supposedly of African descent, a manumitted slave, a master musician and theoretician who had the courage to disagree with his mentors.

Ziryab's move to Andalusia was part of a process of migration of intellectuals and artists, and part of large movements of Arab, Berber and Moor people into parts of southern Europe, particularly to the Iberian peninsula, in the ninth century, after the setting up of the Umayyad dynasty in Andalusia as well as in North Africa in the early eighth century.

There, the multicultural musical tradition that became known as the Andalusian School was developed, which in turn reflected strong connections to Baghdad and later, with the coming of the Roma, influences from India as well.

Notable among the creative networks of the time were four slave women singers – Qamar, trained in Baghdad, Qalam, Fadl and Alam-al-Ajfa, trained in Medina. Qalam was of Basque Christian origin, captured at a young age and sent to Medina to train as a musician. She was also a famed dancer, calligrapher and reciter of Arabic poetry. She was later purchased for the Umayyad caliph at Cordoba and brought back to Spain. Two male singers from the ninth century AD, Alun and Zarqun, predated Ziryab and were among the first to travel to al-Andalus from the East.

Ziryab was something of a ‘complete aesthete’; it appears he established a school of fashion and a school of culinary arts in Cordoba, in addition to his infrastructure for musical instruction and development.

Ibn Khaldun (2004: 137) wrote rather positively about Ziryab. To quote from *The Muqaddimah*:

The Mawsilis had a young (apprentice) servant, by name Ziryab, who had learned from them how to sing. He learned so well that they became jealous of him and sent him away to the West. He (the ruler al-Hakam) honoured him greatly. He rode out to welcome him. He showered him with gifts, fiefs, and allowances. He gave him a place in his dynasty as one of his boon companions.

While the Ziryab story is fascinating and very important in understanding the emergence of the Andalusian music tradition, it is possible that his image emerged as larger than life over time. There are at least two versions that attempt to cut him down to size; the one is biographical and the other musicological.

Carl Davila (2009: 126) scoured through an impressive volume of sources to correct and take a bit of the shine off Ziryab’s genius, providing ‘a more complicated and human feel’ to his person, to point out that most of the larger-than-life accounts came from people like Aslam, who was ‘probably Ziryab’s great-great-grandson’ (ibid: 130).

Davila (ibid: 128) makes an important point about the centrality of slave girls in Ziryab’s career, and how this institution was extremely important to the elite music of Cordova. There were 12 male musicians at Abd al-Rahman’s court (all freemen, including al-Mansur the Jew and some of Ziryab’s sons) and 38 female slave singers who were either owned or trained by Ziryab. They played a major role in preserving his subsequent legacy.

Such women slaves came from across the world and were imported from various musical schools. Three of his more prominent singers were known as the Madaniyyat/Medinians and Ziryab’s ‘song holders’ – a third, Urba, made up the troika. He trained most and quite a few he sold or gifted, spreading the influence of his style and composition.

In fact, interesting here is another feature of the slave-based system of musical patronage and development – the distinction between the ‘higher-class’ slave girls and

the ‘lower-class ones’ (the *qaynas jawariyas* in Baghdad, North Africa and Cordoba, and the *troubairitz* and *joglaressas* in several parts of Occitania, or courtesans and street performers in Northern India.

There is at least a glimpse of the class structure of al-Andalus and within that how women – noble, freed slaves and slaves – lived and what their contribution was to poetry and music (Davila 2009: 128). Their voice-traces point to how, for most, their profession and/or their non-Moslem status afforded aesthetic and carnal satisfaction.

Anwar G. Chejne (1974: 279) raises the issue of inheritance:

The musical legacy of Ziryab was kept alive by his pupils who were natives of al-Andalus. Thus from the 9th Century onward, the Andalusians began to make their own contribution to the field of singing and music. Ibn Firnas (d.888) was the first teacher of music in al-Andalus. He was followed by a group of teachers who dealt with the theoretical and practical aspects of music. We owe Ibn Abd Rabbihi a collection of songs. He was followed by Yahya al-Khdujj of Murcia (twelfth century) who wrote a *Book of Songs*. Ibn Fathun (eleventh century) wrote treatises on music, as did his near contemporary Said of Toledo. Perhaps the greatest musical theorist of al-Andalus was the philosopher Bajjah, whose book on music was ‘as popular as was that of al-Farabi in the East’.

Delhi and the pre-Hindustani world

Cordoba was sacked and a variety of migrations and exiles followed. The 1500 AD map tells us where the musical diaspora could have moved to: Fez in Morocco was an obvious space, Cairo and Lisbon were two others, and in the latter case the Americas. Gondar, Zanzibar and the Congo were also obvious destinations. Istanbul and then the world of the Safavids were attractive as well, all the way to a pulsating realm of the Ming in China. But it could also have moved to Delhi where remarkable hubs of energy started their tenure.

Madhu Trivedi (2012) recounts the story of Delhi and how it was established as a cosmopolitan musical centre between the 12th and 15th centuries, with Turko-Persian migrations to Northern India from the 12th century onwards. The presence of musicians from ‘Arabia, Khorasan, China, Bukhara and other places’ who made a ‘beeline for the newly founded city of Delhi’ by the 13th century has been documented by historians of Indian classical music and was recorded by medieval historian Isami (ibid: 10).

The significant presence of ‘Indian’ musicians in China, Persia, Baghdad and perhaps even as far as Cordoba or Morocco, is less known than, say, the influence of Persian music on Indian musical traditions. Nazir Jairazbhoy’s (1971) study of the North Indian (Hindustani) music tradition refers to the favourable assessments of al-Djahiz (the ninth-century AD biologist, philosopher, theologian of the Abbasid

dynasty) and al-Masudi (the tenth-century AD historian and geographer) about Indian music and the profound impact that the musical tradition he encountered had on Amir Khusrow, who migrated in the 14th century and is known to have himself exercised a major influence on the development of the North Indian musical tradition (Eaton 2013). Indian musicians had a significant presence in Baghdad as well, and musicologists had substantial knowledge of Indian music systems and styles of performance. It could not be otherwise, because what Richard Eaton terms the ‘Persian Cosmopolis’ – that linguistic, cultural and aesthetic sway that defined a continuum from modern day Iran to China – came to overlay and interact with what Sheldon Pollock (2003) terms as its prior, the ‘Sanskrit Cosmopolis’ with its fascinating mutations and innovations.

Madhu Trivedi (2012) underscores the role of female performers in the North Indian classical music tradition – courtesans, slaves, street performers and rope dancers – in the transmission and development of musical forms like the *qaul* (the *qawwali*, which Amir Khusrau refined in the 14th century, which was considered a form of *git*, in the Indian musical forms), the reconstitution of the Sufi *sama* (or the mystic séance) with syncretic influences, to name but two. During the reign of Sultan Muiz al-din Kaiqubad in the late 13th century, musicians, jesters, jugglers and *bhanda*s (traditional Muslim customary performers and rope dancers) occupied the court as entertainers, with many of them being slaves (Chatterjee and Eaton 2006).

What is particularly interesting in Trivedi’s documentation is the extent to which ‘subaltern’ performers of various kinds – including slaves – showed expertise in multiple artistic and *philosophical* traditions. These were not necessarily part of the marginal or socially ostracised traditions, as much work has uncovered from the medieval period, but were integral to the processes of formation of canonical traditions, in this case the North Indian classical music tradition.

A tentative conclusion

By 1500 most of the urban formations we have been describing were in decline: Kochi or Calicut, Baghdad and Cordoba. There were by then 19 mega-cities, with Beijing topping the million mark in its streets. The Ming Empire had seven such cities, Vijayanagara in the south of India rose at the expense of the coastland, only to decline rapidly. Delhi was on the ascendance too. Ten such cities were in Asia. For all of us in a world of long-distance trade, the way the arts moved on the back of people and chartered human chattel, creates the prospects of an acuity that is cosmopolitan and human. That the pioneers were the ‘subaltern’ slaves brings the inverse formula – that surplus feeling, emotion and affect in the long term trumped surplus value.

Our conclusions here can only be tentative. In forthcoming pieces, we will demonstrate the composition of the creative people in servitude and in movement from place to place; the African, Asian and European origins of these creators. We aim to provide case studies and life histories about them and trace their journeys. Furthermore, the work will entail tracing the acuities and resemblances in musical forms and providing a substantial critique of national essentialisms. There is room for all in the rendezvous of history, as Aimé Césaire once intoned, and hoped for decades back, and there are Lorca's hermetic petals of semitones to conjure.

References

- Abu-Lughod, S. 1991. *Before European hegemony: the world system A.D. 1250–1350*. Oxford: Oxford University Press.
- Adorno, T.W. 2001. *Aesthetic theory*. Minneapolis: University of Minnesota Press.
- Bauer, A.A. 2011. Life is too short for faint-heartedness: the archaeology of Andrew Sherratt. *Journal of World Prehistory* 24: 99–105.
- Baum, W. 2004. *Shirin: Christian, queen, myth of love, a woman of late antiquity, historical reality and literary effect*. New Jersey: Gorgias Press.
- Buckley Ebrey, P., A. Walthall and J.B. Palais. 2006. *East Asia: a cultural, social, and political history*. Boston: Houghton Mifflin.
- Caswell, M.F. 2011. *The slave girls of Baghdad: the Qiyān in the early Abbasid era*. New York: Tauris.
- Chatterjee, I. and R. Eaton, eds. 2006. *Slavery and South Asian history*. Bloomington: Indiana University Press.
- Chejne, A.J. 1974. *Muslim Spain – its history and culture*. Minneapolis: University of Minnesota Press.
- Davila, C. 2009. Fixing a misbegotten biography: Ziryab in the Mediterranean world. *Al-Masaq-Islam and the Medieval Mediterranean* 21: 2.
- Eaton, R. 2013. Revisiting the Persian cosmopolis. *Asia Times*, 19 July.
- Ferdowsi, A. 2007. *The Shahnameh: the Persian book of kings*. Trans. D. Dicks. Harmondsworth: Penguin.
- Hsing-lang, C. 1930. The importation of negro slaves to China under the Tang Dynasty (AD 618–901). Catholic University of Peking, *Bulletin* no. 7.
- Indicopleustis, C. Seventh-century *Christian topography*. <http://archive.org> (accessed 6 March 2012).
- Jairazbhoy, N. 1971. *The rags of North Indian music: their structure and evolution*. London: Faber and Faber.
- Khaldun, I. 2004. *The Muqaddimah: an introduction to history*. Trans. F. Rosenthal. Princeton: Princeton University Press.
- Lomax, A. 1976. *Cantometrics: an approach to the anthropology of music*. Berkeley: University of California Extension Media Centre.

- Lorca, F.G. 1922. 'Deep song' (*Importancia histórica y artística del primitivo canto Andaluz llamado 'Cante Jondo'*). Federico Garcia Lorca on piano and Argentinita on vocals on the CD *Collecion de Canciones Populares Espanolas*. Lydia Nieto, 1997.
- Malekandathil, Pius. 2010. *Maritime India – trade, religion and polity in the Indian Ocean*. New Delhi: Primus Books.
- Marouf, N. 1995. Structure du répertoire Andalou: quelques problèmes de méthode. In *Le chant Arabo-Andalou: essai sur le Rurbain ou la topique de la norme et de la marge dans le patrimoine musical Arab*, ed. N. Marouf, 11–22. Paris: Harmattan.
- Nettl, B. 1992. *The radif of Persian music*. Champaign: Elephant and Cat.
- Nettl, B. 2005. *The study of ethnomusicology: 31 issues and concepts*. Illinois: Illinois University Press.
- Olsen, J. and P.R. Jenkins. 1976. *Music and musical instruments in the world of Islam*. London: World of Islam Festival Publishing Company.
- Pollock, S., ed. 2003. *Literary cultures in history: reconstructions from South Asia*. Berkeley: University of California Press.
- Racy, A.J. 1976. *Making music in the Arab world: the culture and artistry of Tarab*. Cambridge and New York: Cambridge University Press.
- Randel, D.M. 1976. Al-Farabi and the role of Arabic music theory in the Latin Middle Ages. *Journal of the American Musicological Society* 24(2): 173–188.
- Rowell, L. 2000. Scale and mode in the music of the early Tamils of South India. *Theory Spectrum* 22(2): 135–156.
- Sawa, D. 1989. *Music performance practice in the early Abbasid era, 132–320 A.H/750-932*. Toronto: Pontifical Institute of Mediaeval Studies.
- Sawa, S.M. 2002. Historical issues of gender and music. In *The Garland encyclopedia of world music*. Volume 6: the Middle East, ed. V. Danielson. London: Routledge.
- Sherratt, A. 2004. Long distance urban supply routes. www.archatlas.dept.shef.ac.uk (accessed 12 June 2013).
- Stock, J.P. 2006. Echoes of our forgotten ancestors. *The World of Music* 48(2/3).
- Trivedi, M. 2012. *The emergence of the Hindustani tradition*. New Delhi: 3 Essays Collective.
- Weber, M., ed. 1958. *The rational foundations of Western music*. Illinois: The Southern Illinois University Press.

Reversing the Twin Ideals of Right to Education

No Detention and Continuous and Comprehensive Evaluation

GUNJAN SHARMA

The Right to Education Act mandates no detention and continuous and comprehensive evaluation at the elementary school stage. These twin provisions aim to address the problems of high dropout rates, inequity, educational load, and lack of democratic educational environments for children. Ever since they were implemented in 2010, the two mandates have been criticised by many stakeholders as neither practicable nor desirable given the realities in India. These claims are not researched and yet, there are moves towards overturning the no-detention provision. Extreme positions for and against the provisions have been taken, without adequate discussion and thinking on implications, especially on schoolgoing children.

This article has been written with substantive inputs from the members of The Forum for Deliberations in Education: A Collaborative Initiative, coordinated by the Centre for Policy Research, New Delhi.

Gunjan Sharma (gunjan@aud.ac.in) teaches at the School of Education Studies at Ambedkar University Delhi.

The no-detention provision (NDP) and continuous and comprehensive evaluation (CCE) in the Right of Children to Free and Compulsory Education (RTE) Act 2009 have become arguably the act's most controversial clauses. A subcommittee of the Central Advisory Board of Education (CABE) formed for the "Assessment and Implementation of CCE in the context of NDP in the RTE Act, 2009" (chairperson, Geeta Bhukkal, former Minister of Education, Haryana), submitted its report in July 2014, with a major recommendation for reintroduction of detention in elementary classes beyond primary (as indicated in the media reports). Newspapers have also reported that Delhi Government has written to the Ministry of Human Resource Development seeking an amendment in the RTE Act that would allow for detaining children after Class III.

While this matter has attracted a lot of public and media attention, there has been little informed discussion on the specific and deeper issues involved with regard to the policy provision of no detention in the RTE Act. Extreme positions for and against the policy provision have been taken, and the government is thinking of changing the provision without adequate discussion on the implications

1 The Context

The RTE Act 2009 is a central legislation that provides a legal framework for Article 21(a) of the Constitution. The article states, "The State shall provide free and compulsory education to all children of the age of six to 14 years in such manner as the State may, by law, determine." Enacted in April 2010, it (arguably)

provides the legal guarantee for free education of children of six to 14 years of age, in a neighbourhood school, satisfying certain essential norms and standards. The act thus marks a juncture in the public and legal discourse on the public provisioning of elementary education in India; and can be understood as a culmination of processes tracing back to pre-independence times. The legal battles of the early 1990s that pushed for the public provisioning of elementary education as an obligation of the Indian state reflect the more immediate contemporary context of the act.

During the five years of the implementation of the act, several concerns have been raised especially with regard to its two critical provisions: no detention up to Class VIII and the continuous and comprehensive evaluation of children's learning. Section 16 of the RTE Act states categorically that "No child admitted in a school shall be held back in any class or expelled from school till the completion of elementary education." This has an organic link with the provision of learning assessment specified in Section 29(2) (h) of the act. It mandates that "the curriculum and evaluation procedure... shall take into consideration [among other things]...comprehensive and continuous evaluation of a child's understanding of knowledge and his or her ability to apply the same [sic]."

Both these provisions need to be read in conjunction with one another and in the context of other curricular provisions such as age appropriate admissions, no board examinations till Class VIII, no corporal punishment and a stress-free teaching-learning environment. Seen holistically the act mandates a school environment that is non-threatening and conducive for children and their learning and lays down the essential elements of a school environment with "learning through activities, discovery and exploration in a child-friendly and child-centered manner...making the child free of fear, trauma and anxiety..." (Section 29 (e) and (g) of the RTE Act).

It has been frequently argued by educational functionaries within the system

and other stakeholders, including parents and policymakers, that the NDP and CCE are not practicable given the school realities of India. That these provisions are responsible for diluting the quality of learning, has been indicated by low levels of learning achievement reported by some large-scale surveys conducted by non-state and state agencies. It is specifically contended that the NDP “discourages children from learning” and “does not keep them motivated about taking studies seriously” (documented by Varma and Sharma (2014) as reasons expressed by some government and private school functionaries). These appear to be opinionated arguments lacking substantive research evidence and are based on an inadequate understanding of the rationale for the policy provisions.

Yet, based on these “opinions”, there appears to be a conclusion being drawn within the official circles that both the NDP and CCE are not implementable. The CABE subcommittee (the Bhukkal Committee) to review the NDP and CCE provisions has recommended (not unanimously though) the implementation of the NDP in a phased manner, and reiterated the need to link assessment of learning outcomes with promotion of students to the next class beyond Class v (Nawani 2014). It is important to note that there was a lack of unanimity in the views of the committee members—which should ideally call for a thorough thinking on the issue. Nonetheless, newspaper reports suggest that the NDP may soon be “done away with” (*Indian Express* 2015). Given these developments it appears that a similar “review” of the CCE may soon follow. However, as these reconsiderations take shape, it may be useful to reflect on why these provisions were introduced in the RTE Act to begin with.

2 Policy Recommendations and Shifts

The education system in India has been grappling with a variety of challenges in providing quality educational experiences to children. While dropout rates and repeated failures have been one of the major challenges in universalising elementary education, lack of meaningful engagement and learning in classrooms

have been the other critical concerns. Some of the key policy-related documents have underscored these and other issues. Attention has been drawn to the need for systemic reform in the assessment of children’s learning, especially by the Yashpal Committee Report (Government of India 1993), and the National Curriculum Framework (NCF) (NCERT 2005).

The Yashpal Committee Report, also known as the Learning Without Burden report, underscores that school experience has become meaningless and burdensome for children and traces the roots of this to the way teaching–learning is dominated by the examination system in India. It states,

The major, well-understood defect of the examination system is that it focuses on children’s ability to reproduce information to the exclusion of the ability to apply concepts and information on unfamiliar, new problems, or simply to think...*children receive the message almost as soon as they start attending school that the only thing which matters here is one’s performance in the examination* (Government of India 1993: 5) (emphasis added).

Taking the above vision further, the NCF’s *Position Paper on Examination Reform* (NCERT 2006) envisions a shift in school assessments such that assessment does not remain a “burden” but a tool for further learning. It notes,

In the long term (about a decade) we envision a vastly different system built upon entirely new foundations. This system would actually make the teacher the primary evaluator of her students. This system would not be one-shot but continuous; would extend beyond the cognitive domain and beyond pen and paper; and, hopefully, be seen by all not as a burden but as a tool for further learning. In this system the primary role of [examination] boards would change radically... If any direct testing by boards were still to be needed it would be of a very different type—optional, open-book, and on-demand (2006: vii).

The position paper (NCERT 2006) emphasises that new ways of viewing assessment are integral to the context of social equity and justice in education. It is based on the assumption that the assumed gap between equity and excellence can be bridged by quality education. It states, “If we accept this possibility, excellence and innovation in school education do not stand in the way of

equity—indeed it would be impossible to imagine equity without a renewed quest for educational excellence and relevance” (2006: 7). It calls for the need to move beyond the imagination of an education system that is meant for “producing clerks” and snuffs criticality and creativity (2006: 5). It is in this context that the NDP and CCE have taken shape as major policy measures in the RTE Act. Some of the concerns that these provisions address are discussed below.

2.1 Beyond Pass–Fail

The traditional evaluation practices carried out in the Indian school system aim to pass or fail the students on the basis of their ability to reproduce textbook-based information learnt by rote. The experiences of evaluation resulting in failure, humiliation, guilt and stressful competition, are traumatic for young learners—especially for those who have entered the school system for the first time. As argued by Kumar (1988) these practices are rooted in the colonial traditions of education that involved stringent controls over classroom knowledge through instruments of examination and textbook-centric pedagogy.

Taking this argument further, the NCF’s position paper observes that “the tight textbook-exam nexus has rendered the teacher a mere addendum to the learning process” (NCERT 2006: 16). On the one hand this system has stifled the teachers’ autonomy, and on the other it has neglected the need for a holistic comprehension of the various social, moral and cultural aspects of a learner’s development. The NDP and CCE are envisioned to change this scenario by elimination of the pass/fail concept and “empowering the teacher” while disempowering the exams (NCERT 2006: 16–17). In this context, these provisions can be seen as paradigm shifts and thought-through departures from the “examination focused” views of assessment and learning.

2.2 Assessment

The need for differentiating between evaluation as a mechanism of pass/fail, and assessment as a learning and feedback process, is established in this context. The idea that there should not

be detention of children and that assessment should be comprehensive and continuous flows from the latter. In this regard, the NCF's position paper states,

Well designed assessment and regular report cards provide learners with feedback, and set standards for them to strive towards. They also serve to inform parents about the quality of learning and the development and progress of their wards (NCERT 2006: 72).

Thus, assessment becomes a part of everyday teaching and learning, rather than an add-on activity conducted intermittently or at the end of an academic cycle.

A careful reading of the RTE Act shows that it does not stipulate "automatic promotion" which is one of the major misconceptions associated with the NDP. Those arguing against the provision are viewing it in isolation from the mandate of continuous and comprehensive assessment of children's learning. The CCE is a tool that is envisioned to enable teachers to observe children and their learning closely, record and make sense of their incremental progress. That teachers will base their teaching on these understandings, and will give feedback to children and their parents to further support their learning, forms part of the overall mechanisms of no detention as articulated in Section 24 (c), (d) and (e) of the RTE Act. The act thus places significant responsibility for a child's continuous learning on schools and teachers. In this imagination, detention itself is rendered redundant.

2.3 Child's Agency

The question of the democratic rights of children in India is an issue that is often left out in the discussions on the NDP and CCE (Panchapakesan 2015). Article 21(a) of the Constitution is read in conjunction with the right to life with dignity. In this context, with the clauses of child-centred learning, the NDP and CCE, the RTE Act represents a legal framework guaranteeing an education that is not based on the undemocratic practices of punishment, penalty, humiliation and stifling competition. These provisions are meant to ensure that children learn for the reason that they are interested in learning and not out of compulsions laid down by adults (parents and teachers), fear of

humiliation and failing, or just for appreciation for passing exams. The twin provisions are meant to provide spaces to children to have stake and agency in their own learning and allow them to learn at their own diverse paces. The NDP-CCE put the responsibility of children's holistic learning on schools, teachers and parents, and make it essential for them to constantly engage with the needs and interests of the child.

Similarly, implementing these in the spirit in which the RTE Act has visualised requires reimagining the linkages between the community (that has historically been on the periphery of the system) and schools (that have been inaccessible to the marginalised). To realise the vision of the NDP-CCE, the community and schools would need to be visualised as active partners in children's education (NCERT 2005). These concerns bring out the complexity of the context in which pedagogic ideas operate, and how taking a view on the NDP-CCE without accounting for socio-structural issues can decontextualise the problem.

While on the policy and educational discourse level, the above mark the major developments that have given shape to the NDP-CCE provisions in the RTE Act, some researches done globally (though scanty) also support these ideas. For instance, UNESCO's (1971 and 1998) reports note that the negative impact of school repetition are much higher as compared to the benefits and that "repeating a grade does not help students gain grounds academically and has a negative impact on social adjustment and self-esteem" (UNESCO 1998: 16). It further notes that "review of the research on grade repetition provides no conclusive evidence to support the hypothesis that repetition is a more effective way of helping low achievers than automatic promotion" (1998: 40). Based on a comparative review of policies across countries, the report underlines the finding that there is no clear relation between retention or automatic promotion policies and overall pupil achievement. These researches make a strong case for policymakers to re-examine the problem within the context of their school systems. There is no empirical research available which may prove

a direct correlation between learning and fear of failure. It seems to be, however, the only ground of argument against the NDP. On the contrary, there is a fair agreement among the educationists that anxiety, and stress and fear of examination do not foster learning but actually hamper healthy development.

3 Implementation

Although the NDP-CCE has been mandated by the RTE Act in 2010, several states have been practising a policy of not detaining children in some or all primary classes. It is worth noting that before implementation of the RTE Act only seven states did not have the provision of no detention in any class (Mukul 2013). An analysis of the NCERT's National Achievement Surveys (2001-09) shows that the states that followed the NDP up to some primary classes recorded relatively better achievement levels and improvements than those states which did not follow the policy (Singh 2013). Citing the Bhukkal Committee report, Mukul (2013) also notes that the annual dropout rate, which was 9.1% in 2009-10, a year before the RTE came into force, further dropped to 6.8% in 2010-11 and 6.5% in 2011-12. This fall in the dropout rate is an aspect worth researching when the utility and practicability of the NDP are in question. Can the NDP-CCE, or rather the RTE as a whole, be seen as a reason for this fall?

The situation on the ground is far more complex. Despite the NDP mandate in the RTE Act, post 2010 several states have reported repetition at the elementary level (District Information System on Education 2013-14: 37). For instance, Madhya Pradesh reported a repetition rate of 3.03% at the primary level (highest for the primary level among all states) and Meghalaya reported a repetition rate of 3.19% at the upper primary level

Economic & Political WEEKLY

available at

Ideal Books

26/2082, Tutors Lane
Secretariat Statue

Thiruvananthapuram 695001, Kerala

(highest for the upper primary level), in 2012–13. In fact none of the states and union territories, except Puducherry, reported zero repetition in 2012–13. This indicates that the NDP is not being followed in practice or that there is already some divergence from this mandate. In this scenario, it would be essential to undertake meticulous research to make sense of the practices of these provisions.

Several critical issues come to light when one engages with how the NDP–CCE, along with other related policy enforcements (in particular age appropriate admissions), are being implemented in schools. Some of these emerge from studies done in schools and with teachers (Mohanty 2010; Nawani 2013, 2015; Singh 2013; Sharma 2014). The broad findings from these studies are presented briefly below.

3.1 Lack of Clarity

Researchers have noted that the manner in which the mandate of the NDP–CCE has been communicated to schools has created confusion among school administrators and teachers, in particular. According to Mohanty (2010: 1),

the bewilderment that (CCE) has generated is equivocal amongst school managements, teachers, students, parents, publishers and other agencies working in the field of education.

The case of the NDP is no different. Nawani (2015: 1) highlights that, of late, these measures have been criticised and charged with “discouraging children against learning, promoting a lackadaisical attitude among teachers and students and resulting in deteriorating learning levels.” While there is some orientation for teachers for implementing these, a dialogue with other stakeholders (especially parents and children) is by and large missing. As a result, teachers and administrators seem to be resisting the ideas and their implementation in schools (Singh: 2013).

3.2 Teacher Training

Teachers are under pressure to implement the RTE mandate without fully understanding the objectives and without adequate training and resources. Whatever in-service training (teachers

“receive” is much below the acceptable quality. In fact in many instances, teachers who themselves are grappling to understand the assessment framework, are nominated as resource persons for such training (Sharma 2014: 27). There are no formal ways in which teachers are made aware of the resource materials and books that could help in developing a better understanding of the CCE (2014: 27). Contractual teachers lack the requisite professional qualification, and the lack of access to good quality pre-service teacher education are other major issues (Batra 2013; Menon, Chennat and Sharma 2010). As many as 14 states have sought exemption from recruiting teachers with the stipulated qualifications, citing lack of institutional provisions to train teachers; and over 95% of teacher education institutes are in the private space, most of which are sub-standard and even unregulated (Government of India 2012). In the light of such observations, can teachers alone be held accountable for not implementing or resisting the ideas of the CCE, NDP, age-appropriate schooling and punishment-free education?

3.3 Lack of Materials

A glance through the material available, including that developed by the Central Board of Secondary Education (CBSE)

(CBSE 2010), would make it evident that even academic authorities lack an understanding of the CCE. The CBSE Manual for Teachers (VI–VIII) in fact “goes against the spirit of CCE” (Nawani 2013: 33). The traditional system of examinations is being merely dressed up in a new set of terms (formative and summative assessment, scholastic and co-scholastic domains, and the like) instead of the necessary holistic shift in approach to assessment that is actually called for (Sharma 2014: 29). As there is a lot of concern over “how to do CCE,” the market is pitching in to offer “solutions.” The CCE software that claims to help teachers grade children on descriptive indicators are being developed and marketed.

Such solutions further state that there is no need for anecdotal records; software will grade all life skills, attitudes and values. Then, there are publishers who feel that adding more worksheets or assessments in books will make their books CCE-centered (Mohanty 2010).

3.4 Teachers’ Concerns

A teacher’s work, in this context, has come to be limited to that of maintaining different kinds of records and registers, instead of thinking about teaching–learning and assessment in a comprehensive fashion. Further, the limited infrastructure, the shortage of staff and high

EPWRF India Time Series

Expansion of Banking Statistics Module

(State-wise Data)

The Economic and Political Weekly Research Foundation (EPWRF) has added state-wise data to the existing Banking Statistics module of its online India Time Series (ITS) database.

State-wise and region-wise (north, north-east, east, central, west and south) time series data are provided for deposits, credit (sanction and utilisation), credit-deposit (CD) ratio, and number of bank offices and employees.

Data on bank credit are given for a wide range of sectors and sub-sectors (occupation) such as agriculture, industry, transport operators, professional services, personal loans (housing, vehicle, education, etc), trade and finance. These state-wise data are also presented by bank group and by population group (rural, semi-urban, urban and metropolitan).

The data series are available from December 1972; half-yearly basis till June 1989 and annual basis thereafter. These data have been sourced from the Reserve Bank of India’s publication, *Basic Statistical Returns of Scheduled Commercial Banks in India*.

Including the Banking Statistics module, the EPWRF ITS has 14 modules covering a range of macroeconomic and financial data on the Indian economy. For more details, visit www.epwrfits.in or e-mail to: its@epwrf.in

pupil–teacher ratios in many schools, and the burden of “covering” the syllabus and compiling multiple registers, constrain them from reflecting on how to plan teaching–learning, assessments and the NDP (Sharma 2014: 29). Formal spaces to listen to the teachers’ concerns are also not provided. In this scenario it is difficult to practise the NDP–CCE in the manner in which the RTE envisions. In a panel discussion organised by the Forum for Deliberations on Education (2015) on NDP–CCE, it emerged that most teachers are not against the twin ideas. Instead, their arguments against the two provisions emanate from the issues in implementation due to lack of systemic support, workload and contradictions (or lack of synchronisation) in different policy related measures.

These issues from the school practice indicate that there is a severe lack of enabling conditions to implement most of the RTE provisions. It seems logical to conclude that the chaos in the school system around the NDP–CCE is not an outcome of the policy’s failure. It is also evident that implementation bottlenecks need to be examined both in terms of lack of resources and practitioner support as well as inherent limitations of the conceptual models provided by educational agencies for operationalising these provisions. Drawing hasty conclusions about whether the idea itself has failed or that there is strong resistance to it, and deciding to overturn the policy, will not resolve the problems of quality that school education in India is grappling with.

How would the NDP–CCE or rather any progressive provision work in these circumstances and how would school functionaries and parents appreciate the “ideals” in such situation are questions worth asking. It is even more critical to ask that, given the scenario, are low learning levels the outcomes of “low student motivation”? Would failing children solve the problem of quality and ensure learning levels? When the traditional exam system was in practice, were the children learning well? Is the traditional exam system a solution to any of these problems? The removal of these clauses would be the most “convenient” solution

to the mounting problems of quality, as this would allow blaming and penalising children (who are in the peripheries of policy thinking in India) for the failure of the system.

There is a need for developing a rigorous research-based understanding of conceptual and implementation issues concerning the NDP–CCE. Both these ideas are not novelties of the RTE Act, but are located in an educational discourse around concerns of access, quality, equity and social justice. They also mark a gradual shift in the discourse on the process of learning and of the school as a friendly, welcoming and democratic institution for children, where differences and diversity are nurtured and not punished. While a review of various policy measures is essential from time to time, it is also imperative to provide sufficient time for policy provisions to be implemented, especially those that have emerged after several years of struggle and are yet to be implemented fully (RTE Forum 2014). Discarding these ideas without allowing sufficient time, debate, thought and research will be a setback to the progress that has been made. The twin provisions are now matters of the fundamental right of children. Reversing any of these would dilute and hamper the legal framework of the educational guarantee.

REFERENCES

- Batra, Poonam (2013): “Positioning Teachers in the Emerging Education Landscape of Contemporary India,” *India Infrastructure Report 2012: Private Sector in Education*, pp 219–31.
- Central Board of Secondary Education (2010): *Continuous and Comprehensive Evaluation: Manual for Teachers (Classes VI–VIII)*, New Delhi: CBSE, http://www.cbse.nic.in/publications/CCE_Manual_Class_VI_VII.pdf.
- Children’s Right to Free and Compulsory Education Act (2009): http://mhrd.gov.in/sites/upload_files/mhrd/files/free_and_compulsory_NEW.pdf.
- District Information System on Education (2014): *Flash Statistics 2013–14*, New Delhi: National University of Educational Planning and Administration, <http://www.dise.in/Downloads/Publications/Publication2013–14/FlashBook2013–14.pdf>.
- Government of India (1993): *Learning Without Burden: Report of the National Advisory Committee* (Chairperson: Yashpal Sharma), New Delhi: Ministry of Human Resource Development.
- (2012): *Vision of Teacher Education in India: Quality and Regulatory Perspective*, Report of the High-Powered Commission on Teacher Education Constituted by the Hon’ble Supreme

Court of India (Chairperson: Justice Verma), New Delhi: Ministry of Human Resource Development.

Indian Express (2015): “States Air Concerns Over No Detention Policy,” 22 March, <http://indian-express.com/article/india/india-others/states-air-concern-over-no-detention-policy-at-meeting-on-school-reforms/>.

Kumar, Krishna (1988): “Origins of India’s Textbook Culture,” *Comparative Education*, Vol 32, No 4, pp 452–65.

Menon, Geeta, Shailja Chennat and Gunjan Sharma (2010): *India One Million: Feasibility Study on Teacher Education*, UK Open University and Plan International.

Mohanty, Meeta (2010): “Impact of CCE in Schools,” *Teacher Plus*, <http://www.teacherplus.org/comment/impact-of-cce-in-schools>.

Mukul, Akshay (2013): “No Detention Doesn’t Mean No Exams,” *Times of India*, <http://timesofindia.indiatimes.com/home/education/news/No-detention-doesnt-mean-no-exams/articleshow/20418331.cms?Referral=PM>.

NCERT (2005): *National Curriculum Framework*, New Delhi: National Council for Educational Research and Training.

— (2006): *NCF Position Paper: National Focus Group on Examination Reform*, New Delhi: NCERT.

Nawani, Disha (2013): “Continuously and Comprehensively Evaluating Children,” *Economic & Political Weekly*, 48(2), pp 33–40.

— (2014): “Learning Beyond Textbooks,” *Hindu*, <http://www.thehindu.com/opinion/op-ed/cce-learning-beyond-textbooks/article6655765.ece>.

— (2015): “Learn Without Fear of Failure and the Mere Urge to Pass Exams,” *Hindustan Times*, <http://www.hindustantimes.com/analysis/learn-without-fear-of-failure-and-the-mere-urge-to-pass-exams/article1-1331904.aspx>.

Pachapakesan, Nargis (2015): “NDP and CCE: Failed Policy or Failed Implementation?” Panel Discussion on NDP and CCE, 30 April, The Forum for Deliberations on Education, New Delhi.

RTE Forum (2014): *Status of Implementation of the Right of Children to Free and Compulsory Education Act 2009: Year Four (2013–14)*, 201, http://rteforumindia.org/sites/default/files/Year%204%20Stocktaing%20Report_RTE%20Forum.pdf.

Sharma, Gunjan (2014): “Report on a Two-Day Workshop Continuous and Comprehensive Evaluation,” *Teachers in Conversation: Schoolteachers’ Narratives, Discussions and Dialogues*, Vijay S Varma and Gunjan Sharma (eds), pp 27–33, Delhi: Ambedkar University Delhi and Ahvaan Trust.

Singh, Ajay Kumar (2013): “Teachers’ Inhibition and Child’s Democratic Right: Continuous and Comprehensive Evaluation and No Detention Provision under the RTE Act 2009,” *Teacher Support*, Vol 2, No 2, pp 16–36.

The Forum for Deliberations in Education (2015): “No-Detention and Continuous Comprehensive Evaluation: Failed Policy or Failed Implementation?” Panel Discussion on NDP and CCE, New Delhi.

UNESCO (1971): *Wastage in Education: A World Problem*, Paris: International Bureau of Education, UNESCO.

— (1998): *Wasted Opportunities: When Schools Fail—Repetition and Dropout in Primary Schools*, Paris: International Consultative on Education for All, UNESCO.

Varma, Vijay S and Gunjan Sharma (eds) (2014): *Teachers in Conversation: Schoolteachers’ Narratives, Discussions and Dialogues*, New Delhi: Ambedkar University Delhi and Ahvaan Trust.



Rainfall Shocks and the Gender Wage Gap: Evidence from Indian Agriculture

KANIKA MAHAJAN*

Ambedkar University, Delhi (AUD), India

Summary. — In the context of climate change and its effect on poverty, previous studies have shown that productivity shocks in agriculture, such as rainfall variability, affect wages adversely. None of the studies, however, consider the heterogeneity in the impact of these shocks on agricultural wages by gender, a feature which has been studied for demand shocks in urban labor markets for developed countries. Using National Sample Survey data for India from 1993 to 2007, a district-level panel dataset is created to examine how a rainfall shock affects the gender wage gap. The study shows that both female and male wages are positively related to rainfall shocks. Hence, future studies must study the impact of labor market shocks in rural areas on both female and male wages separately. It also finds that the female-to-male wage ratio is significantly positively associated with a rainfall shock in regions where rainfed rice is cultivated, i.e., low (high) rainfall reduces (increases) the female-to-male ratio. The study demonstrates that this result is due to a positive association of demand for female labor with rainfall in these rainfed rice-growing regions. This finding is consistent with the greater marginal value of female labor in rice cultivation, which is also a crop highly sensitive to rainfall variability under rainfed conditions. The paper concludes that the effect of a rainfall shock on the gender wage gap depends upon the gender roles underlying the technology of production, which varies across cropping systems.

© 2016 Elsevier Ltd. All rights reserved.

Key words — agriculture, wages, gender, rainfall, Asia, India

1. INTRODUCTION

Labor economists have long been concerned with measurement of wage gaps across demographic groups like gender, race, and ethnicity. The immediate question of interest that has received much attention is why these gaps exist. These gaps have been shown to exist due to differences in characteristics (demographic characteristics like age, education, marital status, and number of children, or job characteristics like full-time or part-time job, industry, and occupation (Hertz *et al.*, 2009)), differential returns to similar characteristics, and prevailing labor demand and supply conditions across males and females (Blau & Kahn, 2003). The second question of interest, which has received comparatively less attention, is how these wage gaps respond to shocks that change labor productivity.

Very few studies examine the changing nature of wage gaps between demographic groups due to a tightening or a boom in the labor market, and these too are restricted to urban labor markets in developed countries. O'Neill (1985) and, more recently, Biddle and Hamermesh (2011) analyze the impact of aggregate changes in unemployment rates in the economy on the gender gap in wages using data from the United States. O'Neill (1985) finds that the gender wage gap increases when high unemployment rates prevail in the economy. This finding is attributed to the possible greater vulnerability of females to layoffs due to less training, and in general a weaker labor market for females during recessions. Biddle and Hamermesh (2011) also find that the gender wage gap is countercyclical in nature. They attribute this to greater discrimination against females during downturns. Contrary evidence to the above is presented in Solon, Barsky, and Parker (1994), Park and Shin (2005), and Marchand and Olfert (2013). Using other datasets and time periods for the United States, they estimate that the gender wage gap is procyclical in nature. This, they argue, is due to males being overrepresented in industries with

more procyclical demand. Aller and Arce (2001) also find that the gender wage gap reduced during the 1990–94 economic recession in Spain due to a proportional increase in service employment.

In the Indian context, there is scanty literature on the effect of demand shocks on labor market outcomes. The only related study that the author is aware of is by Bhalotra (2010), who finds that a decrease in state-level income (a proxy for recessionary conditions in the labor market) increases women's labor force participation in the agriculture sector. The author interprets this finding as distress labor among women when income is low (income effect on female employment). During a recession, employment in the manufacturing and service sectors falls, so working in the agriculture sector can act as a last resort for females to supplement family income. There is no study in the context of a developing country that looks at the impact of demand shocks on the gender wage gap. The existing studies in the Indian context either study the gender wage gap in any given year (Mahajan & Ramaswami, 2015), or the trends in gender wage gap in Indian agriculture over time (Himanshu, 2005).

Table 1 shows the female-to-male wage ratio in agriculture across 14 Indian states as taken from the National Sample Survey (NSS) rounds of 1993–2007. It can be seen from the table that there is a persistent gap in the daily wage rate received by females and males in Indian agriculture. During the period of study, the all-India average female daily wage rate in agriculture was 72% of that of male agricultural labor.¹ The real daily wage in agriculture changes in response to demand shocks each year. In general, this effect can be different for male and female daily wages. One of the shocks that the agricultural labor market is continually subject to is rainfall variability across years. In the past few decades, climate change has made rainfall more variable in India, leading to

* Final revision accepted: November 8, 2016

Table 1. Female-to-male wage ratio for casual laborers in agriculture

State	1993 (%)	1999 (%)	2004 (%)	2007 (%)
Andhra Pradesh	72	67	65	70
Bihar	87	88	87	89
Gujarat	98	89	90	99
Haryana	85	90	84	83
Karnataka	73	68	69	70
Kerala	70	63	59	63
Madhya Pradesh	83	85	83	86
Maharashtra	63	65	63	68
Orissa	73	79	72	77
Punjab	99	94	83	88
Rajasthan	75	80	81	89
Tamil Nadu	57	58	54	52
Uttar Pradesh	75	78	83	84
West Bengal	88	89	88	94
All India	72	72	70	74

Source: National Sample Survey (1993, 1999, 2004, 2007), Employment and Unemployment Schedule (Author's calculations).

recurrence of drought-like situations across different parts of the country. Each year some part of the country suffers from rainfall scarcity, leading to low agricultural output. This affects the livelihood of people dependent on agriculture in rural India. Of the 22 major countrywide droughts witnessed in India in the last 120 years (1890–2010), seven have occurred in the last three decades (NIDM, 2009).² Coupled with the low irrigation levels in India (44.3% of the area sown), these rainfall shocks have a large impact on agricultural output.³ Sources of irrigation such as canals and groundwater also get depleted during drought years. These shocks affect agricultural productivity and hence, change demand for labor in Indian agriculture.

Since agriculture plays a pivotal role in employment generation in developing countries (according to the Ministry of Home Affairs, Government of India (2011), 73% of the rural workforce in India is engaged in agriculture), any disruption in the agricultural labor market has an impact on a large section of the working population. In terms of gender composition, about 80 (69)% of the female (male) workforce in rural India is engaged in agriculture (Ministry of Home Affairs, Government of India, 2011). Female agricultural laborers constitute 55% of the female agricultural workforce. Given the large participation of females as agricultural laborers, the effect of rainfall shocks on daily wage for females cannot be overlooked.

It has been recognized in the literature that climatic shocks may not have gender neutral effects (WEDO, 2008) and that adaptation to changing climate can also vary between males and females (Van Aelst & Holvoet, 2016). The variability in demand for labor in agriculture due to natural rainfall shocks can also have an impact on the gender wage gap in agriculture. The impact depends on the asymmetric effects of rainfall variability on the demand for male and female labor in agriculture, and the asymmetric supply responses of male and female labor to these shocks. This is the first study which estimates the impact of a demand shock in rural labor markets on the gender gap in agricultural wages. The demand shock considered is the variability in rainfall over time. A district-level panel dataset of daily wages and rainfall variability along with other control variables is constructed to examine the above question. Any differential effect of the rainfall shock on the gender wage gap in regions that cultivate rainfed rice in India is also estimated. The motivation to examine this heterogeneous

ity comes from the existing literature on gender roles across cropping systems, the details of which are provided in Section 2.

In the next section, a literature review of studies estimating the impact of weather variability on labor market outcomes is provided. Section 3 discusses the data and the variables constructed and Section 4 elucidates the empirical strategy, discusses the main findings, and conducts robustness checks. This is followed by a discussion of mechanisms behind the main findings in Section 5, while Section 6 presents a summary of the results. Concluding remarks are gathered in Section 7.

2. LITERATURE REVIEW

Previous studies by Jayachandran (2006), Mueller and Osgood (2009), Mueller and Quisumbing (2011), and Burgess, Deschenes, Donaldson, and Greenstone (2011) look at the effect of weather shocks on wages. Jayachandran (2006) measures the impact of productivity shocks on district-level daily agricultural wage for men in India and concludes that an increase in productivity shock increases the real male wage significantly. This effect is less pronounced in districts which are more developed in terms of access to roads and banks. Mueller and Quisumbing (2011) study the impact of the 1998 Bangladesh flood on agricultural and non-agricultural wage rates. They find a short-term reduction in real wage and a smaller reduction in wage for agricultural workers who were able to find non-agricultural employment. Mueller and Osgood (2009) look not only at the short-term effects of droughts on earnings but the long-term effects as well. They argue that the long-term effect can be due to selling of productive assets during the shock to sustain consumption; and it may take a long time to replenish them. They use data on both rural and urban areas in Brazil and find that adverse rainfall shocks up to five years in the past can have negative effects on individual incomes.

The literature on the heterogeneous effect of weather shocks on labor market outcomes by gender is thus largely non-existent.⁴ This paper aims to fill this gap by examining the dimension of wage rates and the consequent effect of weather shocks on male and female wage gap in agriculture. It builds on the paper by Jayachandran (2006), which examines the short-term effects of a rainfall shock on daily male wage levels in Indian agriculture.⁵ Only the daily wage in agriculture is considered in this paper since women in rural India are primarily engaged in agriculture, as discussed earlier in the introduction.

The existing literature does not offer an *a priori* hypothesis about what the effect of rainfall shocks on the gender wage gap should be. It depends on the effect of rainfall shocks on both the supply of and the demand for female and male labor (see Appendix 1 for a theoretical formulation). Empirically, to construct a hypothesis on the possible effect of rainfall shocks on the gender wage gap, we look at the literature on the supply and the demand side.

(a) Supply side

There is no existing evidence on the effect of rainfall variability on supply of female and male labor. Some studies show that female labor can act as a last resort for families in times of distress (Bhalotra, 2010). This implies that if there is an equal effect of rainfall shocks on the demand for male and female labor in agriculture, then female wage can be more responsive to such shocks than male wage (given equal fall in demand,

low rainfall would increase female labor supply and high rainfall would decrease female labor supply more than male labor supply). On the other hand, reduction in rainfall can also reduce the labor time allocated to agriculture because the time spent by women in water collection, fuel collection, and care work increases during droughts (WHO, 2014).⁶

(b) Demand side

On the demand side, some potential hypotheses can be explored. Boserup (1970), Agarwal (1986), and Chen (1989) discuss the differences in gender roles across crops. It has been well documented by researchers that the cultivation of rice involves greater female labor days (Chin, 2011). Wet cultivation of rice requires rice to be grown in flooded fields. Since rice seeds cannot germinate under flooded conditions, they need to be grown in nurseries and then transplanted manually to the flooded rice fields. This transplantation and weeding is mostly done by females (IRRI, 2000). Bardhan (1974) noted that demand for female labor is more in rice-growing areas:

‘Transplantation of paddy is an exclusively female job in the paddy areas; besides, female labor plays a very important role in weeding, harvesting and threshing of paddy. By contrast, in dry cultivation and even in wheat cultivation, under irrigation, the work involves more muscle power and less of tedious, often back breaking, but delicate, operations.’ Bardhan (1974, p. 1304).

There is also a distinct sequential nature of tasks, by gender, in rice production. Men are involved in land preparation, sowing, and seedbed preparation. The next stage involves transplanting of rice by women. Thereafter, men are only involved with irrigation and application of fertilizer while women undertake most manual weeding operations harvesting, and post-harvesting operations, including threshing of crops (IRRI, 2000). Tasks such as transplanting and weeding, which are performed by females, account for one-third of the total labor percentage used in rice farming (Mbiti, 2007).⁷

This leads us to examine the heterogeneity in the impact of a rainfall shock on the gender wage gap in areas that cultivate rainfed rice in India. Rainfed rice systems are considered since demand shocks will be small in areas where irrigated rice is cultivated. If the marginal product of female labor increases more than the marginal product of male labor when rainfall increases in areas that cultivate rainfed rice, then variability in rainfall should have a greater effect on the equilibrium wage for females relative to males. This will be the case under the assumption that labor supply responses by males and females are not able to completely offset the change in relative demand for female labor.

3. DATA AND VARIABLE CONSTRUCTION

A district-level panel dataset on wages and rainfall shocks is constructed. The primary dataset used in this paper are the Employment and Unemployment rounds (1993–94, 1999–2000, 2004–05, 2007–08) of NSS in India. The NSS rounds include repeated cross sections of households, which are representative of India’s population. The survey contains details of labor force participation and earnings for the reference period of a week and follows a two-stage sampling design. In rural areas, the first stratum is a district. Villages are primary sampling units (PSU) and are picked randomly in a district over an entire agricultural year (July to June) over quarters to ensure equal spacing of observations across the year. The households are randomly chosen in the selected PSUs. The district-level

analysis includes 14 major states in the sample: Punjab, Haryana, Uttar Pradesh (includes Uttarakhand), Madhya Pradesh (includes Chhattisgarh), Bihar (includes Jharkhand), Gujarat, Rajasthan, West Bengal, Maharashtra, Andhra Pradesh, Karnataka, Orissa, Tamil Nadu, and Kerala. Average agricultural wage in an agricultural year is estimated by calculating an average of daily wage rate (total earnings divided by total days worked in the last week) for all casual wage laborers in agriculture in a district, weighted by sampling weights provided in the survey so that the district-level average wage rate is representative of the district population. Wages are adjusted for changes in price levels over time by using the consumer price index for agricultural laborers as the deflator. Districts with both male and female wage observations are included in the analysis.

Data on area and yield of crops at the district level are obtained from Area, Production and Yield statistics (1999–2008) published by Ministry of Agriculture, India. The source for rainfall data is the gridded dataset of the Center of Climatic Research at the University of Delaware, which includes monthly precipitation values on 0.5 degree intervals in a longitude and latitude grid centered on 0.25 degree. This grid value is achieved by spatial interpolation using data from nearby weather stations and other sources of rainfall data.⁸ District-level monthly rainfall estimates are arrived at by averaging the monthly precipitation value of all the grid points lying within the geographic boundaries of a district in a year.⁹ The geographic boundaries refer to the boundaries of the parent districts, as Indian districts have been split into two or more districts over time. Districts across NSS rounds 1993–94, 1999–2000, 2004–05, and 2007–08 have been merged into their parent districts according to district boundaries in the 1991 census.¹⁰

About 75% of rainfall in India is received during the monsoon season from June to September.¹¹ Monsoon precipitation levels are very critical for agricultural yields during the agricultural year, not only for the *kharif* crop (June to October), but also for the *rabi* crop (November to May), since they help recharge the aquifers. Jayachandran (2006) argues that in the Indian context, above normal-level rainfall improves agricultural productivity while below normal-level rainfall reduces it, and this has an effect on agricultural wages. Thus, excess rain is treated as a good shock while a shortfall is taken to be a bad shock.

The methodology used for constructing rainfall shocks is similar to that of Jayachandran (2006). The ‘*RainShock*’ variable equals one if the monsoon rainfall is above the 80th percentile for a district, zero if it is between the 80th and the 20th percentile, and minus one if it is below the 20th percentile. Rainfall data from 1971 to 2008 are used to construct the shocks. Using this definition, 67% of the districts experienced a drought and 50% experienced a good rainfall in at least one year in our dataset. To check if separate indicator variables for the positive shock (plus one) and the negative shock (minus one) should be included rather than a single variable taking three values, the log of wage is regressed on two dummy variables: one for rainfall above the 80th percentile and the other for rainfall below the 20th percentile. The hypothesis that the two dummy variables have an equal and an opposite effect on wage cannot be rejected (Appendix, Table 14, column 1 and column 2). This finding is similar to that of Jayachandran (2006). Hence, we use a single variable to indicate ‘*RainShock*’ that takes on the values: +1, 0, and –1. This specification helps to improve power in the regressions.

A concern with the above rainfall shock measure is that higher levels of rainfall may result in flood-like situations,

which could destroy crops, thus reducing yields. In India, more than 80% of the production and area sown is under food grains. Rice and wheat are the most important food grains cultivated in India. Figure 1 plots the coefficients from regressing the log of yield of rice and wheat at the district level on the deciles of rainfall, with the first decile as the omitted category, district and time fixed effects. The plot of coefficients shows that this concern is not important. For both rice and wheat, we do not observe any yield dips in the ninth and the tenth deciles of rainfall, which would be the case if floods were affecting these crops adversely. All the coefficients in the regressions are significant at 1% level.

We now check if the measure of rainfall shock constructed has an effect on crop yields. Table 2 shows the impact of the 'RainShock' variable constructed on the yields for five crops—rice, wheat, bajra, gram, and maize. For all the crops, the rainfall shock has a significantly positive effect on yields. An increase in rainfall shock by one unit increases the yields

by approximately 8% for rice, bajra, and gram, while for wheat this effect is 5.7%. It is further lower for maize at 1.8%. The magnitude is highest for rice at 8.7%. The definitions and summary statistics for other variables are presented in Table 3.

To construct an indicator of rainfed rice cultivation, we use the fact that rice crop requires a lot of water. It takes 3,000–5,000 liters to produce one kilogram of rice, which is about two to three times more than that used to produce one kilogram of other cereals (Singh, Choudhury, & Bouman, 2002). Rice is best grown under flooded conditions. Though rice can be grown in both dry or semi-dry conditions and wet conditions, the cultivation practices are very different. In dry areas, the soil is ploughed in summer and the seed is sown by broadcasting or by sowing the seed behind the plough. In wet cultivation, transplanting to flooded fields is adopted. Wetland conditions are created in semi-dry areas by impounding rain water.

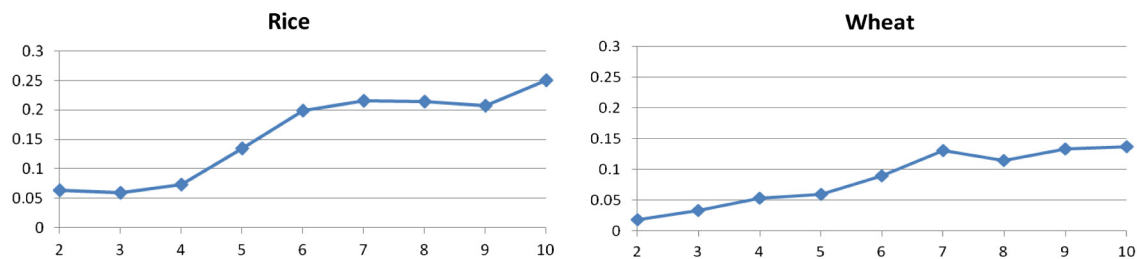


Figure 1. Impact of Rainfall Deciles on Yield. Source: Center of Climatic Research, University of Delaware; Area, Production and Yield statistics, Ministry of Agriculture, India. Note: Productivity of crops is measured by yield, which is defined as production per hectare of land sown with the crop.

Table 2. Impact of rainfall shock on yield of major crops

	Rice	Wheat	Bajra	Gram	Maize
RainShock	0.087*** (0.009)	0.057*** (0.007)	0.080*** (0.014)	0.083*** (0.009)	0.018* (0.011)
Constant	0.519*** (0.014)	0.656*** (0.011)	-0.217*** (0.023)	-0.288*** (0.015)	0.425*** (0.017)
District and year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	4,112	3,548	2,628	3,560	3,697

Note: The dependent variable is the log of yield of a crop in a district according to the 2001 census district boundaries for the 14 major states in the analyses. Yield is defined as production per hectare of land sown with the crop. Area, Production and Yield statistics for the years 1999–2008 have been used in the above analysis.

Table 3. Variable definition and summary statistics

Variable	Definition	Mean	Standard deviation	Source
Male wage	Real average wage of male casual laborers aged 15–60 in cultivation	10.21	8.55	NSS
Female wage	Real average wage of female casual laborers aged 15–60 in cultivation	8.02	4.48	NSS
Literate	Percentage literate population	0.51	0.13	NSS
Irrigation	Percentage area under irrigation	0.35	0.27	Census
Bus	Percentage villages connected by bus	0.41	0.33	Census
Road	Percentage villages connected by paved roads	0.51	0.29	Census
Rail	Percentage villages connected by rail	0.02	0.02	Census
Bank	Percentage villages having a commercial bank branch	0.09	0.12	Census
Town	Mean distance of a village from a Town (km)	21.34	11.48	Census
Landless	Percentage landless households	0.13	0.12	NSS
Per capita expenditure	Mean monthly per capita expenditure of a household in 1993	292.75	67.69	NSS

Note: The mean for each variable is a weighted mean with weights equal to district rural population.

Climatically, areas which receive high average rainfall and have tropical climate are most suitable for rice cultivation. Among the Indian states in the analysis, Kerala, West Bengal, Orissa, and Bihar receive the highest monsoon rainfall. Table 4 shows monsoon rainfall levels and area under rice cultivation in the 14 states of India included in the analyses. It shows that states having at least 50% area under rice cultivation are also the states which receive the highest levels of rainfall in the country (more than 1,000 mm during the monsoon season). These states are: Kerala, located in the western coastal plain, and West Bengal, Orissa, and Bihar, located in the Eastern Gangetic plains. The climatic conditions in these states are thus highly suitable for wet cultivation of rice. Hence, if a state has at least 50% area under cultivation of rice, then districts in that state are classified as rainfed rice-growing areas.¹²

A state-level indicator of rice cultivation is used since rice can be grown in select districts within a state having irrigated agricultural systems. In the southern states of India and in the state of Punjab, due to lower rainfall, rice cultivation is only done in a few districts under well-irrigated conditions. Thus, around 90% of the area under rice is irrigated in these states (Sen, 1985).¹³ In such areas, rice cultivation may not occur due to better climate suitability but rather due to better irrigation facilities, which also mitigates the effect of a rainfall shock on rice yields. To check the robustness of results, an alternative indicator that uses district-level area under rice cultivation is also constructed.

4. ESTIMATION STRATEGY AND FINDINGS

(a) Baseline specification

Eqn. (E.1) below estimates the effect of a rainfall shock on wages. The dependent variables are the log of the male and the female daily wage. In Eqn. (E.2) relative female wage in agriculture, defined as the log of female-to-male daily wage ratio, is the dependent variable.

Table 4. Rainfall and cropping pattern

State	Long-term average monsoon rainfall (mm)	Area under rice cultivation (%)
Kerala	1,902.69	95
West Bengal	1,426.71	74
Orissa	1,144.99	80
Bihar	1,011.28	55
Maharashtra	999.43	8
Madhya Pradesh	979.59	24
Uttar Pradesh	863.33	26
Karnataka	850.24	13
Gujarat	703.17	7
Andhra Pradesh	613.68	30
Punjab	510.39	39
Haryana	457.95	19
Tamil Nadu	381.60	39
Rajasthan	380.28	1

Source: Center of Climatic Research, University of Delaware; Area, Production and Yield statistics, Ministry of Agriculture, India.

Note: Rainfall data from 1971 to 2008 is used to calculate the long-term average monsoon rainfall for the states. Area, Production, and Yield statistics for the years 1999–2004 are used to construct the state-level crop composition (excluding horticulture crops) figure since data for all states were complete for these years.

$$W_{dt}^k = \beta_0 + \beta_1 RainShock_{dt} + \beta_2 X_{dt} + \beta_3 D_d + \beta_4 T_t + \epsilon_{dt} \quad (E.1)$$

$$W_{dt}^F - W_{dt}^M = \gamma_0 + \gamma_1 RainShock_{dt} + \gamma_2 X_{dt} + \gamma_3 D_d + \gamma_4 T_t + \epsilon_{dt} \quad (E.2)$$

Here, $k = M, F$ indexes males and females respectively, and W_{dt}^k is the log of the average wage in cultivation in district ‘ d ’ in year ‘ t ’. ‘ $RainShock$ ’ is the rainfall shock experienced in district ‘ d ’ in year ‘ t ’. X_{dt} is time varying district characteristic. D_d is the district fixed effect that controls for time invariant characteristics of the district such as agro-ecological conditions, average crop composition, culture, norms, labor force characteristics, and the initial level of development. T_t is a vector of time dummies which controls for any factors that are common to all districts in a given year. The identification of the parameter of interest is based on variation in wages and rainfall in a district over time. The parameter of interest γ_1 shows the impact of a rainfall shock on relative female wage. Given that realized rainfall shocks are random, the regressions will give an unbiased estimate of γ_1 .

A district is a smaller administrative unit within states in India and is taken as the unit of analysis. This is based on the assumption that districts constitute separate agriculture labor markets in India. Previous studies by Jayachandran (2006) and Rosenzweig (1984) on rural wages in India also make a similar assumption. Districts can be considered as distinct labor markets due to low mobility of rural labor across districts in India. Following Jayachandran (2006), we allow for clustering of standard errors within a region-year since rainfall shocks are likely to be spatially correlated.¹⁴ The district-level regressions are estimated with analytical weights equal to district population since the dependent variable is an average estimated at district level.

Table 5 shows the estimates for specifications (E.1) and (E.2). The results show that an increase in ‘ $RainShock$ ’ by one unit increases female wage by 3.6% and male wage by 2.4%. Since the construction of the ‘ $RainShock$ ’ variable is based on symmetric and opposite impacts of positive and negative shocks, these results can also be interpreted as an increase (decrease) in female wage by 3.6% and male wage by 2.4%, relative to a normal year, when a positive (negative) rainfall shock occurs. There is no significant impact of a rainfall shock on relative female wage (female-to-male wage ratio) in column 3. Both the male and the female daily wages are affected equally by a rainfall shock.¹⁵

Table 5. Impact of a Rainfall shock on relative female wage

	(1) Female wage	(2) Male wage	(3) Wage ratio
RainShock	0.036** (0.014)	0.024* (0.014)	0.012 (0.013)
Constant	1.259*** (0.017)	1.492*** (0.017)	-0.233*** (0.014)
Observations	1,216	1,216	1,216
R-Squared	0.874	0.903	0.493
District and year fixed effects	Yes	Yes	Yes

Note: Log of wages and log of female-to-male wage ratio is the dependent variable. The unit of analysis is a district, and analytical weights equal to district rural population are used. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

As discussed earlier, there could be a differential impact of a rainfall shock on relative female wage in regions that cultivate rainfed rice. The below specification examines the heterogeneity in the impact of a rainfall shock on relative female wage in rainfed rice-cultivating areas.

$$W_{dt}^k = \beta_0 + \beta_1 \text{RainShock}_{dt} + \beta'_1 \text{RainShock}_{dt} * \text{Rice}_d + \beta_2 X_{dt} + \beta_3 D_d + \beta_4 T_t + \epsilon_{dt} \quad (\text{E.3})$$

$$W_{dt}^F - W_{dt}^M = \gamma_0 + \gamma_1 \text{RainShock}_{dt} + \gamma'_1 \text{RainShock}_{dt} * \text{Rice}_d + \gamma_2 X_{dt} + \gamma_3 D_d + \gamma_4 T_t + \epsilon_{dt} \quad (\text{E.4})$$

Here, Rice_d is the indicator variable for rainfed rice cultivation and γ'_1 gives the differential impact of a rainfall shock on relative female wage in rainfed rice-cultivating areas relative to the other areas. [Chin \(2011\)](#) exploits a similar strategy of using the interaction of rice cultivation with rainfall shock as an instrument for labor force participation of females to estimate the effect of female employment on spousal violence. While she uses cross-sectional data, our estimation is based on panel data and that allows us to control for district fixed effects.

One possible concern may be that rice cultivation can be determined by local demand and supply conditions that also affect labor market outcomes. Since we arrive at the average percentage area under rice cultivation by taking an average of area under rice cultivation over six years, the rice indicator variable does not represent crop choice as a response to agricultural conditions prevailing in any given year. It reflects the average intensity of rice cultivation in a district. Any concerns about the endogeneity of the rice indicator variable can then be allayed by the inclusion of district fixed effects. Thus, in all the econometric specifications, we include district fixed effects. Even so, we have an additional instrumental variable check in [Section 4.2](#).

[Table 6](#) shows the results for specifications (E.3) and (E.4). The results show that an increase in 'RainShock' by one unit increases the relative female wage by 4.8% in rainfed rice-growing areas when compared to other areas. These results can also be interpreted as an increase (decrease) in female-to-male wage ratio by 4.8% when a positive (negative) rainfall shock occurs, relative to a normal year, in rainfed rice-growing areas when compared to other areas. Thus, the gender wage gap increases with a negative rainfall shock (low rainfall) and decreases with a positive rainfall shock (high rainfall) in

Table 6. *Heterogeneous impact of a rainfall shock on relative female wage*

	(1) Female wage	(2) Male wage	(3) Wage ratio
RainShock	0.037*** (0.014)	0.039** (0.015)	-0.001 (0.014)
RainShock * Rice	-0.005 (0.032)	-0.053* (0.032)	0.048* (0.025)
Constant	1.259*** (0.017)	1.490*** (0.017)	-0.231*** (0.014)
Observations	1,216	1,216	1,216
R-Squared	0.874	0.903	0.495
District and year fixed effects	Yes	Yes	Yes

Note: Log of wages and log of female-to-male wage ratio is the dependent variable. Rice is defined as a dummy for states having at least 50% crop area under rice cultivation. The unit of analysis is a district, and analytical weights equal to district rural population are used. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

rice-growing areas in comparison to other areas.¹⁶ This result is driven by a lower impact of a rainfall shock on male wages in these areas. On the whole, a positive rainfall shock in rainfed rice-growing areas increases the relative female wage by 4.7% (0.048-0.001).¹⁷

[Table 7](#) augments the specifications (E.3) and (E.4) with additional control variables. To control for other variables which may affect wage responsiveness to shocks in a district, we use percentage literate population in a district as an indicator of education and interact it with the rainfall shock. Generally, non-farm sector enterprises are located in areas with better infrastructure and education levels. Higher education levels, by improving access to non-farm jobs, can insulate agriculture wages from rainfall shocks. Technological advancement in agriculture may also be greater in areas with more educated workforce. So we expect that in districts with a larger literate population, agricultural wages will be better protected against rainfall variations.

Variation in the percentage of irrigated area in a district may also lead to a differential effect of rainfall shocks on wages. To the extent that well irrigated areas experience smaller effects of rainfall shocks on yield of crops, the wages in irrigated areas tend to be insulated against rainfall variations. However, cultivation of riskier crops and greater dependence of local population on agriculture in well irrigated areas can make local agricultural wages more responsive to rainfall shocks. [Morduch \(1990\)](#) shows that Indian farm households that are more susceptible to income shocks are less likely to use riskier seed varieties. Using ICRISAT data from three Indian villages, [Wadood and Lamb \(2006\)](#) also show that the area under risky crop varieties increases with irrigation availability. In well irrigated areas, high-value but risky water-intensive crops and varieties are a major source of income. While rainfall shocks may not affect yield of cultivated crops, lower groundwater levels and less availability of canal water due to insufficient rainfall can result in less area planted under high-value

Table 7. *Heterogeneous impact of a rainfall shock on relative female wage conditional on district controls*

	(1) Female wage	(2) Male wage	(3) Wage ratio
RainShock	0.153*** (0.056)	0.101* (0.055)	0.051 (0.052)
RainShock * Rice	-0.005 (0.029)	-0.057* (0.029)	0.052** (0.025)
Literate	0.127 (0.177)	0.042 (0.144)	0.085 (0.173)
RainShock * Literate	-0.287*** (0.103)	-0.200** (0.099)	-0.087 (0.092)
Irrigation	0.034 (0.058)	0.008 (0.061)	0.026 (0.045)
RainShock * Irrigation	0.108* (0.058)	0.129** (0.057)	-0.022 (0.056)
Constant	1.207*** (0.079)	1.476*** (0.064)	-0.269*** (0.072)
Observations	1,216	1,216	1,216
R-Squared	0.876	0.905	0.496
District and year fixed effects	Yes	Yes	Yes

Note: Log of wages and log of female-to-male wage ratio is the dependent variable. Rice is defined as a dummy for states having at least 50% crop area under rice cultivation. The unit of analysis is a district, and analytical weights equal to district rural population are used. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at

Table 8. *Heterogeneous impact of a rainfall shock on relative female wage conditional on other development indicators*

<i>Panel A: Development Indicators—Bus, Road, Rail</i>			
	Wage ratio	Wage ratio	Wage ratio
Indicator	Bus	Road	Rail
RainShock	0.054 (0.052)	0.057 (0.051)	0.048 (0.052)
RainShock * Rice	0.059** (0.027)	0.063** (0.027)	0.052** (0.025)
Literate	0.088 (0.174)	0.097 (0.173)	0.083 (0.174)
RainShock * Literate	-0.124 (0.097)	-0.132 (0.100)	-0.076 (0.091)
Irrigation	0.031 (0.046)	-0.016 (0.058)	0.023 (0.046)
RainShock * Irrigation	-0.029 (0.054)	-0.041 (0.055)	-0.019 (0.057)
Indicator	-0.079 (0.108)	0.084 (0.075)	0.319 (0.675)
RainShock * Indicator	0.034 (0.040)	0.040 (0.047)	-0.241 (0.700)
Constant	-0.241*** (0.087)	-0.296*** (0.077)	-0.273*** (0.073)
Observations	1,216	1,216	1,216
R-Squared	0.496	0.497	0.496
District and year fixed effects	Yes	Yes	Yes
<i>Panel B: Development Indicators—Bank, Town</i>			
	Wage ratio	Wage ratio	Wage ratio
Indicator	Bank	Town	All
RainShock	0.052 (0.052)	0.067 (0.064)	0.077 (0.063)
RainShock * Rice	0.052** (0.025)	0.053** (0.024)	0.076*** (0.028)
Literate	0.085 (0.173)	0.085 (0.173)	0.099 (0.175)
RainShock * Literate	-0.090 (0.091)	-0.089 (0.093)	-0.142 (0.102)
Irrigation	0.026 (0.045)	0.025 (0.046)	-0.014 (0.059)
RainShock * Irrigation	-0.021 (0.056)	-0.029 (0.059)	-0.049 (0.062)
RainShock * Indicator	0.007 (0.103)	-0.001 (0.001)	
Constant	-0.269*** (0.072)	-0.269*** (0.072)	-0.260*** (0.090)
Observations	1,216	1,216	1,216
R-Squared	0.496	0.496	0.498
District and year fixed effects	Yes	Yes	Yes
<i>Panel C: Development Indicators—Landless, Per Capita Expenditure</i>			
	Wage ratio	Wage ratio	
Indicator	Landless		Per capita expenditure
RainShock	0.082 (0.063)		0.066 (0.076)
RainShock * Rice	0.074*** (0.028)		0.078*** (0.029)
Literate	0.088 (0.176)		0.101 (0.174)
RainShock * Literate	-0.136 (0.104)		-0.146 (0.109)
Irrigation	-0.014 (0.059)		-0.012 (0.060)
RainShock * Irrigation	-0.046 (0.061)		-0.051 (0.062)

(continued on next page)

Table 8 (continued)
Panel C: Development Indicators—Landless, Per Capita Expenditure

	Wage ratio	Wage ratio
Indicator	−0.047 (0.094)	
RainShock * Indicator	−0.082 (0.099)	0.000 (0.000)
Constant	−0.247*** (0.091)	−0.261*** (0.089)
Observations	1,216	1,216
R-Squared	0.498	0.498
District and year fixed effects	Yes	Yes

Note: Log of female-to-male wage ratio is the dependent variable. Rice is defined as a dummy for states having at least 50% crop area under rice cultivation. The data for number of banks in a district and mean distance to nearest town are available for Census 2001 only, resulting in no variation over time in these indicators. District level per capita expenditure is estimated from the NSS for the year 1993–94, which controls for initial prosperity levels in a district. Panel C includes all the controls in the last column of Panel B along with the poverty indicators. The unit of analysis is a district, and analytical weights equal to district rural population are used. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

crops in a low-rainfall year, affecting the value of marginal labor input.¹⁸ In India, among the irrigated districts in the period of study, 90% have less than 75% area under irrigation. If there are few irrigated pockets, and a large population is dependent on agriculture, workers could migrate from villages within a district to these irrigated pockets in search of work when rainfall decreases, hence decreasing the wage rate.

Table 7 shows the results conditional on the above variables. Both male and female wages are less responsive to a rainfall shock in areas with more literate population since the interaction term (*RainShock * Literate*) is negative, but there is no impact on the gender wage gap.¹⁹ On the other hand, both male and female wages are more responsive to a rainfall shock in irrigated areas since the interaction term (*RainShock * Irrigation*) is significantly positive. As discussed earlier, this could be due to the practice of high-risk cultivation strategies or a greater labor supply variation in the irrigated pockets within a district. The addition of the above controls does not change the impact of a rainfall shock in rainfed rice-growing areas on the gender wage gap. On the whole, a positive (negative) rainfall shock in rainfed rice-growing areas increases (decreases) the female-to-male wage ratio by 10% (0.052 + 0.051). The specification with education and irrigation controls is used as the baseline.²⁰ We conduct further checks to look at the robustness of the above results to alternative specifications.

(b) Robustness checks

Jayachandran (2006), who uses data from 1960 to 1987, finds that the impact of a rainfall shock on daily male wage in agriculture is lower in more developed areas. Our period of analysis is more recent. To check for the robustness of our results, we control for a host of developmental indicators used in her paper, such as accessibility of villages in a district by bus, road, or rail, closeness of villages to a town, and banking activity in a district. The data source for these variables is the Census of India. Indicators of poverty such as level of household per capita expenditure and percentage landless households in a district are also entered as controls. We examine the robustness of our results to the inclusion of the above development indicators.

Table 8, panel A, shows the results for indicators of accessibility like bus, road, and rail. Panel B of Table 8 shows the results controlling for banking activity and mean distance to town, with the last column incorporating all the indicators.

Panel C of Table 8 controls for other indicators of poverty such as percentage landless households and monthly per capita consumption of households in a district in 1993, along with previous infrastructure indicators. Controlling for indicators of development and poverty does not change our earlier result that relative female wage is associated positively with a rainfall shock in rainfed rice-growing areas. In some specifications, the coefficient of the interaction of a rainfall shock with rice increases in magnitude. This is indicative of omitted variable bias since cultivation of rainfed rice may be negatively correlated with the level of development in a district. But the increase is not significantly different from specification (3) in Table 7. In the estimation results, none of the developmental indicators or their interaction with the rainfall shock has a significant effect on either male wage, female wage, or relative female wage.

In the previous section it was argued that once district fixed effects are controlled for, the interaction of the indicator of rainfed rice cultivation with rainfall shock is exogenous. To further allay any endogeneity concerns, the indicator of rainfed rice cultivation is instrumented with average state-level rainfall from 1971 to 2008. The interaction of '*RainShock*' with mean monsoon rainfall is used as an instrument for the interaction of '*RainShock*' with '*Rice*'. Since long-term mean rainfall is an exogenously determined measure of climatic endowment, it is unlikely to be correlated with labor market outcomes once district fixed effects are controlled for. Also, it is likely to be highly correlated with average rainfed rice cultivation in a region since rice is a water-intensive crop (Table 4).

Table 9 shows the results of the two-stage least squares estimates along with the F-statistic of the first stage. The F-stat shows that the instrument is significant at 1% level of significance. The first stage results show that the interaction of rainfall shock with mean rainfall level is a significantly positive predictor of the interaction of rainfall shock with the rainfed rice cultivation indicator. This is expected if mean rainfall level acts as a determining factor behind the choice of farmers to cultivate rice in a particular state. The second stage results confirm the findings of the previous reduced form regressions that the gender wage gap reduces in rainfed rice-growing regions in years of high rainfall and increases in years of low rainfall. One unit increase in '*RainShock*' increases the female-to-male wage ratio by approximately 11% (0.051 + 0.061) in the rainfed rice-growing areas. The magnitude of the impact is only slightly higher than the reduced form regres-

Table 9. *Heterogeneous impact of a rainfall shock on relative female wage: two-stage least squares estimates*

	(1) Female wage	(2) Male wage	(3) Wage ratio
RainShock	0.153*** (0.048)	0.102** (0.048)	0.051 (0.045)
RainShock * Rice	-0.008 (0.033)	-0.069** (0.032)	0.061** (0.030)
Literate	0.128 (0.151)	0.045 (0.122)	0.082 (0.147)
RainShock * Literate	-0.286*** (0.089)	-0.196** (0.085)	-0.090 (0.079)
Irrigation	0.033 (0.049)	0.007 (0.052)	0.026 (0.039)
RainShock * Irrigation	0.109** (0.050)	0.132*** (0.050)	-0.024 (0.048)
Constant	0.909*** (0.060)	1.693*** (0.128)	-0.784*** (0.117)
Observations	1,216	1,216	1,216
F-Stat for first stage	177.26	177.26	177.26
District and year fixed effects	Yes	Yes	Yes

Note: Log of wages and log of female-to-male wage ratio is the dependent variable. Rice is defined as a dummy for states having at least 50% crop area under rice cultivation. Table 16 shows the first-stage regression results. The unit of analysis is a district, and analytical weights equal to district rural population are used. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

sion in Table 7, indicating that endogeneity is not a major concern.

As a third robustness check, an alternative definition of intensity of rainfed rice cultivation across Indian districts is used. The 'Rice' variable is constructed by multiplying the district-level percentage area under rice cultivation with state-level percentage area of rice crop which is rainfed.²¹ We expect this to be a good indicator at the district level due to uniformity within the states in rainfed rice cultivation. In states like Punjab, Haryana, Andhra Pradesh, and Tamil Nadu, where rice is intensively cultivated in a few districts, the entire area cultivated under rice is irrigated. In other states, there is very little area where irrigated rice is cultivated. Rice can be grown under both rainfed and irrigated conditions, and it is crucial to make this distinction since in rainfed areas,

rainfall shocks are more likely to affect the demand for labor in rice cultivation. The results in Table 10, with this alternative district-level indicator of rainfed rice cultivation, show that a one unit increase in 'RainShock' increases the female-to-male wage ratio by 1.04% for every 10% increase in area under rainfed rice cultivation. The results support the previous finding that a positive rainfall shock decreases the gender wage gap (increases relative female wage) while a negative rainfall shock increases the gender wage gap (decreases relative female wage) as the percentage area under rainfed rice cultivation in a district increases. The above result is not affected when district-level development indicators in Table 8 are also controlled for. The results have not been shown for brevity.

In the fourth robustness check, state time fixed effects are added to the above specification in order to control for any state-year-specific factors in wages which could have been omitted. The results after controlling for state-specific time fixed effects are shown in the last column of Table 10. As can be seen, the previous result is robust to the inclusion of time fixed effects at state level.

As the last robustness check, the analysis is conducted at individual level. The district-level estimates do not take into account the differences in labor force characteristics of males and females in agriculture. To the extent that differences in characteristics are constant over time within a district, district fixed effects take into account the effect of these differential characteristics, which are not changing over time, on the gender wage gap. To see if the results are robust to inclusion of individual characteristics, the below specification is estimated:

$$W_{idt} = \alpha_0 + \alpha_1 \text{RainShock}_{dt} + \alpha_2 \text{Female}_{idt} + \alpha_3 \text{RainShock}_{dt} * \text{Female}_{idt} + \alpha_4 C_{idt} + \alpha_5 D_d + \alpha_6 T_t + \varepsilon_{idt} \quad (E.5)$$

Here, 'i' refers to an individual in district 'd' at time 't'. W_{idt} is the log of individual wage, Female_{idt} is a dummy variable for sex of an individual 'i' (female), C_{idt} is individual characteristic, D_d is district fixed effect and T_t is time fixed effect. The differential impact of rainfall shocks on the gender wage gap is given by α_3 . A significantly positive value of α_3 indicates that female wage, relative to male wage, increases with an increase in rainfall shock.

To check for the heterogeneous effect of a rainfall shock in rainfed rice-cultivating areas, a specification where the rice indicator is interacted with the product of the rainfall shock and the female dummy is estimated. Here α'_3 gives the differential impact of a rainfall shock on relative female wage in rain-

Table 10. *Heterogeneous impact of a rainfall shock on relative female wage: alternative definition of rainfed rice cultivation*

	(1) Female wage	(2) Male wage	(3) Wage ratio	(4) Wage ratio
RainShock	0.152*** (0.057)	0.099* (0.054)	0.053 (0.052)	0.070 (0.067)
RainShock * Rice	-0.064 (0.067)	-0.169** (0.065)	0.104* (0.056)	0.128* (0.074)
Constant	1.202*** (0.079)	1.467*** (0.064)	-0.265*** (0.072)	-0.228*** (0.080)
Observations	1,216	1,216	1,216	1,216
R-Squared	0.877	0.905	0.495	0.525
Baseline district controls	Yes	Yes	Yes	Yes
District and year fixed effects	Yes	Yes	Yes	Yes
State time trend	No	No	No	Yes

Note: Log of wages and log of female-to-male wage ratio is the dependent variable. 'Rice' is defined as the proportion of crop area in a district under rainfed rice cultivation. The unit of analysis is a district, and analytical weights equal to district rural population are used. The regressions include baseline controls for education and irrigation and their interaction with rainfall shock. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

fed rice-growing areas. A significantly positive value of α'_3 indicates that relative female wage increases with an increase in rainfall shock in rice-growing areas, in comparison to other areas. The overall effect of a rainfall shock in rice-growing areas on relative female wage is given by $\alpha_3 + \alpha'_3$.

$$W_{idt} = \alpha_0 + \alpha_1 \text{RainShock}_{dt} + \alpha_2 \text{Female}_{ijt} + \alpha_3 \text{RainShock}_{dt} * \text{Female}_{idt} + \alpha'_1 \text{RainShock}_{dt} * \text{Rice}_d + \alpha'_2 \text{Female}_{ijt} * \text{Rice}_d + \alpha'_3 \text{RainShock}_{dt} * \text{Female}_{idt} * \text{Rice}_d + \alpha_4 C_{idt} + \alpha_5 D_d + \alpha_6 T_t + \varepsilon_{idt} \quad (\text{E.6})$$

Table 11 shows the individual-level results. Females on an average earn 26% lower daily wage than males in agriculture. An increase in rainfall shock increases both male and female wages equally (α_1 is significantly positive but α_3 is insignificant in column 1). This is similar to the finding in Table 4, which shows the results for district-level analysis, that a rainfall shock has no effect on the female-to-male wage ratio. Column 2 shows the results for specification (E0.6). An increase in rainfall shock by one unit in rainfed rice-growing areas increases the relative female wage by 8% ($0.034 + 0.046$), which is significant at the 5% level. This finding can be compared to the result in Table 7, column 3, which shows that an increase in rainfall shock by one unit increases the relative female wage by 10% in rice-growing areas ($0.051 + 0.052$). When the analysis is done at the individual level, the magnitude of the impact of the rainfall shock on the gender wage gap reduces slightly in rice-growing areas but is still statistically significant. Column 3 in Table 11 shows the individual regressions with the alternative definition of rainfed rice culti-

vation in a district, and the previous findings continue to hold. In general, the wage gap between males and females is smaller in rice-growing regions but it increases with decrease in rainfall shock.

5. MECHANISMS

The baseline results, in Section 4, show that the female-to-male wage ratio increases by 10% in the rainfed rice-growing areas, when there is an increase in the rainfall shock by one unit. To extend the existing literature on gender roles in rice cultivation (which shows that there is greater demand for female labor in rice-growing systems) in the context of climatic shocks, we need to pin down the mechanism behind this result. A possible hypothesis which can be tested is whether the asymmetric effect of a rainfall shock on female wages in rainfed rice-growing regions, in our baseline results, is due to the asymmetric effect of the rainfall shock on the demand for male and female labor. As a next step we use the existing literature on gender roles in rice cultivation and on adaptation strategies by farmers in rainfed rice systems to find the mechanism.

The available literature points at changes in crop composition and rice-cultivating practices by farmers when a rainfall shock occurs in rainfed rice systems. Pandey, Bhandari, and Hardy (2007) document in their report the coping strategies of rice-growing farmers in regions of eastern India during years of low rainfall. They report that in low-rainfall years, yield of other crops are not affected while the yield of rice falls in these rainfed rice-growing regions. As a consequence, around 40% of farmers report changes in cropping pattern in low-rainfall years with either an early sowing of the next season crop or replanting with a different crop (Pandey et al., 2007). Usually in rainfed rice-growing areas, the rice-wheat or rice-pulse cultivation pattern is followed. Maize, oil-seeds, pulses, or cash crops like vegetables are usually grown to compensate for loss of rice crop, depending on soil suitability and seed availability.

Even if farmers do not alter their crop composition, the demand for female labor could still fall since farmers also change the method of rice cultivation. Pandey et al. (2007) find that 10–30% of farmers in the states of eastern India change the crop establishment method of rice from transplanting to broadcasting when farmers have not already sown the rice crop. Farmers who have already sown the crop before a drought also replant the rice crop again if possible (using broadcasting). The technique of broadcasting absorbs less female labor as compared to the technique of transplanting, which can only be conducted in flooded fields (Sen, 1985). In high-rainfall years, farmers use transplanting since the broadcasting method of sowing rice gives a lower rice yield (Ehsanullah, Ahmad, & Randhawa, 2000; Pathak et al., 2011).

The above documented evidence by Pandey et al. (2007) suggests that rice yield should fall relatively more than yield of other crops in these rainfed rice-growing regions. As a test of this hypothesis, the heterogeneous impact of a rainfall shock on yields of major crops in rainfed rice-growing areas is estimated, using the below specifications:

$$Y_{dt}^r = \theta_0 + \theta_1 (\text{RainShock})_{dt} + \theta'_1 (\text{RainShock})_{dt} * \text{Rice}_d + \theta_3 D_d + \theta_4 T_t + \varepsilon_{dt} \quad (\text{E.7})$$

$$Y_{dt}^o = \vartheta_0 + \vartheta_1 (\text{RainShock})_{dt} + \vartheta'_1 (\text{RainShock})_{dt} * \text{Rice}_d + \vartheta_3 D_d + \vartheta_4 T_t + \varepsilon_{dt} \quad (\text{E.8})$$

Table 11. *Heterogeneous Impact of a rainfall shock on relative female wage: individual data*

	(1) Wage	(2) Wage	(3) Wage
RainShock	0.034*** (0.004)	0.170*** (0.019)	0.170*** (0.019)
Female	-0.268*** (0.004)	-0.226*** (0.014)	-0.235*** (0.014)
RainShock * Female	0.002 (0.006)	0.046 (0.028)	0.034 (0.029)
Female * Rice		0.151*** (0.009)	0.447*** (0.019)
RainShock * Rice		-0.034*** (0.009)	-0.093*** (0.021)
RainShock * Female * Rice		0.034** (0.015)	0.068** (0.033)
Constant	1.164*** (0.016)	1.099*** (0.024)	1.085*** (0.024)
Observations	84,793	84,793	84,793
R-Squared	0.619	0.624	0.625
Baseline district controls	No	Yes	Yes
Individual controls	Yes	Yes	Yes
District and year fixed effects	Yes	Yes	Yes

Note: Log of wage is the dependent variable. The baseline controls for education and irrigation and all their interactions with rainfall shock, and a gender dummy are included in columns 2 and 3. Individual controls include age, age square, and education. In columns 1 and 2, rice is defined as a dummy for states having at least 50% crop area under rice cultivation. In column 3, rice is defined as the proportion of crop area in a district under rainfed rice cultivation. The regressions are weighted using the sampling weights provided in the National Sample Survey. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Here, Y_{dt}^r is the log of yield of rice crop and Y_{dt}^o is the log of yield of other crops like wheat, bajra, gram, and maize. We expect the crop yields to respond positively to a rainfall shock ($\theta_1 > 0, \vartheta_1 > 0$). If the documented evidence holds in the data, then in the rainfed rice-growing areas, the yield of rice should be more responsive to a rainfall shock ($\theta'_1 > 0$), while the yields of other crops should be less responsive to a rainfall shock ($\vartheta'_1 < 0$), in comparison to areas not cultivating rainfed rice.

Table 12 shows the estimation results for specifications (E.7) and (E.8). In panel A, 'Rice' is a dummy variable for major rainfed rice-growing states whereas in panel B, 'Rice' is defined as the percentage crop area under rainfed rice cultivation in a district. In panel A, $\theta'_1 > 0$, is insignificant. In panel B, the estimates show that as area under rainfed rice cultivation increases, the yield of rice is affected significantly more by a rainfall shock ($\theta'_1 > 0$). For other crops—wheat, gram, bajra, and maize—their yield is affected significantly less by a rainfall shock in rainfed rice-growing regions ($\vartheta'_1 < 0$) in comparison to other regions (panels A and B of Table 12).

The results in panel A show that in rainfed rice-growing areas, the impact of a rainfall shock on rice yield is 10% ($\theta_1 + \theta'_1$), while that on yield of wheat, bajra, gram, and maize is 4%, -6%, 2.5%, and -3% respectively ($\vartheta_1 + \vartheta'_1$).²² A chi-square test shows that the impact of a rainfall shock on rice yield is greater than on the yield of any other crop in these areas. Wheat, gram, bajra, and maize require less water than rice, and can be grown even in drought-like conditions in these regions, which on an average receive higher rainfall.

The above findings on crop yields and the documented evidence on farmers' coping strategies suggests that in rainfed rice-growing areas, rice is transplanted in high-rainfall years whereas in low-rainfall years, rice is either grown by broadcast or is substituted with other crops. In conjunction with the literature on greater demand for female labor in transplanted rice cultivation, these coping strategies suggest that a

rainfall shock would have a greater effect on demand for female labor in comparison to male labor, in these areas. Thus, the observed positive impact of a rainfall shock on relative female wage in rainfed rice-growing areas could be a result of a decrease (increase) in demand for female labor in these areas during years of low (high) rainfall.

However, could it be that the supply side of the market is also playing a role behind the positive association between rainfall shocks and relative female wage in the rainfed rice-growing areas? An increase in relative female wage due to a rainfall shock will be accompanied by an increase in relative female employment, when differences on the demand side operate and are large enough to offset the differences on the supply side. When only differences on the supply side operate, and result in an increase in relative female wage with increase in a rainfall shock, then relative female employment will be negatively associated with the rainfall shock.²³

The above discussion suggests a test to ascertain whether differences on the supply side are driving the positive relationship between relative female wage and rainfall shock in rice-growing regions. We evaluate the heterogeneous impact of a rainfall shock on male and female labor employment in agriculture by estimating the below equation:

$$L_{dt}^F - L_{dt}^M = \delta_0 + \delta_1(\text{RainShock})_{dt} + \delta'_1(\text{RainShock})_{dt} * \text{Rice}_d + \delta_2 D_d + \delta_3 T_t + \epsilon_{dt} \quad (\text{E.9})$$

Here, $k = M, F$ indexes males and females respectively. 'L' is defined as the log of employment in agriculture by persons aged 15–60 in rural areas of district 'd' at time 't'.²⁴ If only differences on the labor supply side (differential supply elasticities or differential supply shifts for males and females) are driving the positive relation between relative female wage and rainfall shocks in rice-growing regions, then the sign of δ'_1 will be negative.

Table 13 shows the estimation results for the specification (E0.9). In columns 1 and 2, 'Rice' is defined as a dummy vari-

Table 12. Heterogeneous impact of a rainfall shock on yield of major crops

	Rice	Wheat	Bajra	Gram	Maize
<i>Panel A</i>					
RainShock	0.081*** (0.010)	0.062*** (0.008)	0.092*** (0.015)	0.098*** (0.010)	0.032*** (0.012)
RainShock * Rice	0.020 (0.019)	-0.024 (0.015)	-0.153*** (0.049)	-0.073*** (0.021)	-0.061** (0.024)
Constant	0.518*** (0.014)	0.657*** (0.011)	-0.213*** (0.023)	-0.283*** (0.015)	0.428*** (0.017)
Observations	4,110	3,548	2,628	3,560	3,697
R-Squared	0.809	0.878	0.711	0.655	0.681
District and year fixed effects	Yes	Yes	Yes	Yes	Yes
<i>Panel B</i>					
RainShock	0.056*** (0.011)	0.071*** (0.008)	0.117*** (0.016)	0.095*** (0.011)	0.044*** (0.013)
RainShock * Rice	0.188*** (0.042)	-0.089*** (0.032)	-0.546*** (0.107)	-0.086* (0.046)	-0.168*** (0.052)
Constant	0.515*** (0.014)	0.658*** (0.011)	-0.207*** (0.023)	-0.285*** (0.015)	0.430*** (0.017)
Observations	4,110	3,548	2,628	3,560	3,697
R-Squared	0.810	0.879	0.713	0.654	0.682
District and year fixed effects	Yes	Yes	Yes	Yes	Yes

Note: The dependent variable is the log of yield of a crop in a district according to the Census 2001 district boundaries for the 14 major states in the analyses. Data for years 1999–2008 is used in the above analysis. In Panel A, 'Rice' is defined as a dummy for states having at least 50% crop area under rice cultivation. In Panel B, 'Rice' is defined as the proportion of crop area in a district under rainfed rice cultivation. Robust standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Table 13. *Heterogeneous impact of a rainfall shock on relative female employment in agriculture*

	(1) Relative Female Employment	(2) Relative Female Employment	(3) Relative Female Employment	(4) Relative Female Employment
RainShock	0.004 (0.008)	0.047** (0.020)	0.000 (0.008)	0.048** (0.019)
RainShock * Rice	0.019* (0.010)	0.024** (0.010)	0.059** (0.026)	0.075*** (0.026)
Constant	-0.284*** (0.007)	-0.221*** (0.025)	-0.284*** (0.006)	-0.217*** (0.025)
Observations	1,216	1,216	1,216	1,216
R-Squared	0.820	0.823	0.820	0.823
Baseline district controls	No	Yes	No	Yes
District and year fixed effects	Yes	Yes	Yes	Yes

Note: Log of female-to-male employment in agriculture is the dependent variable. In columns 1 and 2, rice is a dummy for states having at least 50% crop area under rice cultivation. In columns 3 and 4, it is defined as the proportion of crop area in a district under rainfed rice cultivation. Baseline district controls include education and irrigation and their interaction with rainfall shock. The unit of analysis is a district, and analytical weights equal to district rural population are used. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

able for states having at least 50% crop area under rice cultivation, whereas in columns 3 and 4, it is defined as the proportion of crop area in a district under rainfed rice cultivation. Columns 2 and 4 include the baseline district controls in wage regressions. The impact of a rainfall shock on relative female employment is positive and significant in rainfed rice-growing areas relative to other areas in all the specifications (δ_1 is positive). This evidence is suggestive of demand side factors (either a larger shift in female labor demand relative to that of males or a lower own wage female labor demand elasticity in comparison to males in absolute terms) operating in rainfed rice-growing regions, which result in an increase in relative female wage with increase in rainfall shock.

6. DISCUSSION OF RESULTS

We first discuss the results obtained for absolute wage levels of both females and males. An increase in rainfall shock by one unit increases both the female and the male daily wage by approximately 3.6% and 2.4% respectively (Table 5) when no other controls are included. The null that the rainfall shock has no effect on the gender wage gap cannot be rejected. The baseline specification (Table 7) controls for the heterogeneity in the impact of rainfall shocks on wages in rainfed rice-growing areas, and with variation in literacy and irrigation levels across districts. The results in Table 7 show that, conditional on the controls, the female and the male wage increases by 15.3% and 10% respectively when 'RainShock' increases by one unit. The large increase in coefficients after conditioning on education and irrigation shows that these are important omitted variables and must be controlled for in our base specification.

We now discuss the impact of the control variables on female and male daily wages. In areas where rainfed rice is cultivated, when rainfall shock increases by one unit, there is no differential effect of the rainfall shock on female wage (Table 7, column 1), but male wage decreases by 6% (Table 7, column 2) in comparison to other areas. The effect of a rainfall shock on wage depends on the effect of the rainfall shock on marginal value of labor. While the yield of rice responds more to a rainfall shock in rainfed rice regions, the yields of other crops are not affected (Table 12). Hence, in these regions, other crops which need lower levels of rainfall can still be grown. To the extent that the other crops have some demand for female

labor, the effect on the overall value of marginal labor for females in the rice-growing regions can be same as that in the non-rice-growing regions. Similarly, if the other crops grown in the years of deficient rainfall have a greater demand for male labor, the overall effect of a rainfall shock on the marginal value of male labor will be lower in the rainfed rice-growing regions. This is reflected in the negative sign on the coefficient of the interaction of 'RainShock' with 'Rice' in the male wage equation (Table 7, column 2).

Education and irrigation, when interacted with the rainfall shock, have a significant effect on both the male and the female wage (Table 7). An increase in the educated population in a district by 10% reduces the variability of both female and male wages to a rainfall shock by 2.8% and 2% respectively. This shows that more human capital accumulation can help farmers in coping with adverse natural shocks to their crops. This can be either due to greater knowledge among educated farmers to cope with the shock (demand side), or due to access to non-farm opportunities in areas with more educated workforce (supply side). On the other hand, an increase in the proportion of irrigated area in a district by 10% increases the variability of both female and male wages to a rainfall shock by 1% and 1.3% respectively. Again, this can be due to the practice of high-risk cultivation strategies (demand side), or a greater labor supply variation because of migration to the irrigated pockets within a district (supply side). In the literature, none of the studies account for the interaction of these factors with rainfall variability in affecting the daily wage of laborers. Given their significant effect on the absolute wage levels, these results show that their interaction with the rainfall shock must be included as a control.

The results for the female-to-male wage ratio as the dependent variable are discussed below. The only variable having an effect on the female-to-male wage ratio is the interaction of the rainfall shock with the rainfed rice cultivation indicator (Table 7, column 3). The results show that the female-to-male wage ratio increases by 10% when there is an increase in a rainfall shock by one unit in these areas (adding the coefficients of 'RainShock' and the interaction of 'RainShock' with 'Rice'). This can either be due to a greater fall in demand for female labor relative to male labor or a greater increase in supply of female labor relative to male labor in the rainfed rice systems of India. To understand the gender dynamics in an agricultural labor market when rainfall shocks occur, and to extend the literature on gender roles in rice cultivation to cli-

matic shocks, the side of the labor market that is driving the above finding must be determined. Two tests are conducted to find the mechanism.

First, the effect of a rainfall shock, and the heterogeneity in this effect in the rainfed rice systems, on the yield of rice and the yield of other crops, is estimated. Farmers will cultivate other crops only when their yield is less variable to rainfall shocks. Also, cultivation of rice using the broadcasting method in years of low rainfall should result in a greater variability in the rice yield in rainfed rice-growing areas. The results confirm this hypothesis (Table 12). The yield of rice is affected more by the rainfall shocks than the yield of other crops in rainfed rice systems. The second test involves estimating the impact of a rainfall shock on the female-to-male employment ratio in cultivation. The result with baseline controls (Table 13, column 2) shows that an increase in rainfall shock by one unit increases relative female employment by 4.7% in all areas. The heterogeneous effect of rainfall shocks in rainfed rice-growing regions is 2.4%. This implies that in rainfed rice systems, female-to-male employment increases by 7% when rainfall shock increases by one unit.²⁵ The results confirm that the mechanism behind an increase in the female-to-male wage ratio in the rainfed rice-growing regions, with increase in the rainfall shock, is due to greater increase in demand for female labor as compared to male labor in these regions. These results show that the effect of rainfall shocks on relative female wage depends on the underlying technology of crop production and the role of the female and the male labor in that technology.

7. CONCLUSION

In this paper, the effect of a productivity shock of rainfall on the gender wage gap in Indian agriculture is analyzed. A district-level panel dataset on wages and rainfall is constructed to examine the impact of a rainfall shock on male wage, female wage, and the resultant gender wage gap. This is an important question since a large proportion of the female labor force in India is still engaged in agriculture, and Indian agriculture is still largely rainfed. To the author's knowledge, this is the first study which undertakes a formal analysis of the differentiated impacts of these shocks on male and female wages.

Firstly, it finds that both the female and the male wages are affected by rainfall shocks. Future studies should take into

account this finding and assess the impact of climatic shocks on both the male and the female wages. It finds that, keeping other factors constant, absolute female daily wage reduces (increases) by 15% when a negative (positive) rainfall shock occurs. The female wage rate is already below that of males in Indian agriculture. Any shock that reduces the female daily wage rate further makes them more vulnerable during such shocks and reduces their ability to smooth consumption. This has implications for food security in female-headed households, which can find themselves in deeper distress in years of low rainfall.

In terms of the impact on the female-to-male wage ratio, this ratio increases by 5% with increase in a rainfall shock by one unit; however, this result is not statistically significant. In rainfed rice systems, the female-to-male wage ratio reduces (increases) by as much as 10% when a negative (positive) rainfall shock occurs. This result is statistically significant and important from the point of view of intra-household bargaining literature. A lower female wage rate in the labor market relative to that of males can lead to a reduction in the bargaining power of females within the household (Pollak, 2005). To look at the mechanism behind this result, the paper examines the effect of a rainfall shock on female employment relative to male employment. The results show that the female-to-male employment ratio reduces (increases) by 7% when a negative (positive) rainfall shock occurs in rainfed rice systems. These results show that the positive association of the female-to-male wage ratio with rainfall shocks in rainfed rice-growing areas is due to the positive relationship between rainfall shocks and the demand for female labor relative to the demand for male labor, in these areas.

From the policy perspective, these findings can be used to create a more gender sensitive agricultural and labor policy. The government can initiate public work programs in years of low rainfall in which males and females are paid equally for the same job. These public programs can have quotas for women laborers, which can generate alternate employment opportunities for women, since non-farm employment in manufacturing also reduces when rainfall is low (Adhvaryu, Chari, & Sharma, 2013). This, in turn, may help reduce the variability in female wage, which is already below male wage in agriculture. It is also important to increase irrigation facilities in rainfed rice systems of India, which would not only augment household income but can also reduce the variability in the relative wage of females due to rainfall shocks.

NOTES

1. This figure is obtained by taking an average of yearly female-to-male wage ratio at the country level for the years reported in Table 1.
2. This figure includes 2009, which was declared a drought year in 2010.
3. National Portal of India, <http://india.gov.in/sectors/agriculture/index.php?id=2>.
4. Halliday (2012) is the only paper that uses an aggregate natural shock of earthquakes in El Salvador to study their impact on male and female time-use on own farm-agricultural field work, livestock labor, domestic labor, and off-farm labor. The earthquake increased domestic work and decreased livestock production by women. He argues that this is compatible with a theoretical framework in which household members are allocated to sectors according to their comparative advantage when it is affected by an adverse income shock.
5. The long-term effects of rainfall shocks on equilibrium wages were examined but were found to be insignificant. This is likely to be the case when the labor market responds to shocks in the current year rather than the past years. Past shocks can have an effect on the overall welfare of the household by affecting its lifetime income. This question is of separate interest.
6. The data constraints do not allow us to test this hypothesis for India. There is no time-use data available over time for India.
7. Using this observation, Mbiti finds that agricultural households in rice-growing areas do not marry their daughters in high-rainfall years, and those who marry pay a lower dowry. He argues that income effect due to the rainfall shock on the decision whether to marry a daughter would operate in all areas, irrespective of whether they cultivate rice or not. His

interpretation can be challenged if a differential income effect operates in rice-growing areas, leading to a delay in marriage in comparison to non-rice-growing areas.

8. Further information on the dataset and the methodology used for interpolation can be obtained at [~climate/html_pages/Global2_Ts_2009/README.global_p_ts_2009.html](http://climate/html_pages/Global2_Ts_2009/README.global_p_ts_2009.html) `xlink:type="simple" id="ir010">`http://climate.geog.udel.edu/~climate/html_pages/Global2_Ts_2009/README.global_p_ts_2009.html.

9. Precipitation varies considerably by altitude. As a result, the hilly regions of Jammu and Kashmir, Himachal Pradesh, and the North East are excluded from the analysis since the measurement of rainfall in hilly areas using a gridded dataset induces a lot of measurement error.

10. To match the districts to their parent districts, two sources of information were used, which track the evolution of Indian districts over time: Kumar and Rohini Somanathan (2009), who document the changes in district boundaries over the census years; and <http://www.statoids.com/yin.html>, which compiles changes in Indian district boundaries from 1982 to the present.

11. Typically, March to May is summer, while the winter spans over December to February in India (Indian Meteorological Department, http://www.imd.gov.in/section/nhac/dynamic/FAQ_monsoon.htm). Also, a report by the IMD on rainfall patterns in India can be accessed at http://www.imdpune.gov.in/ncc_rept/RESEARCH%20REPORT%202.pdf.

12. This indicator has been arrived at by averaging the area under rice and other crops (excluding horticulture) over a span of six years, from 1999 to 2004, for which data for all states is available. This proxy is used since district-level dataset on rainfed rice cultivation is not collected for all districts of India.

13. More recent data from 1999 to 2004 on crop-level irrigated area in states of India also shows that more than 90% area under rice cultivation in Punjab and southern states of India is irrigated (Directorate of Economics and Statistics, Ministry of Agriculture, India).

14. The NSS groups districts within an Indian state into agro-climatically similar regions. On an average, a region comprises of five to ten districts. As suggested by a reviewer, specifications which allow for clustering at the district level to take into account serial correlation among errors within a district (Bertrand, Duflo, & Mullainathan, 2004; Cameron & Miller, 2015) were also estimated. The standard errors increase in these specifications but the findings of the paper still remain statistically significant.

15. Alternatively, 'RainShock' could also be defined as standardized value of rainfall in a district. Standardized rainfall is calculated by subtracting long-term average rainfall in a district (1970–2008) from actual rainfall in a given year and dividing it by standard deviation of rainfall in that district. Table 15 shows the effect of standardized rainfall on wages. The results show that in our data, the effect of a rainfall shock is not linear (the same was reported by Jayachandran, 2006). 'RainShock' does not have significant impact on male wage in this specification and the effect on female wage also reduces from that in Table 5. This is because a reduction in rainfall near the normal level has a small effect on wages. Extreme deviations from the normal rainfall have a larger effect on wages.

16. This interpretation is possible since the 'RainShock' variable contains three values (−1, 0, 1). A positive shock is defined as one-unit increase in 'RainShock' from 0 to 1. A negative shock is defined as one unit decrease in 'RainShock' from 0 to −1. Since a one-unit increase in 'RainShock'

increases relative female wage by 4.8%, a negative shock, i.e., a one-unit decrease in 'RainShock', from 0 to −1, decreases relative female wage by 4.8%.

17. This is obtained by adding the coefficients from 'RainShock' and the interaction of 'RainShock' with 'Rice', and is statistically significant.

18. The accessed report documents crop composition shifts to less water-intensive crops like gram and oilseed advised by the government in irrigated areas during years of drought, especially in the *rabi* season when the alternative seeds could be made available by the government to the farmers. Sometimes the irrigation water is diverted for drinking purposes as well (<http://www.empowerpoor.org/downloads/drought1.pdf>). Though, overall irrigation will improve the welfare of households since even with a greater percentage fall, the average wage in irrigated areas will be greater than in un-irrigated areas in drought years.

19. A specification with separate female and male district-level education was also estimated, but due to high collinearity between the two, only male education was significant in male and female wage equations when both were added. However, when entered alone, female education was also significant. No effect on the gender wage gap was observed for any education variable. The specification with average education was hence preferred. The other results did not change.

20. Alternate specifications using different definitions of a rainfall shock are also estimated. The results are provided in the Appendix tables. The last column of Table 14 shows the heterogeneous effect of a rainfall shock when positive and negative shocks are considered separately. The results show that a positive rainfall shock increases relative female wage by 5.9% and a negative rainfall shock decreases it by 4.5%. These estimates are, however, insignificant. The F-test shows that the null of these coefficients having equal and opposite effects cannot be rejected. The last column of Table 15 shows the heterogeneous effect of a rainfall shock in rainfed rice-growing areas when the rainfall shock is defined as the standardized value of rainfall in a district. We still find that while a standard deviation increase in rainfall increases the female wage more than the male wage in the rainfed rice-growing areas of India relative to the other areas, the significance levels fall. Thus, we prefer the specification in Table 6 where a rainfall shock is constructed as a continuous variable which takes on values: −1, 0, and 1.

21. The district-level percentage area under rice cultivation has been arrived at by averaging the area under rice and other crops (excluding horticulture) over a span of six years, from 1999 to 2004, for which data for all states are available. The district-level crop-wise irrigated area is not reported for all states and hence, to overcome this data constraint, state-level crop-wise irrigated area (1999–2004) is used. These data are available for all the Indian states from Directorate of Economics and Statistics, Ministry of Agriculture, India.

22. We cannot reject the null that the impact of a rainfall shock on the yield of bajra, gram, and maize is equal to zero in rainfed rice-growing regions.

23. The theory behind the mechanisms is discussed in Appendix 1. The Appendix shows that both demand side factors (differential demand elasticities or differential demand shifts across gender) and supply side factors (differential supply elasticities or differential supply shifts across gender) can result in a differential impact of rainfall shocks on relative female wage. Let L_M^S denote total labor supply by males and L_F^S denote total labor supply by females belonging to landed and landless households. On the demand side, either the shift in female demand due to the rainfall shock should be greater ($\frac{\partial L_F^D}{\partial r} > \frac{\partial L_M^D}{\partial r}$) or demand elasticities should differ by gender such that $(\frac{\partial L_F^D}{\partial W_F} + \frac{\partial L_F^D}{\partial W_M} - \frac{\partial L_M^D}{\partial W_M} - \frac{\partial L_M^D}{\partial W_F}) > 0$. On the supply

side, either the effect on female supply due to the rainfall shock should be greater $\left(\left|\frac{\partial L_F^S}{\partial r}\right| > \left|\frac{\partial L_M^S}{\partial r}\right|\right)$ or supply elasticities should differ by gender such that $\left(\frac{\partial L_F^S}{\partial W_F} + \frac{\partial L_F^S}{\partial W_M} - \frac{\partial L_M^S}{\partial W_M} - \frac{\partial L_M^S}{\partial W_F}\right) < 0$.

24. Employment is calculated by taking a district-level weighted average of the proportion of days worked in agriculture in the preceding week by each individual. Sampling weights are used to calculate the average so that employment is representative of the district population.

25. Similar to the results on wages, this effect is driven by the negative effect of the rainfall shock on male employment and no significant effect of the rainfall shock on absolute female employment in rice-growing areas. The results have been omitted for brevity.

26. Cramer's rule is a mathematical formula for solving a system of equations. See <http://mathworld.wolfram.com/CramersRule.html>.

27. The expression for φ is $(\varepsilon_{M,W_M} * \varepsilon_{F,W_F}) - (\varepsilon_{F,W_M} * \varepsilon_{M,W_F})$.

REFERENCES

- Adhvaryu, A., Char, A. V., & Sharma, S. (2013). Firing costs and flexibility: Evidence from Firms' employment responses to shocks in India. *Review of Economics and Statistics*, 95(3), 725–740.
- Agarwal, B. (1986). Women, poverty and agricultural growth in India. *The Journal of Peasant Studies*, 13(4), 165–220.
- Aller, R. A., & Arce, M. U. (2001). Explaining the reduction in the gender wage gap during the 1990–94 economic recession in Spain. *Atlantic Economic Journal*, 29(1), 63–74.
- Bardhan, P. (1974). On life and death questions. *Economic and Political Weekly*, 9(32/34), 1293–1304.
- Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How much should we trust differences-in-differences estimates?. *Quarterly Journal of Economics*, 119(1), 249–275.
- Bhalotra, S. (2010). Fatal fluctuations? Cyclical mortality in infant mortality in India. *Journal of Development Economics*, 93(1), 7–19.
- Biddle, J. & Hamermesh, D.D. (2011). Cycles of wage discrimination. *NBER Working Paper No. 17326*.
- Blau, F. D., & Kahn, L. M. (2003). Understanding international differences in the gender pay gap. *Journal of Labor Economics*, 21(1), 106–144.
- Boserup, E. (1970). *Women's role in economic development*. New York: St. Martin.
- Burgess, R., Deschenes, O., Donaldson, D., & Greenstone, M. (2011). *Weather and death in India*. Cambridge, United States: Massachusetts Institute of Technology, Department of Economics (manuscript).
- Cameron, A. C., & Miller, D. L. (2015). A practitioner's guide to cluster-robust inference. *Journal of Human Resources*, 50(2), 317–372.
- Chen, M. A. (1989). Women's work in Indian agriculture by agro-ecologic zones: Meeting needs of landless and land-poor women. *Economic and Political Weekly*, 24(43), WS79–WS89.
- Chin, Y.-M. (2011). Male backlash, bargaining, or exposure reduction?: Women's working status and physical spousal violence in India. *Journal of Population Economics*, 25(1), 175–200.
- Ehsanullah, I. I., Ahmad, A., & Randhawa, S. A. (2000). Effect of direct seeding and transplanting methods on the yield and quality of fine rice Basmati-370. *International Journal of Agriculture & Biology*, 2(3), 251–252.
- Halliday, T. J. (2012). Intra-household labour supply, migration, and subsistence constraints in a risky environment: Evidence from rural El Salvador. *European Economic Review*, 56(6), 1001–1019.
- Hertz, T., Campos, A. P., Zezza, A., Azzarri, C., Winters, P., Quinones, E. J., et al. (2009). Wage inequality in international perspective: Effects of location, sector, and gender. *Paper presented at the FAO-IFAD-ILO Workshop on gaps, trends, and current research in gender dimensions of agricultural and rural employment: Differentiated pathways out of poverty*, Rome, March 31–April 2.
- Himanshu (2005). Wages in rural India: Sources, trends and comparability. *Indian Journal of Labor Economics*, 48(2), 375–406.
- IRRI (2000). Gender, labour and rainfed technology. In V. P. Singh, & R. K. Singh (Eds.), *Rainfed rice: A sourcebook of best practices and strategies in Eastern India* (pp. 31–35). Philippines: International Rice Research Institute.
- Jayachandran, S. (2006). Selling labour low: Wage responses to productivity shocks in developing countries. *Journal of Political Economy*, 114(3), 538–575.
- Kumar, H., & Somanathan, R. (2009). Mapping Indian districts across census years, 1971–2001. *Economic and Political Weekly*, 44(41/42), 69–73.
- Mahajan, K. & Ramaswami, B. (2015). Caste, female labor supply and gender wage gap in India: Boserup revisited. *Indian Statistical Institute, Discussion Paper No. 15–02*. <http://www.journals.uchicago.edu/doi/abs/10.1086/689352>
- Marchand, J., & Olfert, S. (2013). The US gender gap through the Great Recession using an alternative approach to cyclical. *Applied Economics Letters*, 20(3), 276–281.
- Mbiti, I. M. (2007). *Moving women: Household composition, labour demand and crop choice*. Dallas, TX, USA: Mimeo, Department of Economics, Southern Methodist University.
- Ministry of Home Affairs, Government of India (2011). Census data online <http://www.censusindia.gov.in/2011-common/censusdataonline.html>, accessed October 20, 2013.
- Morduch, J. (1990). *Risk, Production, and Saving: Theory and Evidence from Indian Households*. Cambridge: Mimeo, Harvard University.
- Mueller, V., & Osgood, D. E. (2009). Long-term Impacts of droughts on labour markets in developing countries: Evidence from Brazil. *Journal of Development Studies*, 45(10), 1651–1662.
- Mueller, V., & Quisumbing, A. R. (2011). How resilient are labour markets to natural disasters? The case of the 1998 Bangladesh Flood. *Journal of Development Studies*, 47(12), 1954–1971.
- NIDM (2009). Gender, climate change and health http://nidm.gov.in/PDF/manuals/Drought_Manual.pdf, accessed June 18, 2016.
- O'Neill, J. (1985). The trend in the male-female wage gap in the United States. *Journal of Labour Economics*, 3(1), S91–S116.
- Pandey, S., Bhandari, H. S., & Hardy, B. (2007). *Economic costs of drought and rice farmers' coping mechanisms: A cross-country comparative analysis*. Philippines: International Rice Research Institute.
- Park, S., & Shin, D. (2005). Explaining procyclical male–female wage gaps. *Economics Letters*, 88(2), 231–235.
- Pathak, H., Tewari, A. N., Sankhyani, S., Dubey, D. S., Mina, U., Singh, V., et al. (2011). Direct-seeded rice: Potential, performance and problems—A review. *Current Advances in Agricultural Sciences*, 3(2), 77–88.
- Pollak, R.A., 2005. Bargaining power in marriage: Earnings, wage rates and household production. *NBER Working paper No. 11239*.
- Rosenzweig, M. R. (1984). Determinants of wage rates and labour supply behaviour in the rural sector of a developing country. In H. P. Binswanger, & M. R. Rosenzweig (Eds.), *Contractual arrangements, employment and wages in rural labour markets in Asia* (pp. 211–241). New Haven: Yale University Press.
- Sen, G. (1985). Paddy production, processing and women workers in India: The South versus the North East. In *Women in rice farming, proceedings of a conference on women in rice farming systems* (pp. 385–404). Philippines: International Rice Research Institute.
- Singh, I., Squire, L., & Strauss, J. (1986). *Agricultural household models: Applications, extensions and policy*. Baltimore: Johns Hopkins University Press.
- Singh, A. K., Choudhury, B. U., & Bouman, B. A. M. (2002). Effects of rice establishment methods on crop performance. In B. A. M. Bouman, H. Hengsdijk, B. Hardy, P. S. Bindraban, T. P. Tuong, & J. K. Ladha (Eds.), *Water-wise rice production* (pp. 237–246). International Rice Research Institute: Philippines.
- Solon, G., Barsky, R., & Parker, J. A. (1994). Measuring the cyclical nature of real wages: how important is composition bias?. *Quarterly Journal of Economics*, 109(1), 1–25.
- Van Aelst, K., & Holvoet, N. (2016). Intersections of gender and marital status in accessing climate change adaptation: Evidence from Rural Tanzania. *World Development*, 79, 40–50.
- Wadood, S.N. & Lamb, R.L., 2006. Choice of crops and employment uncertainty in the off-farm labour market. MPRA Paper No. 10779.

WEDO (2008). Gender, climate change and human security lessons from Bangladesh, Ghana and Senegal <http://www.wedo.org/wp-content/uploads/hsn-study-final-may-20-2008.pdf>, accessed December 18, 2011.
 WHO (2014). Gender, climate change and health http://apps.who.int/iris/bitstream/10665/144781/1/9789241508186_eng.pdf, accessed June 18, 2016.

APPENDIX 1. THEORETICAL MODEL

This section presents a theoretical model which elucidates mathematically the channels through which productivity shocks like rainfall affect male and female wages. Consider a competitive agricultural labor market with three factors of production—land (A), male labor (L_M^D), and female labor (L_F^D)—and rainfall shock (r), which affects agricultural productivity. The production function is continuous and differentiable with diminishing returns to each factor and the amount of land is fixed in the short run. The male and the female labors are assumed to be imperfect substitutes in production. Also, hired and own farm labors are assumed to be perfectly interchangeable in production. Let W_M and W_F denote male and female wage rate respectively. In a competitive equilibrium, all factors are paid their marginal products.

$$W_M = F_{L_M}(A, L_M^D, L_F^D, r) \tag{1}$$

$$W_F = F_{L_F}(A, L_M^D, L_F^D, r) \tag{2}$$

Given a constant labor supply, the effect of a rainfall shock on equilibrium male and female wages is:

$$\frac{dW_M^*}{dr} = \frac{dF_{L_M^D}}{dr} \tag{3}$$

$$\frac{dW_F^*}{dr} = \frac{dF_{L_F^D}}{dr} \tag{4}$$

The above expressions show that a rainfall shock affects wages through its impact on the value of marginal product of labor. A positive shock increases the value of marginal product for both males and females and hence increases male and female wages. The above expressions are thus unambiguously positive. If the impact of a rainfall shock on the value of marginal product for female labor is greater than that on the value of marginal product of male labor, then female wage will be affected more than male wage. In general, labor supply is unlikely to be fixed.

Extension

The above theoretical model is extended here, so that the labor supply is no longer fixed. Consider two types of households—landless (N) and landed (H). Landed households supply farm labor and also hire in labor on their farms, while landless households only hire out labor to landed households. Both the male and the female labor are supplied by the two types of households. Male and female labors are imperfect substitutes in production but the labor of each gender from different household types is perfectly substitutable. Male and female leisure is also assumed to be imperfect substitute in the household utility function. All households are assumed to be price takers, but wage rates are determined endogenously by the market-clearing equilibrium conditions. This framework assumes separability in agricultural household produc-

tion and consumption decisions, which holds when markets are perfect (Singh, Squire, & Strauss, 1986).

The two types of households maximize an identical and twice differentiable utility function with respect to a consumption commodity (x), leisure of male members (l_M), and leisure of female members (l_F), subject to a budget constraint. The total time available with each member of the household is one unit. Consider a household with one male and one female member. Household utility maximization problem is then given by:

$$\text{Max } U(x^i, l_M^i, l_F^i)$$

s.t.

$$x^i + W_M l_M^i + W_F l_F^i = W_M + W_F + v^i \quad \text{when } i = N(\text{Landless})$$

$$x^i + W_M l_M^i + W_F l_F^i = W_M + W_F + v^i + \pi \quad \text{when } i = H(\text{Landed})$$

where v is non-labor income of the household and π is profit equal to $F(A, L_M^D, L_F^D, r) - W_M L_M^D - W_F L_F^D$.

The first-order conditions with interior solutions are:

$$x : U_x^i = \lambda^i$$

$$l_M : U_{l_M}^i = \lambda^i W_M$$

$$l_F : U_{l_F}^i = \lambda^i W_F$$

$$\lambda^i : x^i + W_M l_M^i + W_F l_F^i = W_M + W_F + v^i \quad \text{when } i = N(\text{Landless})$$

$$x^i + W_M l_M^i + W_F l_F^i = W_M + W_F + v^i + \pi \quad \text{when } i = H(\text{Landed})$$

For the profit-maximizing landed households, the first-order condition for maximization will also include (1) and (2). In equilibrium total labor demand will be equal to total labor supply for both males and females

$$L_M^D(W_M, W_F, r, A) = L_M^{S,N}(W_M, W_F) + L_M^{S,H}(W_M, W_F, r, A) \tag{5}$$

$$L_F^D(W_M, W_F, r, A) = L_F^{S,N}(W_M, W_F) + L_F^{S,H}(W_M, W_F, r, A) \tag{6}$$

Here, L_M^D (L_F^D) is the aggregate demand for male (female) labor and L_M^S (L_F^S) is the aggregate supply of male (female) labor. Totally differentiating the above market equilibrium conditions, and using Cramer's Rule to get expressions for change in equilibrium wage due to the rainfall shock, ($\frac{dW_M^*}{dr}$ and $\frac{dW_F^*}{dr}$).²⁶

$$\frac{dW_M^*}{dr} = \frac{[\varepsilon_{F,W_F}^* (L_{M,r}^{S,H} - L_{M,r}^D) - \varepsilon_{M,W_F}^* (L_{F,r}^{S,H} - L_{F,r}^D)]}{\varphi} \tag{7}$$

$$\frac{dW_F^*}{dr} = \frac{[\varepsilon_{M,W_M}^* (L_{F,r}^{S,H} - L_{F,r}^D) - \varepsilon_{F,W_M}^* (L_{M,r}^{S,H} - L_{M,r}^D)]}{\varphi} \tag{8}$$

where ε_F and ε_M refer to excess demand for females and males respectively and ε_{F,W_F} is the differential of excess demand for females with respect to female wage. Similar interpretation holds for ε_{F,W_M} , ε_{M,W_M} , and ε_{M,W_F} . $L_{M,r}^{S,H}$ and $L_{F,r}^{S,H}$ are the differential of labor supply of males and females respectively in the landed households to change in rainfall conditions. These will be negative for both males and females, as a positive productivity shock increases profit income thus reducing labor supply by landed households. $L_{M,r}^D$ and $L_{F,r}^D$ are change in male and female labor demand respectively due to the rainfall shock. These are positive since by definition demand for both types of labor increases with higher rainfall. φ has to be positive for the multimarket Hicksian stability condition to hold.²⁷ Given the assumptions on production and utility functions

$\frac{dW_M^*}{dr}$ and $\frac{dW_F^*}{dr}$ will be unambiguously positive. However, it is not possible to arrive at the effect of rainfall shocks on relative female wage $\left(\frac{dW_F^*}{dr} - \frac{dW_M^*}{dr}\right)$ since it will depend on relative magnitude of the impact of rainfall shock on labor demand for males and females and labor supply of males and females to agriculture as well as the existing labor demand and supply elasticities. Intuitively, the expression in (7) shows that the effect of rainfall shock on male wage in equilibrium depends on the effect of the rainfall shock on shifts in demand for and supply of male labor, and the effect of the rainfall shock on the shifts in demand for and supply of female labor. The effect, of a given magnitude of this shift, on equilibrium wages, depends on labor demand and supply responsiveness (both own and cross) of male and female labor.

APPENDIX 2. ADDITIONAL TABLES

Table 14. *Effect of a positive and a negative rainfall shock on relative female wage*

	(1) Female wage	(2) Male wage	(3) Wage ratio	(4) Wage ratio
RainShock positive	0.021 (0.022)	0.022 (0.022)	-0.022 (0.017)	-0.084 (0.076)
RainShock Negative	-0.046** (0.023)	-0.025 (0.022)	-0.002 (0.023)	-0.016 (0.112)
RainShock Positive * Rice				0.059 (0.039)
RainShock Negative * Rice				-0.045 (0.039)
Constant	1.263*** (0.017)	1.492*** (0.017)	-0.229*** (0.015)	-0.253*** (0.075)
Observations	1,216	1,216	1,216	1,216
R-Squared	0.874	0.903	0.493	0.497
Baseline district controls	No	No	No	Yes
District and year fixed effects	Yes	Yes	Yes	Yes

Note: Log of wages and log of female-to-male wage ratio is the dependent variable. Rice is defined as a dummy for states having at least 50 percent crop area under rice cultivation. Baseline district controls include education and irrigation and their interaction with positive and negative rainfall shocks. The unit of analysis is a district and analytical weights equal to district rural population are used. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Table 15. *Effect of standardized rainfall on relative female wage*

	(1) Female wage	(2) Male wage	(3) Wage ratio	(4) Wage ratio
RainStandardized	0.023** (0.010)	0.012 (0.009)	0.011 (0.008)	0.027 (0.035)
RainStandardized * Rice				0.025* (0.014)
Constant	1.259*** (0.017)	1.491*** (0.017)	-0.232*** (0.014)	-0.280*** (0.070)
Observations	1,216	1,216	1,216	1,216
R-Squared	0.874	0.902	0.493	0.495
Baseline district controls	No	No	No	Yes
District and year fixed effects	Yes	Yes	Yes	Yes

Note: Log of wages and log of female-to-male wage ratio is the dependent variable. Rice is defined as a dummy for states having at least 50 percent crop area under rice cultivation. Baseline district controls include education and their interaction with standardized rainfall. The unit of analysis is a district and analytical weights equal to district rural population are used. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Table 16. *Heterogeneous impact of rainfall shocks on relative female wage: two-stage least squares estimates (first-stage estimates)*

First-Stage for Interaction of Rainfall Shock with Rice	
	RainShock * Rice
RainShock	-0.492*** (0.128)
RainShock * Mean Rainfall	0.001*** (0.000)
Literate	-0.099 (0.174)
Literate * RainShock	-0.623** (0.293)
Irrigation	-0.021 (0.091)
Irrigation * RainShock	0.475*** (0.13)
Constant	0.029 (0.077)
Observations	1,216
F-Stat for first stage	177.26
District and year fixed effects	Yes

Note: The interaction of Rainfall shock with rice is the dependent variable in the first stage regression. Rice is defined as a dummy for states having at least 50 percent crop area under rice cultivation. The unit of analysis is a district and analytical weights equal to district rural population are used. Robust clustered standard errors are in parenthesis; ***, **, and * indicate significance at the 1%, 5% and 10% levels respectively.

Available online at www.sciencedirect.com



On the Number of Elements of Maximal Order in a Group

William Cocke and Geetha Venkataraman

Abstract. In this note we show that a group with a finite number of elements of maximal order must be finite. In other words, there are no infinite groups with finitely many elements of maximal order. In particular, we give an explicit bound for the order of a group in terms of the number of elements of maximal order.

1. INTRODUCTION. In this note we investigate how the number of elements of maximal order in a group affects the order of the group. We show that if a group has only finitely many elements of maximal order, then the group itself is finite. This is a surprising result: there are no infinite groups where m is the maximal order of a group element such that there are only finitely many elements of order m . We note that a group with finitely many elements of maximal order cannot have any elements of infinite order, since a group having one element of infinite order must have infinitely many elements of infinite order. Moreover, we then give a few explicit bounds for the order of a group in terms of the number of elements of maximal order. The first of these bounds is attained infinitely often by the holomorphs of cyclic groups of prime order, i.e., $C_p \rtimes C_{p-1}$.

There has been interest in studying groups with a certain fixed number of elements of maximal order; for example, see [1–4, 7, 9]. These papers investigate the structure of finite groups with a stated number of elements of maximal order, often an explicit integer such as 24 or 42. By **Theorem A** below, groups with a fixed number of elements of maximal order are necessarily finite, hence the restriction to finite groups in the titles is superfluous.

For a group G , and $x \in G$, we will denote the order of x as $o(x)$. We will also denote the Euler totient function as $\varphi(n)$. We show the following.

Theorem A. *Let G be a group. If $m = \max\{o(g) : g \in G\}$ is finite and exactly k elements of G have order m , where $k < \infty$, then G is finite and*

$$|G| \leq \frac{mk^2}{\varphi(m)}.$$

Using the notation of **Theorem A**, we note that if G has exactly $k < \infty$ elements of maximum order, then there are only finitely many possibilities for m since $\varphi(m)$ divides k . In fact, $k = \varphi(m) \cdot n$, where n is the number of cyclic subgroups of order m in G . For a given k , the set of y where $\varphi(y)$ divides k is bounded, since by using properties of φ one can show that such y cannot be divisible by large primes, or by large powers of smaller primes. We write $\theta(k)$ to denote the largest integer y such that $\varphi(y)$ divides k . We have the following Corollary to **Theorem A**.

doi.org/10.1080/00029890.2018.1528826

MSC: Primary 20A05

Corollary 1. *Let G be a group. If $m = \max\{o(g) : g \in G\}$ is finite and exactly k elements of G have order m , where $k < \infty$, then G is finite and*

$$|G| \leq \theta(k)k^2.$$

Proof. Since $\varphi(m)$ divides k , we have that $m \leq \theta(k)$. Hence [Theorem A](#) implies

$$|G| \leq \frac{mk^2}{\varphi(m)} \leq mk^2 \leq \theta(k)k^2.$$

■

As part of our proof of [Theorem A](#) we will show the following.

Theorem B. *Let G be a group and let*

$$X = \{x : x \in G \text{ and } o(x) < \infty\}.$$

Suppose that $m = \max\{o(x) : x \in X\}$ is finite and exactly k elements of G have order m , where $k < \infty$. Suppose for some $g \in Z(G)$, we have that $o(g) = m$. Then X is a finite characteristic subgroup of G and

$$|X| \leq \frac{mk}{\varphi(m)}.$$

The proof of [Theorem B](#) will utilize a theorem of Dietzmann's. Dietzmann showed that given a group G and a finite subset X of G , if every element of X has finite order and X is closed under conjugation, then $\langle X \rangle$ is finite.

2. PROOFS OF THEOREMS A AND B. In general, “ x has order n ” is not a well-behaved property in a group G because the order function behaves very erratically. For example, knowing $o(x)$ and $o(y)$ tells us nothing about $o(xy)$. Even when x and y commute, the order of the product is not determined. Recall the following lemma.

Lemma 2. *Let G be a group and n and m positive integers. For $x, y \in G$, if $o(x) = n$, $o(y) = m$, and x and y commute, then there is an element of $\langle x, y \rangle$ with order equal to the least common multiple of m and n .*

Proof. Let d be the least common multiple of m and n . For a prime p , if p^e is the largest power of p that divides d , then p^e divides either m or n . Hence the abelian group $\langle x, y \rangle$ has an element of order p^e . The product of these elements for the various primes dividing d will have order d . ■

Hence, for a group G , if $x \in G$ has maximal order, and $y \in G$ commutes with x , then $o(y)$ must divide $o(x)$. In this sense, “having maximal order” is a very well-behaved property as demonstrated below.

Lemma 3. *Let G be a group, and m and n be positive integers such that n divides m . Let $x, y \in G$ be such that $o(x) = m$ and $o(y) = n$, and x and y commute. Write $X = \langle x \rangle$ and $Y = \langle y \rangle$. Then the coset Xy has at least $\varphi(m)$ elements of order m . Hence $H = XY$ has at least $\varphi(m)t$ elements of order m , where $t = |Y : X \cap Y|$.*

Proof. We will show that X has a complement in the abelian group H . It suffices to show for each prime p that the Sylow p -subgroup of X has a complement in the Sylow p -subgroup of H . Let p be a prime dividing $|H|$. Let P be the Sylow p -subgroup of X and let S be the Sylow p -subgroup of H . To show that P has a complement in S , we appeal to the following result used in one of the standard proofs of the fundamental theorem of finite abelian groups (see, for example, 7.12 of [6]), i.e., in an abelian group a cyclic subgroup of maximal possible order has a complement. Since n divides m , P is a cyclic subgroup of maximal order in S , and we conclude that P has a complement in S . Since X is a direct product of its Sylow p -subgroups, all of which have a complement in H , we conclude that X has a complement in H .

Hence H is of the form $X \times K$ for some subgroup K in H of order t . It follows that the coset Xy has at least $\varphi(m)$ elements of order m . ■

Note: In the notation of Lemma 3, it is **not necessarily the case** that the element xy has order m . Consider $C_6 \times C_2$, where $C_6 = \langle a \rangle$ and $C_2 = \langle b \rangle$, and let $x = (a^2, b)$ and $y = (1, b)$. So $o(x) = 6$ and $o(y) = 2$, but $o(xy) = 3$. However, $o(x^2y) = 6$.

Our proof of Theorem B will use a remarkable theorem of Dietzmann.

Theorem 4 (Dietzmann). *Let G be a group, and let $X = \{x_1, \dots, x_k\}$ be a finite subset of G that is closed under conjugation. If there is a positive integer n such that $x^n = 1$ for all $x \in X$, then $\langle X \rangle$ is a finite subgroup of G .*

Dietzmann's theorem appears as Exercise 6.15 in [8] and Theorem 5.10 in [5]. The theorem follows since any product of at least $(n-1)|X| + 1$ elements of X is equal to a product of a smaller number of elements of X . Hence, the subgroup generated by X has bounded size. Note that any product of elements of X can be conjugated by an element of X and remains a product of elements of X . Hence, if a product of elements of X contains n copies of the same element, conjugating the product can allow one to combine and eliminate them, since $x^n = 1$ for all $x \in X$.

We now prove Theorem B.

Proof. Let $Z = \langle g \rangle$. We note that Z acts by multiplication on X , so X is a disjoint union of $|X|/m$ distinct cosets of Z . Since g has maximal order in X and is central, every element of X has order dividing m . By Lemma 3, every coset of Z contains at least $\varphi(m)$ elements of order m . Hence X contains at least $\frac{|X|}{m}\varphi(m)$ elements of order m , and so

$$k \geq \frac{|X|\varphi(m)}{m}.$$

Since m is finite, every element x of X satisfies $x^{m!} = 1$. We also know that X is closed under conjugation and, from above, finite. Applying Dietzmann's theorem shows that $\langle X \rangle$ is a finite subgroup of G . As the set of torsion elements of G , we see that X is in fact a characteristic subgroup of G . ■

We now prove Theorem A.

Proof. The group G must be a torsion group with m being the maximum order of any element of G .

Let $g \in G$ have order m . Write $C = C_G(g)$. Since every conjugate of g has order m , we have that $|g^G| \leq k$. Applying [Theorem B](#) to the group C , it follows that

$$|G| = |g^G| \cdot |C| \leq k|C| \leq k \left(\frac{mk}{\varphi(m)} \right). \quad \blacksquare$$

We conclude by mentioning that the bound obtained in [Theorem A](#) is sharp for infinitely many pairs m and k . Let p be a prime and write C_p for the cyclic group of order p . The holomorph of a finite group G is the semi-direct product $G \rtimes \text{Aut}(G)$ with the natural action. Consider the holomorph of C_p , i.e., $C_p \rtimes C_{p-1}$, where C_{p-1} acts as the automorphism group of C_p . In this group the elements of order p form a conjugacy class and the centralizer of an element of order p has order p . Hence, in the notation of [Theorem A](#) we have $k = p - 1$ and $m = p$ with

$$|G| = p(p - 1).$$

ACKNOWLEDGMENTS. The authors are grateful to the Center for South Asia at the University of Wisconsin-Madison for a travel award that enabled this research.

This material is based upon work supported by the National Science Foundation Graduate Research Fellowship Program under Grant No. DGE-1256529. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

REFERENCES

- [1] Chen, G., Shi, W. (2008). Finite groups with 30 elements of maximal order. *Appl. Categ. Struct.* 16(1–2): 239–247.
- [2] Han, Z., Song, R. (2016). Finite groups having exactly 44 elements of maximal order. *Adv. Math. (China)*. 45(1): 61–66.
- [3] Han, Z., Zhang, L. (2017). Finite groups having exactly 42 elements of maximal order. *Ital. J. Pure Appl. Math.* 37: 351–354.
- [4] Han, Z. J., and Chen, G. Y. (2004). Solvability of finite groups with $2pq$ elements of maximal order. *Xinan Shifan Daxue Xuebao Ziran Kexue Ban.* 29(2): 198–200.
- [5] Isaacs, I. M. (2008). *Finite Group Theory*. Graduate Studies in Mathematics, Vol. 92. Providence, RI: American Mathematical Society.
- [6] Isaacs, I. M. (2009). *Algebra: A Graduate Course*. Graduate Studies in Mathematics, Vol. 100 (reprint of the 1994 original). Providence, RI: American Mathematical Society.
- [7] Jiang, Q., Shao, C. (2010). Finite groups with 24 elements of maximal order. *Front. Math. China*. 5(4): 665–678.
- [8] Lam, T. Y. (2001). *A First Course in Noncommutative Rings*, 2nd ed. Graduate Texts in Mathematics, Vol. 131. New York: Springer-Verlag.
- [9] Xu, Y., Gao, J., Hou, H. (2013). Finite groups with $6PQ$ elements of the largest order. *Ital. J. Pure Appl. Math.* 31: 277–284.

Department of Mathematics, University of Wisconsin-Madison, Madison, WI 53706
cocke@math.wisc.edu

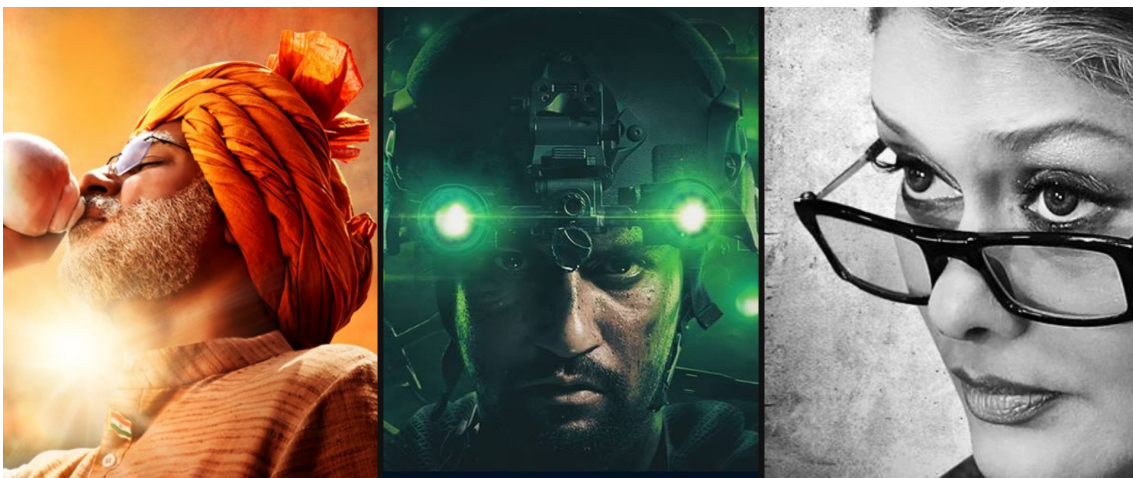
School of Liberal Studies, Ambedkar University Delhi, India
geetha@aud.ac.in

Bollywood's Propaganda Wheels Have Been Set in Motion

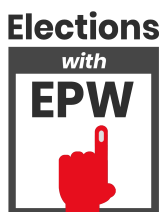
SAYANDEB CHOWDHURY

Sayandeb Chowdhury (sayandeb@aud.ac.in) teaches at the School of Letters at Ambedkar University, Delhi.

Vol. 54, Issue No. 21, 25 May, 2019



In this election season, propaganda in Indian cinema has come of age.



Once upon a time in Hollywood, socially conscious cinema would be frowned upon. It was a standing joke in Hollywood that a studio-era executive, on hearing a sober, earnest script with deep substance would swoop down on the table and say: "if you want to send a message, use Western Union." (Westwell 2013).

While the humour drives home the apathy, it also draws attention to the nature of cinema itself. Cinema was born in the age of industrial capitalism. It was at home with spectacle and could be attuned to a popular language of articulation. Cinema could also be "seen" like art, travelled much wider than theatre, could be reproduced infinitely, and could talk, sing and dance. But most importantly, cinema's appeal as a visual and synaesthetic experience gave it the undeniable potential to simulate the world closely.

Film theorists André Bazin (1967) and Siegfried Kracauer (1997) call cinema an

"indifferent" recording medium, which delivers an image as if it is unhinged from any agency; and does not readily draw attention to its own plasticity. This "neutrality" or "automatism" thrives in the ability of cinema to record existence "as such." Coupled with the controlled environs of cinema's viewership, its ability to conjure an attractive, in-screen realism ensured a participatory, and often, unquestioning audience. It is, therefore, no wonder that as technology improved and cinema earned global approbation, it emerged as the preferred weapon for mass mobilisation—at least in Hollywood, and in various other parts of Europe.

But how does propaganda operate in terms of Indian cinema, with all its diversity and populism? How have films been used to enhance political control? To answer these questions, we need to explore the idea of propaganda itself.

Hollywood's Griffith Syndrome

The relationship between cinema and propaganda has not always been easily discernible. In the erstwhile Union of Soviet Socialist Republics, the hand of the state was clearly visible with the "social realism" that had characterised cinema at the time. The Soviet state had clearly defined rules about the role of the author, the expectations from the form, and the exact nature of its execution.

But at the other end of the spectrum, in Hollywood, there was no rule book because cinema was an uber-capitalist enterprise. Hence it was no surprise that the same studio bosses who ridiculed social cinema, were also making films that carried propaganda. And it started early. W G Griffith's *Birth of a Nation* (1915)—a three-hour epic full of eye-popping editing, and avant-garde photography—ran parallel to the film's unapologetic plea for white supremacy, and its nostalgia about an antebellum South. *The New Yorker's* film critic Richard Brody (2013) calls the film "disgustingly racist yet titanically original," that never fails to surprise, especially for it being the foundational film for cinematic realism. Hollywood's very first epic work of fictional "realism" is hence also one of its most painful works of propaganda.

next film *Intolerance* (1916)—a monumental epic that stitched four stories across 2,500 years—Griffith was on the right side of ethics; but he found himself on the wrong side of history. Film critic Pauline Kael thought that it was "perhaps the greatest movie ever made and the greatest folly in movie history," (Pfeiffer 2013).

Next, Griffith accepted an invitation from the British High Command to make a film to boost the morale of the Allies during World War I. As Westwell (2013) wrote:

"Released in 1918, Hearts of the World has the Allies displaying moral rectitude and bravery in the face of German atrocity. This is typical of propaganda films of the time, which, by demonizing the enemy as evil and

subhuman, maintained support for a costly imperial war."

If his first film passed a racist fantasy as realism, his second made history amenable to a film-maker's craft, and his third was a flag-bearing apology for war. Either way, Griffith became germane to cinema's potential to be used for propaganda. But if Griffith was known only for his on-hire politics, he would be less of a figure. The difficulty is that he was also a talented film-maker. His "grand and enduring aesthetic," as Brody says, would not let his art be consigned to the adolescent follies of cinema's early years. This is also the troublesome part of Griffith's legacy—that he is considered to be among the finest of film-makers in the 1920s. Fritz Lang's *Die Nibelungen* (1924), Sergei Eisenstein's *Battleship Pottemkin* (1925) and *October* (1928), and Abel Gance's *Napoleon* (1927) were grand, patriotic paeans to their respective nations, but also excellent cinema, committing to the screen some of the finest imagery ever. The climax of this kind of "great-cinema-as-propaganda," was Leni Riefenstahl's *Triumph of Will* (1934) and *Olympia* (1936), visionary artistic enterprises in service of Nazism.

The fact that in the long run, these artistic films are more effective testaments to cinema's capacity to influence public opinion, than the cock-and-bull kind of zeitgeist films, is a compelling reason to revisit cinema's political limits.

Early Bollywood and Propaganda

With the Indian Cinematograph Act of 1918, the censor boards in Bombay, Calcutta, Madras, and Rangoon were created under city police chiefs, which ensured that the colonial state in India was watching cinema made for public consumption with a hawk-eye. The possibility of subversion or propaganda—communal, Communist or anti-state—was crushed at the onset.

The Cinematographic Act of 1952 retained most of its predecessor's preoccupation with surveillance. Perhaps this was why overt propaganda films, or even lambent ones, never really took shape in India. So, negligible exceptions aside, the Nehruvianism of 1950s' Dilip Kumar films, Raj Kapoor's derivative socialism or Guru Dutt's genteel nostalgias never became vehicles for overt politics—having largely remained entrenched in romances. Even "war" films like *Hum Dono* (1961) and *Haqeeqat* (1964), or even Manoj Kumar's *Upkaar* (1967), *Purab aur Paschim* (1970), and *Kranti* (1981) did not carry overt political messages.

If there was a hint of statist propaganda in these films, they were largely subsumed by flashy humanist proclamations, and song-and-dance compulsions that were intrinsic to Hindi cinema. It is no surprise, hence, that there has hardly been any powerful documentation of partition in Indian cinema, because it was likely to show the Indian state in unflattering light. Those that did - *Garam Hawa* (1973), *Andhi* (1975), *Kissa Kursi Ka* (1977) and *New Delhi Times* (1986) did face the disapproval of the state, but they were too niche to be seen as formidable transgressions.

Even the apparently anti-state “Angry Young Man” figure could never coalesce itself into any significant embarrassment for the Indian state, since much of that energy was spent to manufacture Amitabh Bachchan’s stardom. State-financed “New Cinema” was more socially progressive, rather than politically adventurous, except perhaps *Jaane Bhi Do Yaaro* (1983) which gallantly satirised the establishment. The angry films of Govind Nihalani - *Aakrosh* (1980) and *Ardh Satya* (1983) were financed privately.

In the South, however, cinema has long been used for political ends. M G Ramachandran, N T Rama Rao, M Karunanidhi, J Jayalithaa have all used their cinema to further political goals, while also [using pulpit populism](#) to ensure their cinematic durability.

Rising Jingoism

It was not until the 1990s that the Indian state woke up to the potential of Bollywood as a cultural commodity with a global appeal. Mainstream cinema gradually became a popular template to peddle the state’s neo-liberal agenda. Hence, the Gujarat pogrom documentary *Final Solution* (2004) and Bombay-blast drama *Black Friday* (2007)—both showing culpability of state actors at times of gross public violence—were given a hard time by the censor board during the Congress regime. The openly Islamophobic *Gadar* (2001) ran to packed houses during the Atal Bihari Vajpayee era. By the early years of the current decade, Muslim villains and an open call to go to war against Pakistan through chest-thumping jingoistic vitriol had been normalised in Bollywood.

But what we are witnessing currently, is something unprecedented. A series of films have been made with the objective of “influencing” public opinion during the election season. Of them, the placid film made on Shiv Sena’s supremo, *Thackeray*, and the derisory *The Accidental Prime Minister* has found their way to theatres along with a two-part N T Rama Rao biopic and another film, *Yatra* (2019) inspired by YSR Rajasekhara Reddy. On the other hand, *My Name is Raga* is turning out to be a ridiculous project, while the makers of *Baghini (The Tigress)* have insisted that it is not the biopic of Mamata Banerjee. The most contentious of them—*PM Narendra Modi*—was prevented from reaching the silver screen last minute (A A K 2019).

The makers of this tactically released film expected viewers (and the censor board) to treat it as a work of innocent fiction. The same applies to the television series on the life of Modi. It is impossible to measure their “influence” this early, but the films (and trailers) seem to have a severe aversion to realism and nuance. They are unfailingly loud, declarative and sensationalist portrayals of kindergarten-level political triumphalism. In the end, these films prove to be too blunt to influence the most naive audience.

More effective is the furtive propaganda of a film like *The Tashkent Files* (2019), which is an investigative story about the unexplained death of former Prime Minister Lal Bahadur Shastri. The entire script is geared to craftily discredit the Indian National Congress. Viewers from younger generations might take this film as a version of the truth, if not truth

itself. It is in line with films like the Sikh-saga *Kesari* (2019), and Sanjay Leela Bhansali's *Padmavat*, a designer drama that peddled misogyny and Islamophobia under the guise of cultural pride.

"Social" films with a purported message, like *Toilet: Ek Prem Katha* (2017) and *Padman* (2018) try hard to cover up their peddling of government schemes with an uplifting, distracting storyline. The film that does this job disturbingly well is Aditya Dhar's *Uri* (2019). *Uri*'s attraction is in its technological sophistry, taut script and its compelling performances. The film's sheer visual appeal will not let the casual viewer question the film's premise: a macho celebration of the unverified "surgical strike" on Pakistan in 2016. In terms of being propaganda, these films are sharper and more effective, having learned to camouflage their real, unctuous intent.

This election has been unsettling at various levels with high-pitched jingoism and open threats of nuclear war. In terms of cinema, this is also the moment when the genre of propaganda has come of age, as is evidenced by films like *Uri*, which have learned the craft of carefully bending history and polity to reinforce the depravity of the state. Whether or not they will be instrumental in bringing back the incumbent is, presently, indeterminable. But what is certain is that propaganda cinema will henceforth become more confident in its subterfuge. Bollywood is now more prepared than ever to make movies that will imagine a xenophobic political landscape that does not need any substantiation. So the questions we should be asking are whether films like *Uri* can be seen as traditional forms of political skulduggery on celluloid. Or are they effective political weapons in today's hyper-visual, inter-medial, post-truth age?

References:

A A K (2019): "The Release of "PM Narendra Modi" has been Delayed Until After the Election," *Economist*, 29 April, <https://www.economist.com/prospero/2019/04/29/the-release-of-pm-narendra-modi-has-been-delayed-until-after-the-election>.

Bazin André (1967): *What is Cinema*, Vol 1, Berkeley: University of California Press.

Kracauer Siegfried (1997): *Theory of Film: The Redemption of Physical Reality*, Princeton: Princeton University Press.

Pfeiffer Lee (2013): *Intolerance*, Encyclopedia Britannica, <https://www.britannica.com/topic/Intolerance-film-by-Griffith>.

Westwell Guy (2013): "Politics by Visual Means", *European*, 27 February,

Economic & Political WEEKLY

ISSN (Online) - 2349-8846

<https://www.theeuropean-magazine.com/guy-westwell-2/6354-film-as-propaganda>.

Image-Credit/Misc:

Image Courtesy: Facebook



Negotiating the Mines: The Culture of Safety in the Indian Coalmines, 1895–1970

Studies in History
35(1) 88–118, 2019
© 2019 Jawaharlal Nehru University
Reprints and permissions:
in.sagepub.com/journals-permissions-india
DOI: 10.1177/0257643018813593
journals.sagepub.com/home/sih


Dhiraj Kumar Nite^{1,2}

Abstract

This article explains the way mineworkers negotiated workplace hazards and articulated their ideas of safety. Mineworkers increasingly attained mining sense and made use of it, thereby surviving terrible working conditions and seeking to mend the accident-control mechanism. The formation and function of their mining sense were part of the industrialization process. It involved mineworkers' particular ways of adaptation—quixotic and prudent—to the demand made by work relations. The miners' unions strove to push the safety regime beyond voluntary codes of discipline and practical and technological solutions. They invested in legislative disciplining and sought informed safety-supervisory controls. They got involved in 'civic engagement' with agreeable investigators and legislators within the colonial context and afterwards. Confronted with the limits of such measures, the rank-and-file moved on, from the latter half of the 1950s to direct action in the very mining faces, thereby insisting on the right to withdrawal from danger. The historiographies which argued that Indian workers knowingly acquiesced to perilous mining to maintain livelihoods inadequately lend us the safety ideas shared and action at protection prevention undertaken by mineworkers. This article shows that Indian mineworkers reinforced the safety campaign through their strategic manoeuvring in legislative and workplace struggles as did their counterparts in Britain and some other societies.

Keywords

Occupational hazards, safety politics, mining history, labour history, colliery-goddess cult

¹ Ambedkar University Delhi, New Delhi, India.

² University of Johannesburg, Johannesburg, South Africa.

Corresponding author:

Dhiraj Kumar Nite, School of Liberal Studies, Ambedkar University Delhi, Kashmere Gate, New Delhi 110006, India.

E-mail: dhirajnite@gmail.com

Introduction

This article analyses the ways in which miners negotiated the dangers in Indian coalmines and responded to the efforts of capital at establishing the connection between labour subordination and accident-control mechanism. Workers began to define their mining sense or safety skill over time, even when they knowingly risked their life and limb for the sake of output. The organized workers articulated safety ideas, which went beyond practical and technological solutions and voluntary codes of discipline; they emphasized the legislative mandate and a participatory accident-control mechanism. The focus on social insurance characterized the manner of their direct action over safety in the early period, that is, the early twentieth century. The industry saw campaigns of organized workers for the legitimate withdrawal of labour from unsafe workplaces from the 1950s onwards. The present study outlines the context in which the workers' understanding of safety and endeavours at accident control came to be part of mining development.

Employers often described work hazards as 'unavoidable' geophysical and mechanical occurrences. Additionally, they argued that 'illiterate', 'ignorant' and 'agriculturist' mineworkers were frequently involved in 'reckless' and 'misadventurous' mining, thereby causing accidents.

Several commentators have refuted the abovementioned managerial discourse on occupational risk and workers' behaviour. Some find the short-sighted cost-minimization and profit-centred business consideration of employers to be responsible for workplace hazards.³ Others suggest that the coercive terms and conditions of employment led workers to risk-taking and faulty mining

³ J. Roberts, *The Hidden Epidemic Amongst Former Miners: Silicosis, Tuberculosis and the Occupational Diseases in Mines and Works Act in the Eastern Cape, South Africa* (Westville, Durban, South Africa: Health Systems Trust, 2009); G. Burke and P. Richardson, 'The Profits of Death: A Comparative Study of Miners' Phthisis in Cornwall and the Transvaal 1876–1918', *Journal of South African Studies* 4, no. 2 (1978): 147–71; G. Burke, 'Disease, Labour Migration and Technological Change: The Case of the Cornish Miners', in *The Social History of Occupational Health*, ed. P. Weindling (London: Croom Helm Ltd, 1985), 78–87; R. M. Packard and D. Coetzee, 'White Plague, Black Labour Revisited: TB and the Mining Industry', in *Crossing Boundaries: Mine Migrancy in Democratic South Africa*, ed. J. Crush and W. G. James (Cape Town: Institute for Democracy in South Africa, 1995), 101–15; J. McCulloch, *South Africa's Gold Mines and the Politics of Silicosis* (Johannesburg: James Currey, 2012); D. Simeon, *The Politics of Labour Under Late Colonialism: Workers, Union and the State in Chota Nagpur 1928–39* (Delhi: Manohar, 1995); D. Simeon, 'Coal and Colonialism: Production Relations in an Indian Coalfield, 1895–1947', *International Review of Social History* 41, no. Supplement Issue (1996): 83–108; A. Perchard and K. Gildart, 'Buying Brains and Experts: British Coal Owners, Regulatory Culture and Miners Health, 1918–46', *Labour History* 56, no. 4 (2015): 459–80; I. Qadeer and D. Roy, 'Work, Wealth and Health: Sociology of Workers' Health in India' *Social Scientist* 17, nos. 5/6 (1989): 45–92; A. Mukhopadhyay, 'Risk, Labour and Capital: Concern for Safety in Colonial and Post-colonial Coal Mining,' *The Journal of Labour Economics* 44, no. 1 (2001): 63–74; S. N. Padhi, 'Mines Safety in India: Control of Accidents and Disasters in the 21st Century,' in *Mining in the 21st Century- Quo Vadis?* vol. 2, ed. A. K. Ghose and L. K. Bose (Delhi: CRC Press, 2003), 109–29; M. Pathak, 'The Death of Workers,' in *Fourth World Dynamics: Jharkhand*, ed. N. Sengupta (Delhi: Author Guild Publication, 1982), 65–73; and R. Basu, 'J. K. Nagar Fire: An Environmental Problem Created by Coal Mining in Raniganj Coalfield Area,' in

practices.⁴ The declining economic scenario and threats to employment also compelled workers to maintain a fatalistic stoicism and machismo attitude towards work hazards in some cases.⁵ In contrast, the paternalistic policy of the metal company in Cornwall reinforced a stance of silence among metal miners on their occupational health and safety and the state's indifference.⁶

There are two diverging viewpoints regarding the conception of safety shared by workers, and the role played by their work-behaviour pattern on challenges to occupational health. First, workers knowingly risked their life and acquiesced to the pressure for the output. They showed an 'economistic' and 'fatalistic' outlook and machismo attitude, for they were the 'ill-fed', 'ignorant', 'migrant' and 'ill-organized'. Hence, they sought only 'ephemeral relief' through desertions and petty compensation claims.⁷ Simeon further argues that mineworkers

Mining and Environment in India, ed. S. C. Joshi and G. Bhattacharya (Nainital: Himalayan Publisher, 1988), 172–86.

⁴ Simeon, *The Politics of Labour*, 148–68; J. P. Leger, 'Talking Rocks': An Investigation of the Pit Sense of Rockfall Accidents Amongst Underground Gold Miners' (PhD thesis, University of Witwatersrand, 1992); J. Nair, *Miners and Millhands: Work, Culture and Politics in Princely Mysore* (Delhi: SAGE Publications, 1998), 56–60; C. V. Onselen, *Chibaro: African Mine Labour in Southern Rhodesia* (London: Pluto Press, 1976); M. Bloor, 'No Longer Dying for a Living: Collective Responses to Injury Risks in South Wales Mining Communities, 1900–1947', *Sociology* 36, no. 1 (2002): 96–7; T. S. Phakathi, 'Worker Agency in Colonial, Apartheid and Post-apartheid Gold Mining Workplace Regimes: South Africa', *Review of African Political Economy* 39, no. 132 (June 2012): 279–94; A. Mukhopadhyay, 'Risk, Labour and Capital: Concern for Safety in Colonial and Post-colonial Coal Mining', *The Journal of Labour Economics* 44, no. 1 (2001): 63–74; A. Mukhopadhyay, 'Rationale of Risk Taking in Coal Mining', *Journal of Mines, Metals & Fuels* 50, no. 9 (September 2002): 360–8; P. Stewart and D. Nite, 'From Fatalism to Mass Action to Incorporation to Neoliberal Individualism: Work Safety on South African Mines, 1955–2016', *Review of African Political Economy* 44, no. 152 (2017): 252–71.

⁵ J. Greenless, 'Workplace Health and Gender Among Cotton Workers in America and Britain, 1880s–1940s', *International Review of Social History* 61, no. 3 (2016): 459–85; A. McIvor and R. Johnston, *Miners' Lungs: A History of Dust Disease in British Coal Mining* (Hampshire, England: Ashgate, 2007); Burke, 'Disease, Labour Migration and Technological Change'; Mukhopadhyay, 'Rationale of Risk Taking'; Packard and Coetze, 'White Plague, Black Labour Revisited'.

⁶ C. Mills, *Regulating Health and Safety in the British Mining Industries, 1800–1914* (Aldershot, England: Ashgate, 2010), 95–6. The paternalistic policy included the benefits of company welfare fund, substantial housing, free medical attention and sickness pay and funeral grants.

⁷ Simeon, *The Politics of Labour*, 162. J. Rule, 'A Risky Business: Death, Injury and Religion in Cornish Mining, 1780–1870', in *Social Approaches to an Industrial Past: The Archaeology and Anthropology of Mining*, ed. A. B. Knapp, V. C. Pigott and E. W. Herbert (London: Routledge, 1998), 168; Mills, *Regulating Health and Safety*, 215–33; Mukhopadhyay, 'Risk, Labour and Capital'; Mukhopadhyay, 'Rationale of Risk Taking'; A. Das, 'Dust Hazards in Coal Mines: An Overview', in *Mining and Environment*, ed. S. C. Joshi and G. Bhattacharya (Nainital: Himalayan Publisher, 1988), 195–9; Dhara, 'Shop-Floor Safety in India: A Report of Public Interest Action', *Economic and Political Weekly* 25, no. 47 (November 24, 1990): M198; R. Higgins-Evenson, 'From Industrial Police to Workmen's Compensation: Public Policy and Industrial Accidents in New York, 1880–1910', *Labour History* 39, no. 4 (1998): 372; M. Aldrich, *Safety First: Technology, Labor and Business in the Building of American Work Safety 1870–1939* (Baltimore: Johns Hopkins University Press, 1997); McIvor and Johnston, *Miners' Lungs*; William Graebner, *Coal Mining Safety in the Progressive Period: Political Economy of Reform* (Lexington, KY: The University Press of Kentucky, 1976); Greenless, 'Workplace Health and Gender', 472–3.

sometimes expressed repugnance against perilous methods but acquiesced. They learnt to remain foolish, which enabled them to feed their stomach under the ruling mining regime.⁸ Qadeer and Roy point out that although the labour union movement in India took up the demands for better living and working conditions, including the payment of compensation, it did not pay due attention to safety provisions and health care. Individual workers alone were the principal agents for redressal of whatever health and safety problems were resolved.⁹ Such viewpoints and the findings related to India, my study shows below, are insufficient in elaborating what safety knowledge was shared and prevention measures undertaken by mineworkers in the Indian coalfield of Jharia.

The second viewpoint brings to the fore the workers' understanding of the ill-effects of work and their quotidian and political efforts at prevention. Textile workers in Lancashire and New England, shows Greenless, clearly recognized the work–health relationship between dust and respiratory problems (in their personal mode of illness), but not the longer-term health consequences until it was too late. They did not expect these risks to have long-term health consequences extending outside the factory walls. They devised individual as well as cooperative responses to mitigate the ill effects of the workplace, even though they were unable to have any organized health action for long-term prevention.¹⁰ Likewise, Douglas and Leger highlight the tacit safety knowledge possessed by mineworkers, which informed some of the workplace struggles over safety.¹¹ Some others suggest that the organized political labour brought a sense of urgency to the safety campaign; for instance, in Britain from the mid-nineteenth century, in the USA from the turn of the twentieth century as well as in early twentieth century South Africa. Here, organized workers challenged the managerial discourse of blaming the carelessness of workers for workplace risk and sought remedial measures.¹² Bloor highlights the combination of *informal* and *formal* actions undertaken by miners to ensure safety.¹³ Bufton and Melling, furthermore, draw attention to mineworkers' civic engagement and the strategic manoeuvring

⁸ Simeon, *The Politics of Labour*, 162. It is comparable to what Aldrich observes in the bituminous coalminers in the USA from the later nineteenth century until the 1930s; Aldrich, *Safety First*, 226–33. Aldrich suggests that mineworkers clung to the working culture of autonomous contractor-kind of miners, whose wages depended on piece-rate and return-based agreement.

⁹ Qadeer and Roy, 'Work, Wealth and Health', 79–90.

¹⁰ Greenless, 'Workplace Health and Gender'.

¹¹ D. Douglas, 'The Durham Pitman', in *Miners, Quarrymen and Saltworkers*, ed. R. Samuel (London: Routledge, 1977), 225–6; Leger, 'Talking Rocks', 267–326. See also Stewart and Nite, 'From Fatalism to Mass Action'.

¹² Mills, *Regulating Health and Safety*, 72, 82, 126; M. Bloor, 'The South Wales Miners Federation, Miners' Lung and the Instrumental Use of Expertise, 1900–1950', *Social Studies of Science* 30, no. 1 (2000): 125–40; D. W. Rogers, *Making Capitalism Safe: Work Safety and Health Regulation in America 1880–1940* (Urbana, IL: University of Illinois Press, 2009), 21; E. Katz, *The White Death: Silicosis on the Witwatersrand Gold Mines 1886–1910* (Johannesburg: Witwatersrand University Press, 1994); Burke, 'Disease, Labour Migration and Technological Change'; Roberts, *The Hidden Epidemic*, 18; McCulloch, *South Africa's Gold Mines*.

¹³ Bloor, 'No Longer Dying'.

and political accommodation made in their safety campaign in order to reduce workplace dangers.¹⁴

The particular ways in which formal and informal actions of workers would take place and feed into each other call for a context-specific enquiry. The present study takes the lead from a similar kind of recovery of the implicit knowledge and informal action shared by Indian workers. It suggests that the tacit [safety] skill of workers was neither pre-given nor stasis. The emergence and development of the mining sense among workers involved both didactic and autodidactic routes. Their mining sense mediated their ways of adaptation—quixotic and prudent—to the demands made by work relations. The understanding of workplace risk and safety conception shared by workers mediated their health-cum-safety action at the subterranean, quotidian level. This became a substructure for two different forms of safety struggles undertaken by the organized labourers. The pursuit of social insurance and regulation of workplace characterized the early phase. Subsequently, the quest for the withdrawal of labour from a hazardous workplace and the participatory safety mechanism took place. This shift occurred when mineworkers got efficaciously organized and secured a minimum earning, that is, when the loss of output, because of an unsure situation in the workplace, did not amount to their failure to meet the demand for output.

Working in the Coalmine

The production method adopted by the industry revealed how the mining world, while offering many livelihood opportunities, caused workplace risks and sapped the life energy of mineworkers (see Figures 1 and 2, and Table 1).¹⁵ At the Indian coalfield of Jharia, the industry adopted a production method which came to be disapprovingly known as ‘slaughter mining’,¹⁶ defined by the employment of untrained coalminers under a few trained supervisors. A productionist ethos, working under minimal safety essentials, and the handicraft-type labour process,

¹⁴ Mark W. Bufton and Joseph Melling, “‘A Mere Matter of Rock’: Organised Labour, Scientific Evidence and British Government Schemes for Compensation of Silicosis and Pneumoconiosis among Coalminers, 1926–1940”, *Medical History* 49, no. 2 (2005): 155–78.

¹⁵ The statistics prepared by the Inspector of Mines indicates that, on average, one and a half mineworkers per thousand employed lost their life, while five to eight mineworkers suffered serious bodily impairments and about 80 mineworkers from temporary disability (minor injury) in the early twentieth century. Notably, the accident rate in the mines was three times higher as compared to the factories, and the fatality rate was ten times those in the factories and 3.5 times those in the railways. Labour Bureau, (Ministry of Labour, Employment and Rehabilitation), *Survey of Labour Conditions in Coal Mining Industry in India in 1962–63* (Delhi: Labour Bureau, 1966), 88.

¹⁶ The Indian coalfields of Jharia are located in Dhanbad district, Eastern India. Mining began here on a significant scale from 1894–5. Its coal beds covered about 175 square miles (453 km²). The thickness of coal seams ranged from 3 to 90 feet. A number of seams outcropped at the surface, and others were gently inclined on an average of 8–10 degree to horizontal. The cross and oblique faults affected the coal measures, which were also intruded by basic dykes and sills. By 1960, mining approached 2,500 feet, and the working faces in many belowground collieries went as far so as to consume around one and half hours of workers commuting back and forth between the pit bottom and the working face. Ministry of Labour and Employment, *Report on Pneumoconiosis in the Coal Mines in Jharia and Raniganj Coalfields* (Delhi: Labour Bureau, 1961), 6.

also known as artisanal mining.¹⁷ It largely depended on the supply of cheap labour by oscillating migrants. The intermediary, known as the *sirdar*, recruited and controlled workers.¹⁸ The colliery owners made use of managing agencies and raising contractors, who had short-term interests in the industry and showed an urge for quick returns.¹⁹ The monopsonic clutch maintained by the railways, as the largest consumer of coal, and the limited investment on expensive, imported machinery in the colonial economy arrested the growth of the coal industry.²⁰ The management sought voluntary codes of discipline and practical solutions more than a mechanical solution to ensure safety. All this proved conducive to ‘slaughter mining’.

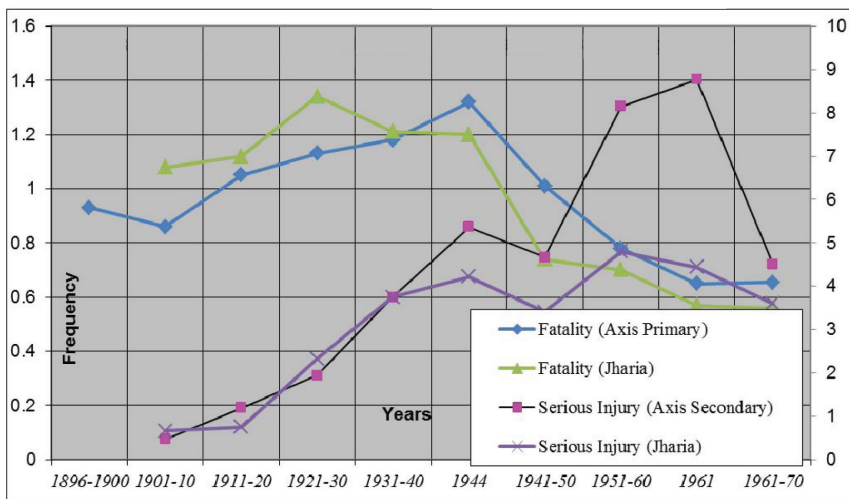


Figure 1. Fatality and Serious Injury Rates per Thousand Persons Employed on the Coalmines in India and Jharia.

Source: *The Annual Reports of the Chief Inspector of Mines in India (henceforth, ARCIM) for the Years 1896–1970.* ‘Serious Injury’ meant a permanent loss of or injury to the sight or hearing, fracture of limbs, or the enforced absence of the injured person from work over a period exceeding 20 days.

¹⁷ The reliance of the producer on human labour-power rather than mechanical-power-driven machines characterises the handicraft-type labour process. It allows a huge manoeuvring space, such as the ability to control the pace of productive efforts in the hands of workers. Such labour process continued in the early factory and workshop. The industrialist increased labour exploitation pre-eminently by extending work time. He also succeeded in intensifying labour with the help of reinforced foremanship and disciplining of workers.

¹⁸ See also C. P. Simmons, ‘Recruiting and Organising an Industrial Labour Force in Colonial India: The Case of the Coal Mining Industry, 1880–1939,’ *Indian Economic and Social History Review* (IESHR) 13, no. 4 (1976): 455–85.

¹⁹ See also C. P. Simmons, ‘Labour and Industrial Organisation in the Indian Coal Mining Industry’ (PhD thesis, Oxford University, 1974); B. B. Kling, ‘The Origin of the Managing System in India,’ *Journal of Asian Studies* 26, no. 1 (1966): 37–47.

²⁰ See also A. B. Ghosh, *Coal Industry in India: A Historical and Analytical Account* (Delhi: Sultan Chand, 1977).

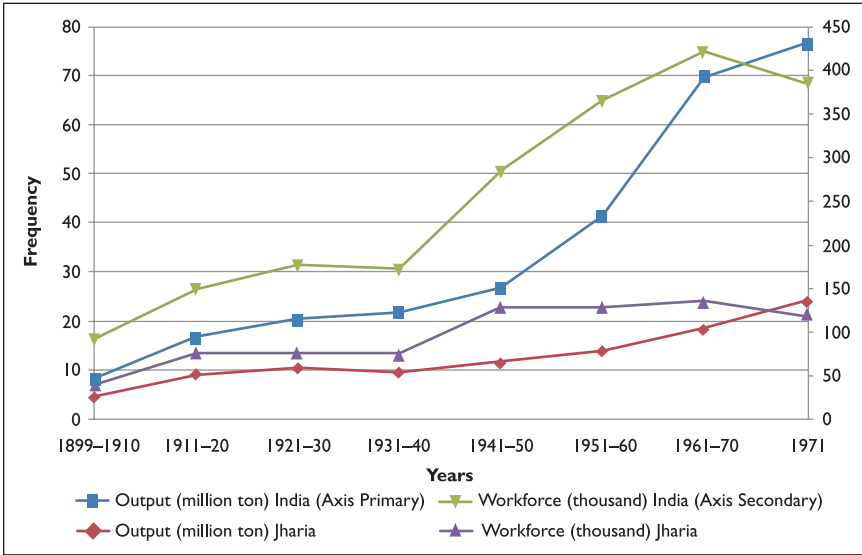


Figure 2. Output and Workforce in India and Jharia Coalmines.

Source: Annual Report of Chief Inspector of Mines (ARCIM) 1899-71. These figures excluded absentees, who were in the range of 20-25 per cent till the 1930s, about 12 per cent till the early 1950s, and about 9.5 per cent in the mid-1960s.

Table 1. Minor Injury in All India Mines (over 60% Mining Employees Were in the Coalmines) for Selected Years.

Years	Persons
1939	10,584 (about 21 per thousand persons employed)
1940	12,880
1944	8,946
1948	8,518
1950	15,616
1961	33,600 (77 per thousand persons employed)
1962-1970	NA

Source: ARCIM 1939-70. 'Minor Injury' was supposed to necessitate an enforced absence of the injured person from work for a period exceeding 48 h. It figured in the statistics after the 1935 International Labour Organization (ILO) convention over mining safety.

In the belowground workplace of the mines, coal cutters (called *malcutta*), loaders and hauliers (called *trammers*) worked in gangs of 10-12. They maintained 'autonomy' in the execution of tasks. They executed a mining plan outlined by the manager and the overman. The gang of coalminers and gang-headman, lineman (called *line-mistries*) and timber-man (called *tinber-mistries*) were responsible for the testing of gases, for the supporting roof and sides, and for assessing the right size of pillars. Coal-workers, under the leadership of a gang-headman, relied on their collective practical skills. Working at the mine's face, where the geo-physical condition could undergo a sudden change, was dangerous. W. H. Pickering identified the problem:

Two young men were at work as miners for the first time in this mine (Kuordih Coal Company's Kuordih colliery), and it seems doubtful that they had had any previous experience of coal-mining. They were at the time actually not at work in the place intended... They had undercut some coal as far as a joint, and one of them was wedging it down. Owing to several joints, a coal piece about one ton in weight probably came away more quickly than they anticipated, and in falling it struck the unfortunate man and nearly tore his arm off.... With proper supervision, it would be impossible for men to work for hours in the wrong part of the mine.²¹

Mineworkers often counted on the principle of trial-and-error to secure safety. They tore off coal by sheer force, took away pillars, cut under the sides and undertook improper propping up of roofs. In addition, they tampered with safety lamps, used too many explosives, and regularly napped on site. They were often seen riding on trams to avoid walking and holding on to the rope of the cage-lift that carried them up and down the shaft. The Inspector of Mines and other observers regularly bemoaned such 'unsound' work behaviour and workers' discretion. They lamented the absence of a training scheme, which would make labourers technically informed, and enable them to anticipate imminent danger, undertake accident-control measures and display, thereby, new mining wisdom.

To address these issues, the industry initiated two measures. The first was modernization of production through mechanization. The second was the emphasis on safety function of the supervisory staff, including managers, overmen, mining *sirdars*, surveyors and short-firers. Such measures came to conform to, as we would see below, the stipulations of the Indian Mines Acts (IMA) of 1901, 1923 and 1937–9. However, the supervisory staffs were found inadequate in number and of poor quality (see Table 2). These personnel were, furthermore, often directed to prioritise production goals and afford risk-taking. 'Archaic' mining, therefore, remained in practice. The inadequacy of constant and efficient safety supervision prolonged the coalminers' reliance on implicit knowledge of own gang members.

Simple tools and implements, like hews, pickaxes, baskets, mug-lights (*Kuppî-batees*), lanterns, manually hauled tubs, wooden props, along with oxen power and bare-footed and half-clothed wo/men, were early productive forces in the colliery. The depth of collieries increased with time. Therefore, the machine-tool and elaborate techniques, like steam engines, electric power, better-placed shafts, ventilators and brattices, safety lamps, water pumps, coal-cutting machines, explosives, tram and haulage machines, and bamboo helmets slowly came into the scene after the 1910s (see Table 3). There was also concern for the sustainable size of galleries and pillars and the rotational and phased de-pillaring. Machinery installed to improve productivity were paradoxically also a new source of hazards such as the ignition of coaldust and firedamp by the blasting of explosives and lights with electric power. Several observers found to their disappointment that

²¹ W. H. Pickering, *ARCIM for the Year of 1908* (Calcutta: Secretariat Press, 1909), 3–12. The injured man had his arm amputated at Asansol Hospital and was sent to his village, two days away; he died en route.

Table 2. Occupational Composition at the Indian Coalfield of Jharia: Percentage of Supervisory-safety Personnel to the Total Workforce.

Years	Underground			Surface and Quarry Force			Grand Total		Quarry
	Overman & Sirdar. 1.	Other Skilled.5.	Total W.P 2.	Clerks & Supervisors (3) [% to SWF % to GT]	Skilled Person 6	T.SWF. 4	% of 1+3 to G.T.	% Overman and Sirdar	
1911	N.A.	4500	50,000	N.A.	2700	29,656	79,656	2024 (2.6)	
1921	N.A.	5000	55,000	N.A.	2900	32,766	87,766	3348 (3.9)	
1927	1376 (3%)	3919	45,108	1971 (7.9/2.8)	5223	25,122	71,582	3347 (4.7)	
1936	1071 (2.4)	4631	43,880	1637 (7.3/2.4)	4032	22,308	68,170	2708 (4)	
1939	1402 (2.6)	6023	54,502	2259 (7.7/2.6)	5115	28,876	87,404	3661 (4.2)	
1944	1642 (3)	6932	55,089	3576 (8.5/3.15)	6712	42,322	113,282	5218 (4.6)	
1948	1927 (3.2)		60,071	5011 (8.8/3.9)		57,068	132,884	6938 (5)	
1950	2021 (3.13)	9397	64,698	5077 (8.8/3.8)	8522	58,385	135,649	7098 (5.2)	
1952	2027(3.1)	9385	66,100	4875 (9/3.8)	8374	54,188	128,500	6902 (5.4)	
1958	2218 (3.1)		72,007	4686 (12.5/3.7)		48,138	128,672	6904 (5.4)	(2.2)
1962	2417 (3.1)		78,918	4942 (12.5/3.6)		39,794	138,840	7359 (5.3)	(1.87)

Source: The Census Reports of Bihar and Orissa for 1911 and 1921; for the rest, see ARC/MS. Note the slight dip in the proportion of clerical and safety staff to the total persons between the late 1920s and the mid-1930s, and a consistent increase after. The retrenchment associated with the attempt of capital at meeting the Great Depression explains the slight dip.

Table 3. Scale of Adoption of Safety Essentials and Other Mechanical Tools in the Jharia Coalfields.

Year	No. of Ventilators/ in Collieries	No. of Safety Lamps	Hydraulic Stowing in No. of Colliery	No. of Mines /Mechanical/ Electrified	Electricity Horse Power	Explosives (Million lbs.) in India	Coal cutting Machines/No. of Colliery
1919			1	335/173/ 371/189/	20,927		1/2
1921							
1923	24 Bh	2793 Bh			20,927		44
1924	24 Bh/23	4296 Bh		354/203/53	27,194	2.135	55
1927	30 Bh	6790 Bh		289/187/58	33,917	2.464	69
1930	39 Bh/37	9368 Bh			39,985	3.331	93
1935	42 Bh/41	11926 Bh		206/164/66	42,386	2.512	28
1939	70 Bh	27781 Bh	2	249/172/76	51,760	3.919	56
1945	82 Bh	28184 Bh	6 (Aided)	446/194/84	63,063	5.978	75
1948	96 Bh	26957 Bh					108
1950	89 Bh	25518 Bh		424/195/105	68,785	9.592	104
1951	99 Bh			415/200/121	70,777	19.57	108
1955	108 Bh/50	19796 Bh		382/191/177	87,136	13.83	127/39
1960	158 Bh/76	36445 Bh	10+ (Protective)	347/276/228	116,247	28.68	113/40
1964	177/70	37796	₹12 lakhs on protective + ₹90 lakhs on subsidy (India)	319/272/258	153,584	36.46	143/46
1965	258 Bh			313		43.31	172
1966	333/156	55340		296/255/240	178,309	41.73	187/50
1970	528/206	115912		278/235/225	225,268	44.29	185/49

Source: Rees Report, 200; Burrows Report. S.R. Deshpande, Report of the Labour Enquiry Committee (Delhi: Secretariat Press, 1946). For the rest, see AICIMs. The Stowing Board undertook compulsory protective stowing and, at the same time, offered aid (75–85% of the total cost) to the mines undertaking voluntary stowing. In the 1960s, it offered most of its funds in the form of subsidy to certain collieries faced with adverse factors. Bh: Bihar Province.

safety tools like ventilators, safety lamps and belowground stowing for the board and pillar method of coal extraction were inadequately and reluctantly applied.²²

Employers were in full cognizance of this situation. Hence, they depended more on voluntary codes of discipline and practical solutions to promote prevention of workplace hazards. The industry heavily relied on the mining *sirdar* and his gang persons and their practical skills of production and protection. Employers regarded such an arrangement to be cost-effective and unproblematic.

Coercion in labour relations was responsible for the mineworkers and the frontline supervisory staff taking grave risks in the production of coal. The mining *sirdars* and overmen drove coal-workers into the workplace for meeting the assigned task: a pair of coal-cutter and loader was supposed to produce on average two tons of coal in the hard seam and three tubs in the soft seam per day. A mining shift was on average 11–13 hours during the 1890s–1940s, subsequently coming down to 8 h in the big mines and 10 hours in the rest.²³ The supervisors received assistance from the employers' security guards (called *latthith* or *pehalwan*) to herd mineworkers from the colliery houses (called *dhowrah*) to the coalmines. Additionally, the payment of piece-rate and return-based wages led coal-workers to search for easily accessible coal, move into 'prohibited' areas, take part in 'forbidden' mining activities and spend long hours in the working faces.²⁴ Workers extracted coal from pillars in a dangerous condition, for instance in the following instance at Khodo Vallery colliery (Nawagarh, Jharia: Kanga & Company Ltd) on 10 April 1944:

Sadhuram Samsoye, the supervisor-in-charge, directed a few gangs of miners to strip the pillars ... The *sirdar*, who was acting as the temporary manager, did not raise any objection and the undercutting of the side continued even when a mass of stone and coal became overhanging ... No support was erected at or near the place of the accident. Eventually, the place became so dangerous that the coal-cutters were unwilling to work there, but Samsoye persuaded them to do so, saying that there would be no danger. The overhanging side had been undercut to such a dangerous extent that it collapsed without warning.²⁵

²² T. R. Rees, *Report on the Method of Mining in Indian Mines* (Delhi: Secretariat Press, 1919); R. R. Simpson, *ARCIM for the Year of 1921* (Delhi: Secretariat Press, 1922); L. B. Burrows, *Report of the Coal Mines Committee*, Vols. I and II (Delhi: Secretariat Press, 1937); K. C. Mahindra, *Report of the Indian Coalfields Commission*, Vol. II (Delhi: Secretariat Press, 1946); N. Barrowclough, *ARCIM for the Year of 1948* (Delhi: Secretariat Press, 1949); G. S. Grewal, *ARCIM for the Year of 1958* (Delhi: Secretariat Press, 1959) and B. N. Srivastva, *Labour Bureau's Survey of Labour Conditions in Coal Mining Industry in India in 1962–63* (Delhi: Ministry of Labour, Employment and Rehabilitation, 1966).

²³ For details, see D. K. Nite, 'Whatever Happened to Worktime? An Enquiry into the Manufacturing of Industriousness on the Indian Mines, 1895–1970,' Paper presented at the Conference on Money and Time at Göttingen University (Centre for Modern Indian Studies), 18–19 December 2017.

²⁴ For details on the wage relationship, see D. K. Nite, 'Reproduction Preferences and Wages: The Mineworker in Jharia Coalfields, 1895–1970,' *Studies in History* 30, no. 1 (2014): 55–87.

²⁵ Kirby, *ARCIM* 1945, 20. The eight mineworkers who lost lives in this disaster were: Tupli Mejhian (30 years old), Arjun Majhi (35), Rati Majhi (25), Budhan Majhi (45), Fulmani Mejhian (35), Baburam Majhi (49), Somar Majhi (38) and Mongal Majhi (46).

In this case, eight unfortunate workers evidently recognized the impending dangers and reluctantly succumbed to the production pressure.

Take another case. At the Central Bhowra Colliery, which was adjacent to Sowardih, an abandoned waterlogged colliery, water inundation took the lives of 23 coal-workers on 20 February 1958:

The diary of the Senior Overman (Shri R.S. Mukherji) is replete with instances of Shri B. N. Agarwala's (the owner) initiative in running the colliery even to the extent of suggesting changes in the group of miners. ... The Overman in his diary writes that he was permitted by the Manager (P. K. Dan) to cross the boundary line towards Sowardih. He has deposed that whenever he would mention this question of the crossing, the Manager would tell him that the working could proceed to two pillars lengths to the east. Shri R.S. Mukherji knew that he was doing something against the law. Perhaps, he was helpless because he was working under the instruction of the Manager and the owner. It is not easy to suggest as to how a subordinate functionary of Shri Mukherji's status could ignore the instruction of his superior officers, even though he knew such instruction to be in contravention of the Mining Regulations.²⁶

This case was an incisive revelation made possible by the Court of Enquiry with the participation of the representatives of republican parliament and labour associations. It was the vantage point of efficient industrialism shared by the Inspectorate. The latter hitherto advocated the application of adequate safety tools, personnel and the scientific method. This was the case of a well-equipped and well-staffed colliery. We will see below how the new revelation called for a different treatment, including the call for the first participatory safety conference in 1958.

As noted earlier, several studies have noted how the coercive work relations and wage system resulted in greater risk taken on by workers, thereby sustaining what some observers have described as the culture of machismo risk-taking. However, the discourse of employers and the inspectorate regularly omitted any connection of work relations with slaughter mining and continued to hold 'illiterate', 'ignorant' and 'misadventurous' mineworkers responsible for their own ill-fate (see Figure 3).

The Prudent and Quixotic Mineworkers

As mining industry advanced, a new generation of 'better informed' coal-workers appeared. Safety-related knowledge was imparted by parents to their newly recruited children, along with peer-group discussions. This was what Kesho Rawani (photograph I, see the Appendix), employed first as a loader from the late 1920s and subsequently as a haulier (trolley-man) at the Bhowra colliery, had benefitted from.²⁷ He, in turn, imparted his accumulated learning to his elder son,

²⁶ Grewal, *ARCIM* 1959, 174–5.

²⁷ Interviews with K. Rawani (1917/18–2008), Bhowra Twelve-number bastes, 16–18 January 2004.

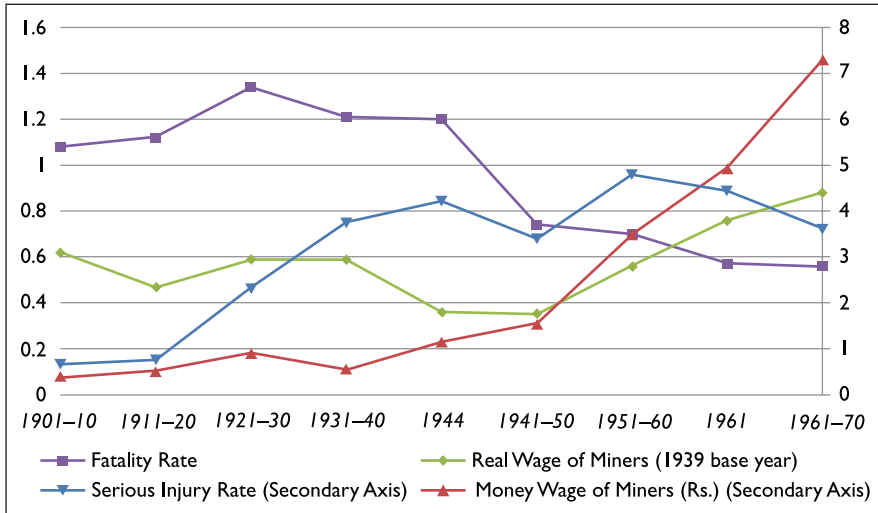


Figure 3. Trends of Casualty and Wage in Jharia Coalfield.

Source: ARCIM for the period of 1900–70 (Calcutta and Delhi: Secretariat Press).

Shyamnarain Rawani, who was employed first as a construction labourer and then as a trolley man in the mines from the late 1960s.

When I first began working underground, my father used to admonish me and warned me against the following: working at the coalface, tearing off coal from pillars, sitting on tram lines, riding on tubs, etc. He asked me to take note of the condition of the roof and the sound of the timber that supported the roof.²⁸

Shyamnarain (photograph II, see the Appendix) is the third generation in his family to work at the Jharia coalfields.

The discourses of employers and inspectorate on safety-related issues continued to reduce mineworkers' work-behaviour pattern into an innate and inchoate culture. On the contrary, mineworkers drew upon inherited wisdom, adapted to changing times and developed new sensibilities to apprehend danger, even when those in authority did not train them. Karpo Rajwar (photograph III, see the Appendix), a coal-cutter and loader, told me:

The *Burbak* (reckless/quixotic) man indulges in a risky manner of extraction and gathering of coal; why would a *Chalak* (rational/prudent) man show such an indulgence and risk his life and limb?... A person might think that by taking away a chunk of coal from the pillar, he could quickly fill up more tubs in the given time. We did not do such things. I saved my gang members on one occasion by persuading them to leave the working face early, since I could sense that the supporting timber was giving certain warning signals. It was making a certain sound that I knew indicated that it would soon come crashing down due to the weight of the *chals* (coal roofs). On another occasion,

²⁸ Interviews with S. Rawani (b. 1955), Bhowra Twelve-number incline bastes, 30 March 2008.

I dragged one of our *dangal* (gang) persons from the place where the *jhurri* (the loosened colliery sides left in the aftermath of the blasting undertaken in the working face) was about to fall.²⁹

The emphasis placed in these memorial testimonies on the lessons related to tram-lines, running tubs, treacherous working faces, the size of pillars and timber supports to the roofs had attained a critical place in the evolution of accident-control measures during the 1910s–1950s. The issue of poisonous and combustible gases is absent in these oral accounts as well as a barrier between two collieries and between a colliery and a water body, considered necessary against the threat of flooding. For both these items, it could be said, were the responsibility of the managerial and supervisory personnel and surveyors.

The terms *burbak* and *chalak* provide two sets of contrasting meanings. In the first set of meanings, *chalak* denotes the ability of a person to be manipulatively successful; in contrast, the *burbak* stands for being conformist, having a contented human nature and being unable to trick the system. The second set indicates the life preferences of the person rather than his/her ability or inability. While the *chalak* stands for a guarded, correct and righteous path, the *burbak* follows the path of misadventure, ignorance or negligence. Karpo Rajwar, whose mining career spanned from the latter 1940s till the 1990s, seems to have referred to the second set of meanings. His misadventurous (*burbak*) gang person seems to have shared the ethics captured by the first set of meanings. The *burbak*, who was a *chalak* in his own perception, wanted to take advantage of the condition of production in various ways: he would also bribe the tub clerk in order to get hold of a sufficient number of tubs and a better working face. Karpo Rajwar, in this sense, shared the language of safety discipline.

Beyond the *burbak* and *chalak* ways to mining, however, mineworkers frequently faced situations that challenged the given wisdom at their disposal. An accident seriously challenged Mahadeb Chatterjee (a certified overman), Meghua Kahar (a certified but ‘illiterate’ mining sirdar), and D. Howieson (a manager holding a diploma certificate in mining) at the Bararee colliery in 1929. It occurred due to the air blast caused by the sudden fall of a colliery roof in goafs, that part of the mine in which coal had been cut away, and waste was left in the old workings. The classification of such a disaster as ‘misadventure’ by W. Kirby (Inspector of Mines) obfuscated the gap between the available knowledge and the unfolding geophysical circumstance.³⁰ Mining required an elaborate, measured and reflective association between a miner and the constraint that s/he faced in the colliery. Yet, the collier’s *burbak* approach to mining appears to have been an expression of the work–behaviour of a person who migrated from a rural society where s/he had engaged in agriculture, animal-husbandry, handicrafts, or other

²⁹ Interviews with K. Rajwar, Bodroo Bastee in Chandankiyari Block, Dhanbad District, 31 March 2008.

³⁰ Department of Industry and Labour (hereafter, Dept. I&L), M-966 (88) (Delhi: National Archive of India [NAI], 1929.

such services characteristic of a preindustrial economy. S/he was thus ignorant of the principle of mining and was often attached to a pre-modern, religious and cosmological view of things. S/he gained a working knowledge of mining through trial and error. The *chalak* collier, in contrast, was the one who followed sound mining methods and was thus posed as the opposite of the *burbak* miner, though a boundary between the two was difficult always to sustain.

In the tea-stall and the local pub (*Kalali*), a *chalak* collier (equipped with the pit-sense) would boast of his expertise. S/he would, with time, refuse to ride back and forth by clutching to the rope of the shaft-lift with his toes. S/he would avoid overcrowded shaft-lifts. S/he would refrain from stepping out of a moving lift-cage and riding on a haulage-tub or sitting beneath an overhanging roof. Further, s/he would be disinclined to use too many explosives or tamper with safety lamps.

The growth of a mining sense was apparent in the discrete fall in the fatality rate of shaft and haulage accidents by the 1940s and the 1950s. There was also a check on the casualty rate due to ordinary fall of roofs and sides in the 1940s. Rather, explosions of coal-dust and inflammable gas, and the inundation of water now claimed a disproportionately high number of fatalities. The explosion of combustible gases owed to the use of naked lamplights and the failure of the overman and mining *sirdar* to test for gasses in goafs. The inundation indicated a fault of the managerial and technical (surveyor) staff rather than any *burbak* practice on the part of an ordinary collier (see Figures 4 and 5).

Contrary to the assertion of the management, mineworkers acquired the tacit skill and applied it over time. This was despite a score of instances of compulsion to do the opposite, thereby making themselves appear either foolish or stoically macho. Douglas has observed a similar feature among the British [Durham] coalminers, whom he described as the 'big hewer'. They resisted the intrusion of supervisory authority in the working faces in order to preserve their autonomy, described as 'little soviet', in the workplace.³¹ Leger has noticed this feature among production workers in the South African goldmines. This tacit knowledge of production workers mediated the cooperation as well as the conflict between the labourers and the management. Managerial refusal of any recognition of the tacit knowledge of mineworkers vitiated the accident-control mechanism. The rise of an organized labour movement, the National Union of Mineworkers, in South Africa in the 1980s marked a break in the connection between labour subordination and accident-control measures. Consequently, the conflict over occupational hazards and safety began to surface in public in South Africa, points out Leger.³² These narratives eschew reducing the tacit knowledge or pit sense of mineworkers to a work behaviour pattern characterized by a stoic, macho risk-taking attitude.

³¹ Douglas, 'The Durham Pitman', 225–6.

³² Leger, 'Talking Rocks', 267–326.

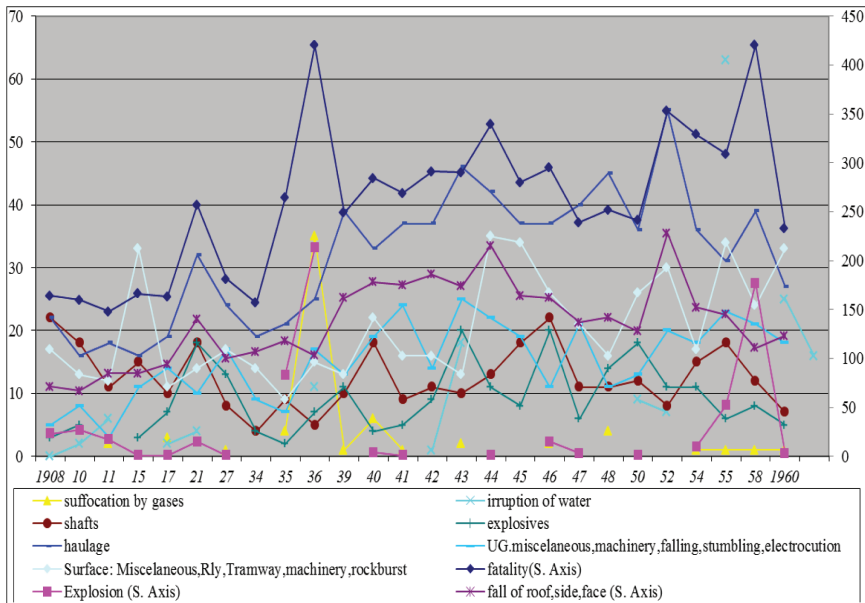


Figure 4. Classification of Fatalities on the Basis of Geophysical and Mechanical Sources. Source: ARCIMs 1912–60.

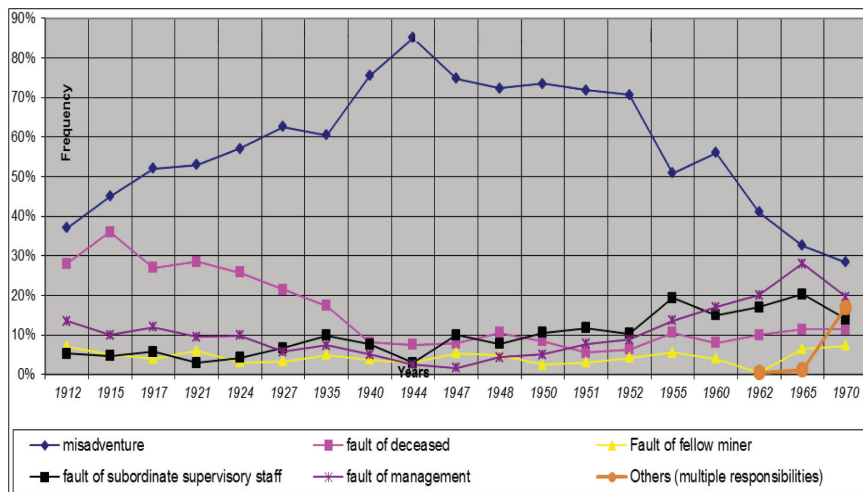


Figure 5. Percentage Claims of the Social Roots of Fatal Accidents in All the Mines in India.

Source: ARCIMs 1912–60. A marked shift took place since the late 1910s in the classification. The notion of faults on the part of mining personnel showed in some sense defiance of or non-conformity to, or the failure to practice, the rules and regulations based on the mining wisdom set out since 1901–7. On the other hand, the notion of misadventure alluded to a wide range of behaviours and acts of coal-workers—‘misjudgement’ and ‘obscure’ circumstances liable for mishaps.

The formation of a *chhalak* coal-worker was the result of two conditions: autodidactic learning by regular workers, and the creation of a new group of safety-supervisory staff. The practical skill of colliers inevitably grew with time. The new generation of miners, like Kesho Rawani, was bequeathed with a mining sense; by the time Shyamnarain Rawani and Karpo Rajwar ventured into collieries, they were well-versed with the norms of the quixotic and prudent mining approaches. However, only about 20 per cent mineworkers possessed formal literacy as late as 1970, which would have a certain bearing on the growth of mining sense amongst mineworkers.

The modernization of the workforce and regulation of mining practices facilitated the development of didactic mining wisdom. From the turn of the twentieth century, three types of public legal injunctions for mining came in place—precaution, training and regulation and prosecution. They advanced managerial and technological solutions on the pattern which came to be accepted in the UK and in the USA.³³ The following discussion shows the manner in which such efforts at ‘combined development’ were performed in the Indian context and how they affected mineworkers.

The Inspector of Mines carried out the task of disciplining. On the question of improvement of the mining practice, Balchandra Ravidas (photograph IV, see the Appendix), a loader and mining *sirdar*, reported: ‘The prosecution meted out to the truculent impelled the rest, reflectively, to make use of their experiences to resist shoddy method and temptation for easy coal.’³⁴ The responsible mining *sirdar* was a crucial figure in this regard. Unlike the residential segregation enjoyed by most managers and supervisors, the mining *sirdar* lived amidst production workers. The slow but steady stabilization of coal-workers as settled and career workers contributed to this prospect.³⁵ The mining *sirdar* took a keen interest in imparting safety techniques to his gang persons and neighbours because he was also answerable for fatalities.³⁶ The new mining rules stipulated in 1952–7 enforced this aspect. In his response to the question as to how he learnt the *chhalak* mining technique, Karpo Rajwar emphasized the role of the mining *sirdar*.

The safety personnel shared responsibility for the advancement and propagation of wisdom required for safe mining. This was especially so after the IMA, 1901, that made the colliery manager answerable for safety. Under these regulations, during 1901–4, every coalmine was supposed to be under the supervision of a manager (mining certificate holder), along with the overman (shift in-charge), mining-*sirdar*, onsetter, banksman, engineman and surveyor. The

³³ Mills, *Regulating Health and Safety* William Ashworth, *The History of the British Coal Industry Volume 5, 1946–1982* (Oxford: Oxford University Press, 1986); Rogers, *Making Capitalism Safe*; and Aldrich, *Safety First*.

³⁴ Interviews with B. Ravidas, Industry colliery basteer (Jharia), 20 March 2008. He is a second-generation miner who worked as a loader from 1962 to 1984, when he was promoted to mining *sirdar* and worked this post for next 20 years.

³⁵ D. K. Nite, ‘Employee Benefits, Migration and Social Movement: The Indian Coalminers, 1895–1970’, *Labour History*, 2018 (DOI:10.1080/0023656X.2019.1537038).

³⁶ Department of Labour, XL (I) – 103/47 (Patna: Bihar State Archive, 1947).

1923–4 amendment to the IMA made mandatory the employment of trained mining *sirdar*. It transformed the gang headman into a mining *sirdar*, who was no longer directly involved in coal cutting and loading, except the blasting.

Along with the Inspectorate and other scientists, the managerial men were associated with research and development activities in order to address the challenges. For creating an informed mining community, the National Association of Colliery Managers (NACM), formed in 1906–8, along with the Indian Mine Managers' Association (IMMA), formed in 1922, conducted regular deliberations on safety issues and screened film shows on safety. NACM represented the managers of European origin, and IMMA represented the managers of Indian origin. They were members of the Mining, Geological and Metallurgical Institute of India (MGMII) and the Geological, Mining and Metallurgical Society of India (representing Indians). Many of them participated in regular discussions, study circles, lectures and research activities organized by these associations. In their deliberations, the safety issue usually included the findings and prescriptions, which Inspectors of Mines made in the aftermath of enquiries into fatal accidents.

The discussions entered the public arena through publications. A few of these papers are worth mentioning since these were concerned with some of the predicaments that were acutely felt. In 1907, the MGMII discussed the following papers: 'Fighting a Colliery Fire', 'Solid Rope Capping', 'Chersea Electric Power Plant', 'Premature Explosion of Powder' and 'Mine Dams'. In 1917, the following papers were discussed: 'On Hydraulic Stowing in Mines in Bihar', 'The Burning of Coal Seam at the Outcrop' and 'Housing of Labour and Sanitation at Mines in India'.³⁷ In 1924, 1927, 1929 and 1935, we find references to the following papers: 'Notes on the Coal Dust Danger in Indian Mines'; 'Further note on the Ventilation of British Mines' and 'Coal Resources of the Jharia Coalfield'; 'Discussion on the future of the Jharia coalfields';³⁸ and the 'Report of the Second Subsidence Committee appointed by the MGMII' (1935).³⁹ These essays had common threads—an emphasis on the adoption of mechanical safety tools (ventilators, safety lamps), safety techniques (stowing, supervision, planning) and organizational arrangements (co-operative investment in stowing and power plants), some of which highlighted the necessity for general training, attractive living conditions and mass education.

These essays were later published in the annual proceedings of the associations. These would have informed the training programme for managers at Bengal Engineering College (Sibpur) since 1906 and the Indian School of Mines from the mid-1920s. More importantly, lantern lectures, evening mining classes and research tours were organized for the dissemination of ideas to the safety staff in the fields. A 'pedagogical mission' was thus carried out. To what extent this mission influenced social forces involved in interest bargains and contained

³⁷ Department of Commerce and Industry, 1908: G&M: 81 (4); Adams, *ARCIM*.

³⁸ Dept. I&L, 1931: M-76 (18).

³⁹ Penman, *ARCIM*, 30–40.

malefic mining practices, is a subject to which I will discuss in the later sections. Notably, there was a difference of emphasis between managers and the *chhalak* coal-worker on the concept of sound mining. The latter emphasized safety discipline while warning against the pressure exerted on colliers to raise a higher number of tubs during the given work hours. In contrast, managers and supervisors emphasized safe mining methods while continuing to demand higher output. Karpo Rajwar seemed to represent a discourse of safety, which related to the new safety politics aimed at the removal of a hazardous pressure for more output.

As I have suggested, autodidactic learning, the circulation of wisdom through parents and neighbourhood and the norms of safety discipline as outlined by the Inspectorate, were responsible for the advancement and democratization of mining wisdom. Kerr points in his discussion to how the British got the railways built in India, the significance of the creation of a generation of informed labourers and the routinization by British engineers of accumulated, transmitted and codified knowledge of managerial and construction techniques.⁴⁰ The subsequent section of the article probes the safety politics of mineworkers and lay bare its function within the accident-control mechanism.

Ideas of Safety in Coalmines

In the quest for sustained advancement, the mining society, confronted with a precarious existence, recognized the necessity preventive and remedial measures. The response of mining classes and other social groups to such measures was often multi-pronged. Initially, they seemed to share the term of common law: mineworkers recognized the presence of workplace hazards and bore the responsibility of both risk and self-preservation. A few mineworkers moved away from the accident-prone shaft mines. As Pickering reports:

It apparently takes very little to frighten the native worker away from the mine, and it will become increasingly important for mine managers to study the prejudices and customs of those under their charge... As soon as it was known, the place was visited by the officials, but the bodies had already been removed from under the coal by the other workmen. A lamp, however, was found beneath the new falls... The evidence, in this case, is most difficult to obtain. Of the three surviving men, one was not close at hand at the moment, and immediately he knew of the accident he went out of the mine with the two women who assisted them... Another man disappeared altogether, and the third, who either could not or would not give any clear explanation of the occurrence, died two days later from excessive drinking.⁴¹

A permanent departure was not considered by most mineworkers whose economic necessity drove them to collieries. Mobility between coalmines was their other response. Some moved away from a fleecing deep-shaft colliery to a more

⁴⁰ I. Kerr, *Building the Railways of the Raj 1850–1900* (Delhi: Oxford University Press, 1997).

⁴¹ Pickering, *ARCIM*, 3–12.

congenial work atmosphere. Their movement towards incline colliery (*shirmuhan*) and quarry (*pokharia*) gathered strength during the period of the First World War and continued till the collapse of coal prices in 1923.⁴²

Some locals and immigrants gradually became settled workers in the vicinity of collieries. They preferred working on big collieries, which offered them a relatively higher wage-rate and accommodation. Because they bargained for better remuneration, they were willing to take chances in deep collieries.⁴³ Here, they preferred a dry, easygoing and poorly attended coalmine over a wet, punishing and better-attended coalmine. The latter was known for its supervisors driving workers to perform the arduous work in the wet working-face and gallery.⁴⁴

The bitter and melancholic expressions found in the folklore of colliers reflect their experience of working in treacherous environments:

We sad coal-cutters,
Our hand, hard and callused,
Our insides dark with dust,
Oh! This (is what) I think.

Once in the lift-cage,
I shivered,
What if the rope snaps?
Oh! This I think;
The cage goes down,
My father, my mother-so far away
Shall I ever see them again?
Oh! This I think

If a chunk of coal falls,
My head will be smashed,
God knows what is due
Oh! This I think

Ghuga Mahto tells you this story
The warm Damodar flows on,
Oh! The heat, the heat,
Tortures me on and on.⁴⁵

Ghuga Mahto's bitter feeling of an unfulfilled life stands out as a critique of the numerous difficulties in colliery work. He yearned for industrialization that would bring in employment, along with a healthy and joyful life.

⁴² Simpson, *ARCIM*, 3.

⁴³ Simpson, *ARCIM*, 3–12. The big mines were those producing over 100,000 tons of coal annually, employing more than 500 persons; these worked at over 600 feet depth.

⁴⁴ *Foley Report*, 14. The Jealgora colliery paid annas eight per tub between 1918 and 1920 owing to a large lead and wet underground gallery. The usual rate was annas six.

⁴⁵ A Folksong by Ghuga Mahto (1928); cited in R. Ghosh, 'A Study of the Labour Movement in Jharia Coalfields, 1900–1977.' PhD Thesis, University of Calcutta, 1992, 372.

Mineworkers' efforts at adjusting to the work and safety imperative, as time wore on, had four subtexts: the growth of a mining sense, the formation of safety staff, the politico-legal struggle for 'safety first' principle, and the deification of the colliery in the image of goddess Kali.⁴⁶ The formation of a safety regime that was informed by an ever-evolving mining sense, I suggest, was borne not only out of the need of industrialists but largely due to the effort of the mining classes, in alliance with a group of labour publicists. Their endeavours were the harbinger of modern associational efforts to secure labour welfare. Since the 1920s, such publicists took a keen interest in the implementation of safety provisions and worked towards strengthening the safety mechanisms as advocated by the scientific community. Following the burial of 74 persons in the Parbelia colliery disaster, N. M. Joshi, a political advocate of labour and the founding member of the All India Trade Union Congress (AITUC), insisted in 1922–3 on legislation for 'compulsory certification of mining *sirdar* and overman with a view to improving their performance as the front line safety supervisors'.⁴⁷ On 3 November 1920, Simpson pointed out:

[Management] of collieries was very much handicapped by the poor calibre of the persons who were appointed to make the daily statutory inspections of the workings. *Sirdars* should be required to have certificates, and certificates would be granted after an examination in which the *sirdars*' practical knowledge of timbering, goafing, ventilation, etc. would be tested. And, in the case of gassy mines, the *sirdar* would have to prove that he understood the principles of safety lamps and knew how to test for gas.⁴⁸

In March 1921, while discussing the Simpson Draft, B. Y. Hajibhoy, a member of the legislative assembly, raised the question of the need for regulations with a view to minimizing accidents, and also asked for rules that would provide for the examination and certification of underground *sirdars*. Faced with a renewed

⁴⁶ I have discussed in detail elsewhere that the deification of mines was part of the mineworkers' effort to negotiate the enormity of the mines. The mineworkers' belief in a form of contract with the mystical master of the cycle of life, livelihood and death drew upon popular religious customs of Kali and spirit-*devata* (Buru). It denoted a desire to manage hazardous mining as well as livelihood. With blessing of the colliery-goddess—Khadan-Kali—mineworkers undertook risks and sought to meet the challenges of formidable work. It did not represent any seamless, unmediated act of submission to a certain scheme of things, which was external to the narrative of prudent mineworkers coming into being. The cult was permeable to the safety politics of prudent workers. At the same time, it inscribed the new meanings to the relationship between the deity and her adherents. It stood as a parallel viewpoint: juxtaposed to the new official scheme that attributed responsibility for fatalities to workers, and subjected them to corrective punitive action under the Indian Mines Act. In this context, mineworkers bitterly complained against the unholy nexus of the Inspectorate and the management. The Khadan-Kali cult became pervasive in the period of substantial growth in a stable mining populace; a period where coalworkers increasingly began to register their claims for compensation and were agitating against employers' attempts at evasion. See, D. K. Nite, 'Worshipping the Colliery-goddess: An Exploration of the Religious View of Safety in Indian Coalminers, 1895–2009', *Contributions to Indian Sociology* 50, no. 2 (2016): 163–86.

⁴⁷ Dept. I&L, 1924: M-407 (16).

⁴⁸ Dept. I&L, 1924: M-498 (11).

insistence by Joshi on the Simpson resolution, the colonial government acceded that 'a prompt measure taken in 1921 would have helped minimise the dangers of accidents as had occurred in Parbelia'. The concern of workers with regard to the menace of combustible coal-dust influenced legislative measure. Hence, the Mining Regulations of 1926 stipulated the sprinkling of water or incombustible material over coal-dust that was found in galleries.⁴⁹

The Politics of Safety

In the late 1920s and the 1930s, there was a staggering increase in the instances of roof collapse, explosions of coal-dust and inflammable gases that caused fires, and inundation of the collieries. Political advocates now called for a thorough examination of the problem and an inquiry into the consequent 'loss to the public'. They demanded comprehensive statutory control on the reckless methods and short-sighted schemes prevalent in Indian mines.⁵⁰ The Burrows Coal Mining Committee (1936–7), constituted by Government of India (GOI) in response to the public hue and cry, made a comprehensive investigation into the reasons for perilous mining. Its report emphasized the necessity of significant control on mining methods. Consequently, a series of regulations and amendments to the IMA were stipulated in 1937–9. Under the Mines Regulations Act, 1937 and 1938, the separation of professions of mining *sirdar* and blasting was made mandatory, the latter task now assigned to the shot-firer, plus training for both. It also mandated the employment of certified surveyors for every colliery and the conducting of joint surveys by contiguous collieries, the maintenance of a barrier of a minimum of 12 feet from water bodies and the use of non-flammable safety lamps and electric lights in all gaseous mines. The guidelines for the first workings and designs of galleries and pillars were set out. The colliery management was asked to submit a working plan for approval, and the mining inspectorate was given the right to stop any work in progress in collieries that appeared dangerous. The Indian Mines Conservation (Stowing) Act, 1939, laid down the guidelines of the stowing project. The financial resources generated through the levy on coal despatches would support the fencing of abandoned mines. The recent changes in the organization of the British mining industry informed the views and recommendations of the Burrows Coal Mines Committee, with the exception of the institution of a separate profession of the shot-firer as distinct from the mining *sirdar*.⁵¹

⁴⁹ Dept. I&L, 1924: M-407 (16); M-498 (11). In London, Mill and Hayday, members of the British House of Commons, pressed for the necessary steps to minimize the increasing loss of life among men and women underground. See Dept. I&L, 1925: M-366 (6); M-366 (7).

⁵⁰ Dept. I&L, 1935: M-407 (150); 1936: M-407 (158); M-407 (163); M-407 (168); M-407 (164); M-407 (175); M-1055 (127); M-1055 (120); M-407 (160); M-533 (66); M-533 (5).

⁵¹ *Burrows Report*, Vols. I and II; Dept. I&L, 1936: M-955 (10); M-1028 (94); M-1028 (95); Labour Bureau, *A Guide to Central Labour Legislation in Mines* (Delhi: Labour Bureau, 1963).

Many owners and managers vehemently opposed many of the proposed safety checks. Representatives of the Indian Mines Managers' Association regarded the control on mining methods as an unwarranted and undesirable interference in the working of the industry. On other occasions, unlike the proprietors, they affirmed other legislative measures, including the idea of universal mandatory stowing.⁵²

Mineworkers, generally, appreciated the functioning of the Inspector of Mines and his ideas of accident control. At times though, the Inspectorate drew their criticism as well. Unlike employers, mineworkers found the inspections to be inadequate, as was proved by the high number of accidents and casualties. They bitterly complained that the Inspectorate was susceptible to influences exercised by the management. P. C. Bose, a representative of the Indian Colliery Employees Association (ICEA), complained to the Whitely [Royal] Commission on Labour (RCL) in 1930: 'False prosecutions were conducted against the poor worker at the instance of the management, wherein false evidences, many times put forward by management to contest cases under the Workmen's Compensation Act of 1923–24, became the basis of judgment.'⁵³ Therefore, he demanded that the number of inspectors be increased and that the method of inspection be optimized for stringent regulations. Chapala Bhattacharya, representing the All India Mine-Workers Federation before the Mahindra [Coal] Committee in 1945–6, acknowledged the improvement in the safety situation post-1937 under the regime of more stringent mining regulations, though, as he argued, a lot more needed to be done.⁵⁴

While insisting on legislation to ensure sound mining techniques devised on scientific lines, labour publicists had two distinct approaches. They insisted on the training of employees and on statutory controls on the mining processes prescribed by the scientific community. By the mid-1930s, they began to argue in favour of 'universal stowing' and 'considerate pillar cutting to check fall of roof and sides'; these measures were seen as the most assured resolution to the threat of collapse and fires, which accounted for a little more than half of the total accidents. For reducing the loss of life and injury to workers, they highlighted the need for a general supply of boots and fibre or steel helmets (in place of the bamboo hat). Despite the suggestion made by Simpson in 1924, these were supplied only to managerial and supervisory staff until 1961–3. Similarly, a programme of mass training for rescue operations would help bring down the scale of casualty, as S. K. Bose, General Secretary of the Indian Colliery Labour Association (ICLA), suggested to the Burrows Committee. Such technical and technological proposals were marked by plebeian insights and were not always taken up by the authorities. The necessity for education and training of all adult members of

⁵² 'Evidence of the Indian Mine Mangers' Association' and 'Evidence from National Association of Colliery Managers' to the *Burrows Coal Mines Committee*, Vol. II. 'Evidence from Indian Mine Managers' association' and 'Evidence from The National Association of Colliery Managers' to the *Mahindra Coal Commission*, Vol. II.

⁵³ Whitely, *Report*, Vol. II, 144–7.

⁵⁴ Mahindra, *Report*, Vol. II, 298.

the mining community was another area for improvement that failed to receive a concrete response till as late as 1975.

Coal-workers, however, recognized the necessity of taking up the safety question beyond established technological, bureaucratic and managerial exercises. They now began to lobby for the cause in the legislative domain and organise representations and agitations for the implementation of accident-control measures and for publicizing negligence. Faced with a lukewarm response from employers and the state about their demand for universal education and training, the labour associations began, from 1926 onwards, to hold weekly lantern lectures for ordinary colliers on questions of trade unionism, sanitation, housewifery, health and safety measures.⁵⁵ These popular lantern lectures seemingly contributed to the rise of a number of *chhalak* colliers.

Their politics of safety emphasized links between safety and the necessity of a better working and living condition. Most labour advocates believed in the 'Labourite' politics and stressed on the principle whereby 'the interest of labour is the interest of industry'. As they argued, for a settled, experienced and efficient mining community, living and working conditions should be improved. Their demands included improved wage rates, housing and water supply, reduced working hours, paid leave and social insurance (sickness, old age and maternity benefits), as well as arrangements for ventilated working faces, adequate supply of tubs and other safety materials. In particular, they emphasized that a short and delayed supply of basic appliances like coal tubs, timber and safety lights caused long and fatigued workdays, and consequently miners rushed to finish a day's task, such as loading of, on an average, 2–3 tubs in a pair. Such work behaviour resulted in negligence and misadventure. The practice of non-payment of wages or imposition of fines for any under-loaded tub and the low wage rate also played a role in forcing miners into risk-taking work behaviour.⁵⁶ S. K. Bose reported in detail to the Whitely Commission on forced labour or advance (*dadán*) based attached labour, popularly known as *Bandhua Majdoori*. Under the *dadán* system, the *sirdar* (recruiter) made deductions from wages for paying off the advance that the recruit had taken, and insisted on a regular submission of *salami* (6–8 paisa per tub or rupee of earning) to the *sirdar*. Some proprietors exploited zamindari rights and service tenancy to fleece the service tenant to perform work for long hours in collieries. *Sarkars*, or supervisory staff, like overmen and tub distributing and checking *munshis* (clerks), were interested in gains of a few pennies from over-loading or from the cancellation of payment for under-loading.

⁵⁵ 'Evidences from P. C. Bose, B. Mitter, S. K. Bose (clerical staff), Shani Cheria (women miner), Chotan Kora (miner) and Gobinda Gorai (pumpman), members of the Indian Colliery Employees Association, Jharia', *Whitely Report*, Vol. II, Pt. I & II.

⁵⁶ *Whitely Report*, Vol. I, 184–91 and Vol. II, Pt. I, 145–7.

Coercive labour practices also impinged on the performance of safety supervisors, who were themselves subject to 'authoritarian' work relations defined by abuses. The mining *sirdar* was often charged with responsibility for more than one gallery. As a remedy, S. K. Bose and Mitter demanded employment of separate safety staff who would not be saddled with production tasks, and for deployment of separate and trained shot-firers. Staffs were inadequately paid, and truculent personnel were dismissed on flimsy grounds for inability to conform. Indian staff were subject to change upon a change of management, and the new management favoured substitution of Indians by Europeans. 'Justice is non-existent, and fairness is guided by self-interest ... the palatial manager looks down upon down-trodden, clerk, and overman.'⁵⁷ They, therefore, suffered from a sense of job insecurity and demoralization. Consequently, they had little commitment towards work. Labour publicists raised the following points before the government:

[F]or any real improvement in the delivery of performance, the relation between superior staff and labour must improve. Racial discrimination must be abolished. Recognition of qualification must replace favouritism. Justice and fairness must be more than lip-deep. The mining person should be better paid, and the legislation for reduced working hours and paid leaves rules should be framed.⁵⁸

Likewise, the colliery manager, especially of Indian origin, protested autocratic work relations:

The colliery proprietor makes undue interference in the working of mines for cost-effective mining and compromises with the necessity of scientific method. A commitment to principle is meant the loss of favour and replacement. They are inadequately rewarded and placed in little reassuring social condition. For efficient and rational management, the manager deserves full facilities and reasonable salaries and amenities, for enabling him to discharge of all those statutory responsibilities and obligation.⁵⁹

With time, Indian proprietors and managers became predominant. Consequently, the initial grumbling of native managers gave way to the idea of the defence of private ownership. 'The remedy for conservation lay in the nationalization of mines' was no longer their recommendation. In contrast, European managers suggested that the 'need is for a strong association of technical men'.⁶⁰ They opposed the official proposal of regulating mining methods since it meant 'an excessive interference in the working of mines and management; rather, proper

⁵⁷ *Whitely Report*, Vol. II, Pt. I, 193–4.

⁵⁸ *Ibid.*

⁵⁹ *Burrows Report*, Vol. II, 20.

⁶⁰ 'Evidence from Indian Mine Managers' Association' and 'The national Association of Colliery Managers' to the *Mahindra Report*, Vol. II, 276; 'Evidence from the Indian Mine Managers' Association' and 'Evidence from National Association of Colliery Managers' to the *Burrows Report*, Vol. II.

remedies to the problem of wasteful mining method lie in the increased powers of the manager so that he can successfully withstand the demands of owners'.⁶¹

The third strand on workers' safety views concerned the politico-legal structure of the industrial system. 'Prevention is better than cure' was their strategic principle. For protective legislation and safety regulations, they argued that 'substantive labour representation in the legislative process is needed.'⁶² P. C. Bose (a colliery doctor), S. K. Bose and Mitter demanded the participation of labourers at the level of the Inspectorate. 'Some of them [Inspectors] should be chosen by labour unions. Accuracy in figures of statistics ... can only be obtained by regular inspection and investigation conducted in collaboration with the labour unions.'⁶³ By the 1930s, the stark experience of the failure of the Inspectorate led S. K. Bose to canvass for a direct role of labourers in addressing the problem. He demanded that labour representatives should be allowed to conduct an inspection on their own and draw the attention of the inspectorate towards lapses and exigencies:

The rules, Regulations, Bye-laws and Temporary Regulations, if followed in proper spirit, are quite adequate. ...but they are of no use unless they are actually adhered to in reality than in paper. We hold that unless some Trade Union officials are allowed to inspect the mines and report directly to the Mines Department about the observance of the laws, the Mines Department with their best efforts cannot humanly detect all the violations.⁶⁴

It is evident that Bose's call for the direct involvement of labourers' representatives in inspection took a cue from the recent legislative development in Britain. However, it faced stiff resistance from colliery owners as well as indifference on the part of the Mines Department in India. By the 1940s, some reformers were convinced that resistance from industrialists, contractors and managing agencies to the working of remedial and protective legislative measures needed to be overcome. They argued for state ownership (nationalization) and socialization of the industry. Initially, they had found fault with the contract system in the industry:

The contract system is the evil responsible for all problems such as extracting maximum works at the minimum cost, and skewed work relations are its governing principle. This system should be abolished; the company should be responsible for the employment of and payment to miner, managerial and other safety staff, known as *Sarkari* system.⁶⁵

Agreeing with the new proposition advanced by P. C. Bose, S. K. Bose argued in 1930 that 'given the necessity of rationalization of the industry for scientific mining, for protection of coal and labour as two 'national assets', the mines will have to be nationalized as a way to keep alive this industry'. He, however, vacillated over the issue. In contrast, by the late 1930s, P. C. Bose and C. Bhattacharya

⁶¹ *Ibid.*

⁶² *Whitely Report*, Vol. II, Pt. I, 147; *Burrows Report*, Vol. II, 25.

⁶³ *Ibid.*

⁶⁴ *Burrows Report*, Vol. II, 25.

⁶⁵ *Whitely Report*, Vol. I, 181-91.

insisted upon the necessity of ‘socio-political takeover of the means of production as a means to effect recommendation of the fact-finding committee’.⁶⁶ Unlike the ideas shared by H. K. Nag, M. S. Krishnan and H. C. Mookerjee on state control, ideas of nationalization advocated by P. C. Bose and Bhattacharya meant socialization rather than a nominal state take-over.⁶⁷ Further, S. A. Dange, vice-president of AITUC, described Indian mines as ‘Death Pits’ and saw ‘nationalization as a way out’ to effect rationalization.⁶⁸ Furthermore, with their varied views on the desirable form of politico-legal structures, they adopted different political practices. S. K. Bose, P. C. Bose and Mitter represented the nationalist movement under the aegis of the Congress Party, while Bhattacharya and some others were, for long, vanguards of communist politics.

Withdrawal from Danger

Safety resolutions articulated by the mining classes were comprehensively evolving and were not merely imbibing the official safety concerns. In the period up till the early 1950s, however, these insights were of practical importance at the level of legislation, educational propaganda, and mobility between the workplaces. In their collective action, the emphasis was on questions of bread and butter, social insurance and labour rights: the issues of wages, working hours, compensation and fair treatment. This was an expression of their overriding concerns for *pet* (bread and butter) and *izzat* (dignity and rights), as Bakshi Da (a doyen of the labour movement) reported. Responding to a question as to the timidity of the safety movement, he said without any reservation:

[T]he keen concerns of those colliery struggles were the security of *Pet* and *Izzat* regarded tantamount to the upgradation of life to the status of *Aadmi* (politico-social humanness embodied being) and improvement over the afflicted status of *Bandhua Mazdoor* (attached/forced labour) akin to cattle in the contemporary fields... Somewhere, in such paradigmatic colliery movements, the issue of security from occupational risk failed to receive due attention and political energy.⁶⁹

The pronounced tendency in their safety politics was to address the issue of accident-control in terms of a ‘social insurance’ question and a matter of ‘statutory regulation’. It meant that every agitation over accident-control issues involved only certain individuals.

⁶⁶ Dept. I&L, 1936: M-1055 (120); ‘Memorandum of the All India Mine Workers’ Federation (affiliating All Mines Mine Workers’ Unions under AITUC)’ to the *Mahindra Commission*, Vol. II.

⁶⁷ ‘The Dissent note of Nag and Krishnan as part of the Burrow’s Committee’, Vol. I; Dr H. C. Mookerjee, ‘Accidents in Coal Mines’, *Hindustan Review*, December 1945.

⁶⁸ S. A. Dange, ‘Death Pits in Our Land: How 200,000 Indian Miners Live and Work’, Pamphlet shared at Miners International Federation Conference, Paris. August 1945.

⁶⁹ Interviews with Bakshi Da, at his residence in Jharia Town, 20 March 2008. Bakshi Da (a communist labour-unionist and member of the CITU) was a science teacher in one of the Jharia higher secondary schools since the 1950s; he began to air the grievance of the mining people from the early 1960s.

As the unbridled series of disasters and serious accidents grew, the faith that the miner had reposed in the Inspectorate dissipated. The function of the Inspectorate faced a setback in 1957–8, when the labour association categorically opposed the presence of G. S. Grewal (Chief Inspector of Mines) in the court of enquiry that was formed to investigate the disaster that occurred in Central Bhowra Colliery. The Court of Enquiry attributed the prime responsibility to the owner, but let the ‘under-staffed’ Mines Department go free for failing to exercise preventive power. The finding did not satisfy the mining community. Jaipal Singh, a Member of Parliament from Chhotanagpur appointed as the assessor in the Court of Enquiry, argued against the observation made by the Chair of the Enquiry Court. In his separate declaration, he unequivocally blamed the Mines Department for ‘letting regular violators go free and not vigorously enforcing the rules’.⁷⁰

Certain instances occurred where the colliery populace *gheraoed* (barricaded) the management office and assaulted the ‘guilty’ and ‘irresponsible’ official in order to seek instant [popular] justice.⁷¹ On some occasions, coal-cutters and loaders refused to continue work when they faced an unsafe workplace—the presence of firedamp, inflammable gas, other noxious gases and inadequate oxygen, and inadequate supplies of timber and other supporting material. They went on sit-ins in the gallery until remedial measures were arranged. Such direct action for the right of withdrawal of labour from unsafe workplaces became possible in the aftermath of the approval of their demand by the Mazumdar Colliery Dispute Award in 1956, related to the payment of a minimum wage in case the work was not done due to no-fault of mineworkers. The Mazumdar Award was a product of the policy of the national government, which aimed to secure an experienced, stable and contented industrial workforce. The organized mineworkers called for sit-ins when they were unionized and united.⁷²

These spectacular events of withdrawal from the terrible workplace and assertion for popular instant justice caused panic in certain quarters of the Inspectorate and the management. However, these resulted in the reduction of serious injury from the 1960s (Figure 1). Two Safety Conferences involving employers, labour representatives and the Inspectorate took place in August 1958 and in April 1966. They emphasized the need for education and training of mineworkers, and workers’ participation in safety management through the deployment of workers’ inspectors and pit safety committees. Employers rebuffed the proposals but eagerly participated in the programmes of safety exhibition and screening of safety films. Their approach was similar to what the Chamber of Mines practised in South Africa since 1956.⁷³ The mining classes described it as conservative

⁷⁰ Grewal, *ARCIM*, 181.

⁷¹ Interviews with Amulya Mali. He joined the colliery during World War II. He worked as a pumpman and settled in the Industry Colliery *bastee*. I shared his residence during my oral historical survey.

⁷² Interviews with Ravidas

⁷³ V. I. Allen, *The History of Black Mineworkers in South Africa, vol. II: Dissent and Repression in the Mine Compounds 1948–1982* (London: The Moore Press, 2002), 176–9; Leger, ‘Talking Rocks’ and Stewart and Nite, ‘From Fatalism to Mass Action’.

when compared to the new rights granted to the British mineworkers in the aftermath of nationalization. Kanti Mehta, General Secretary of the Indian National Mineworkers Federation, held slick formalism responsible for too little, too slow improvement:

[T]he work done by National Council for Safety in Mines is extremely useful, yet much concrete work at pits levels will be necessary for ensuring better and safer working conditions. We had warned that mere formation of Pit Safety Committee will not promote safety—the national council for safety should see that they function effectively and workers' participation in the promotion of safety is encouraged. ...cases of accidents should be analysed at pit levels, and steps should be taken to see that such accidents are avoided in future...that money spent in outward expressions or exhibitions was used as a cover for saving expenditure required for creating better and safer working conditions in the mines.⁷⁴

The mining classes embodied an evolving tacit knowledge and combined it with specific formal knowledge in their organized politics. This was the substructure of their quest for a participatory mechanism for prevention and protection.

Conclusion

Our findings contradict the employers' discourse that mineworkers were ignorant, illiterate and/or agriculturists, and were hence reckless. Our discussion suggests that the historiographies which argue that Indian workers 'knowingly acquiesced' to unsafe mining and sought merely 'ephemeral relief' fail to sufficiently elaborate the understanding of workplace risk and safety ideas shared by workers and their strategic calculations in the related struggles. Indian mineworkers, indeed, strengthened the safety campaign through their strategic manoeuvring in legislative and workplace struggles as did their fraternity in Britain and elsewhere. They increasingly attained a mining sense and made use of it, thereby surviving the terrible working conditions, and seeking to mend the accident-control measures. The formation and function of their mining sense and safety-cum-health action were neither pre-given nor static. It was part of the industrialization process involving mineworkers' particular ways of adaptation—whether quixotic or prudent—to the demands made by work relations. They maintained the trial-and-error principle and benefited from both autodidactic and didactic exercises.

The organized political workers put faith in legislative measures, going beyond the voluntary codes of discipline, and practical and technological solutions. They sought informed safety-supervisory controls, even while the common coal-workers defiantly asserted autonomy in the workplace. Their unions got involved in 'civic engagement' with such colonial, and later independent India's, investigators and

⁷⁴ K. Mehta, *The Report of Indian National Mineworkers Federation (INMWF) for the Year January 1965 to March 1966: Deaths in the Service of the Country* (Calcutta: INMWF Publication, 1966), 26–72.

legislators who were agreeable to them. However, preoccupation with ‘social insurance’ dominated the safety-cum-health action undertaken by workers. Confronted with the limits of such measures owing to the scant cooperation from industrialists, the rank-and-file moved to direct action in the very mining faces, thereby insisting on the right to withdrawal from danger from the latter 1950s. Simultaneously, they agitated for the participatory safety mechanism. This shift in their safety consciousness and endeavours was itself a response to increasing opportunities for achieving financial security and reflected their growing awareness of broader public sympathy. This meant a call for bridging the gap between the new gains of mineworkers on the British coalmines, on the one hand, and, on the other hand, the ‘death pit’ in India.

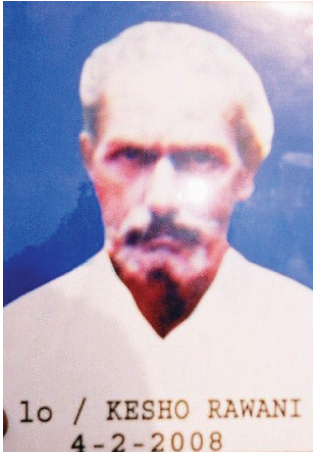
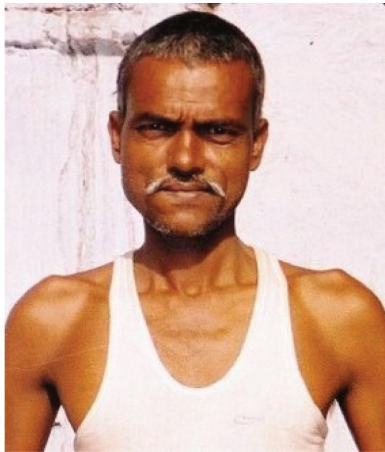
Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

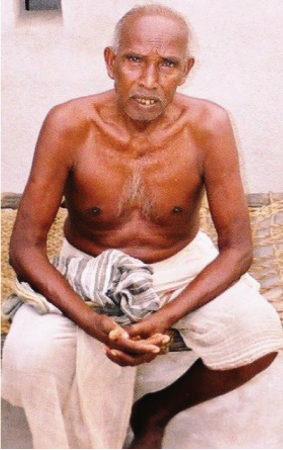

The author received no financial support for the research, authorship and/or publication of this article.

Appendix

Photograph I	Photograph II
	
Kesho Rawani	Shyamnarain Rawani

(continued)

Appendix (continued)

Photograph III	Photograph IV
	
Karpoo Rajwar	Balchandra Ravidas

Replacing Silence with Speech

Wartime Sexual Violence in Sri Lanka

SHUBHRA NAGALIA

We live in a time when sexual violence has come to occupy front page news and is being discussed in all domains of life, from academia, media, and politics to the film industry. Yet, some forms of sexual violence remain unspeakable. The edited volume, *The Search for Justice: The Sri Lanka Papers* is a work that compels us to rethink the idea of sexual violence, speakable and unspeakable, and make visible those dark corners that only get the spotlight when grotesque and mass violence takes place in what has habitually come to be called conflict areas. This book is one in a series of eight on sexual violence and impunity in South Asia published by Zubaan, Delhi. It takes stock of post-war Sri Lanka and the state's failure to redress and heal the wounds of survivors of wartime brutal violence.

The shared yet differing emphasis of each volume produced through the combined initiative suggests taking into account different types of violence that have come to be gathered under the broad umbrella of sexual violence. The volume suggests that sexual violence has to be understood not only as a continuum of

The Search for Justice: The Sri Lanka Papers
edited by Kishali Pinto-Jayawardena and Kumari Jayawardena, Delhi: Zubaan, 2016; pp 434, ₹850.

violence in its banality and routine violations that women and non-normative gendered persons undergo on a daily basis; we need to declutter and revisit the concept to be able to take into account the specificity of the violence enabled by cultures of impunity and militarisation. The silence and invisibility due to the normalisation of many instances of daily rapes and sexual violence makes the task of seeking justice not just that of reforming, but also that of transforming the social and cultural fabric of our societies.

Impunity and Sexual Violence

The book evaluates the successes and limitations of the fight of women's movements for setting up and implementing redressal mechanisms which may effectively give justice to the survivors of sexual violence in the specific context of post-war Sri Lanka. The seven chapters of the book discuss major themes pertinent to survivors seeking justice, which is also an overview of the fraught journey of women's movements towards this

endeavour. Although the book takes into account the specificity of the Sri Lankan context of wartime and banal instances of sexual violence, it sets up this discussion on a broader tapestry of intertwined histories of countries that come under the rubric of South Asia.

The book begins with an introduction from the series editors to South Asia's shared culture of impunity and sexual violence. The introduction marks the trend of rising instances of sexual violence and the prevalence of silence with regard to it. They find a shared culture of impunity to perpetrators provided by an active collusion of states across the region. The editors ask if these conditions are specific to the South Asian region. Internationally, there is a rising awareness of the need to recognise rape, especially during conflict situations, as a crime against humanity. Then what makes South Asia more resistant towards discussing and accepting rape and sexual violation as a central part of our understanding and definitions of crimes against humanity?

The ongoing discussions of feminists and human rights activists get a fresh impetus and energy in the aftermath of many movements, and get a significant recognition of sexual violence by the judiciary and the state across South Asia. The Occupy Baluwatar movement in December 2012 in Nepal that had issues of sexual violence and impunity at its centre, nationwide protests and rape law reforms following the brutal gang rape of a woman in a bus in Delhi in December

2012, an unprecedented judgment by the Jaffna High Court sentencing four soldiers to “25 years of rigorous punishment, compensation and reimbursement of legal fee for the 2010 gang rape of a woman at a resettlement camp” (p xi), and a popular students’ movement called the Shahbag movement demanding justice for war crimes in Bangladesh that culminated in a gazette notification recognition in 2015 of 41 war heroines for their contribution in the country’s liberation are some of the significant moments that travelled across South Asia sharing their energies and deepening the discussion on sexual violence. Assigning culpability and demanding accountability have been fraught and crucial issues underpinning the demand for justice for women’s movements across South Asia. They have also been the basis for setting up the discussion of sexual violence in the intertwined histories of nations and cultures across South Asia.

The main title of the volume, that is, *The Search for Justice* draws attention towards one of the main struggles of the women’s movement and indeed of

feminist theorisation. Making visible the trauma of sexual violence, difficult as it is, remains inadequate without addressing the (im)possibilities of getting justice. Recognition of suffering and grief in situations where speech itself is censored is surely important and has gone some way towards healing the wounds. However, often the very measures seeking justice that activists have fought for, have replicated the trauma as survivors are compelled to open those wounds again and again in public. It is a process that remains an exception rather than a norm; involves a long duration and often ends shatteringly for the survivors without resulting in justice. The elusivity of sexual in the violence encountered has kept justice an intransigent possibility. It is the hope to pin down this elusiveness of sexual violence that runs as a thread through the book.

Kishali Pinto-Jayawardena and Jeanine Guthrie introduce the specific post-war Sri Lankan context of the volume. They stress the point that it is crucial to keep in mind the pervasive culture of patriarchal violence sanctioned by the

communities themselves that lend to and consolidate a culture of impunity. Failure of the formal justice system and sanctioned sexual violence by communities promote a culture of silence “with regard to sex in Sri Lanka—violent or otherwise” (p xxiii).

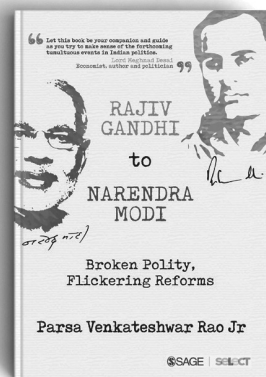
Prolonged armed conflict has been traumatic not only on account of the violence it enabled, but it also led to wide scale displacement, separation of families and large scale loss of livelihood. This makes the struggle of Sri Lankan women multifaceted and complex in a sexually risky and vulnerable environment with attendant implications such as rise in domestic violence across the nation. In such a situation, how do we imagine truth and justice processes that can adequately ensure an informed participation of the survivors and their families, will prioritise the restoration of their dignity and empowerment, handle fractured memories, contradictions and silences (p xxx).

The first chapter is an overview of the global discourses of justice for survivors of multifaceted violence in armed conflict situations and evaluates the specific

Explore a tailor-made reading list for politics enthusiasts

₹ 450

An engaging summary of the political reforms of the last 34 years



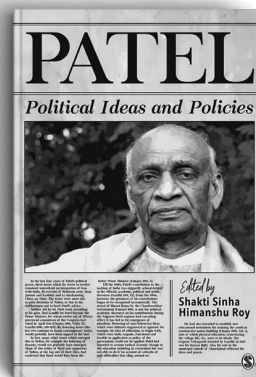
For the first time, the political story of India from the mid-1980s to the second decade of the present century is reconstructed through the first-person narratives of political leaders. The book shows that the first draft of history is found in the words of politicians in parliament and in the government. It captures the immediacy of history-in-the-making, and the palest platitudes of politicians that acquire rare poignancy.

PB • 978-93-532-8298-1

SAGE | SELECT

Perspectives on liberal democracy, nationalism and the state

₹ 895



This book comprehensively presents the different facets of Sardar Patel’s political life, his ideas and their applications. The book provides a detailed analysis of his perspectives on liberal democracy, nationalism and the state. Patel’s role was decisive to the consolidation and the very survival of India as a nation. It is based on the collected works of Patel and attempts to fill in the gap created by the absence of any significant academic work on his life and work.

HB • 978-93-528-0853-3

Order now to get **20% OFF!**

Write to marketing@sagepub.in with priority code EPW19

www.sagepub.in

condition of the justice system and its possibilities in Sri Lanka. A significant concern in the search for justice is the issue of breaking the silence and as Germaine Greer (2018) put it, “The victim who takes over her narrative becomes a survivor.” How would that silence be broken is crucial, especially in a situation of intersecting vulnerabilities and prolonged militarisation of daily life. Chulani Kodikara and Sarala Emmanuel question the “privileging of disclosure over silence” which is not only a complicated decision for survivors or witnesses to the violence but it also means that the trauma is relived in public with a further erosion of dignity. Therefore, they underline the importance of rethinking accountability which must take account of “diversity of meanings” (p 25) for the concerned survivors. They suggest the strengthening of feminist practices of “circles of sharing in which the silence around sexual crimes may be broken” rather than only holding on to the assumption that breaking the silence means a public disclosure with legal justice as the redressal mechanism.

Doubting the Witness

Tainted Witness brings a feminist perspective to bear on how women’s witness is discredited by a host of means meant to taint it: to contaminate by doubt, stigmatise through association with gender and race, and dishonour through shame, such that not only the testimony but the person herself is smeared (Gilmore 2017: 2).

Chapters 2 and 3 systematically review the possibilities of justice from formal legal mechanisms. They draw attention to the foundational violence of legal discourses and processes that consolidate the culture of state impunity and create a crisis of legal indeterminacy. Pinto-Jayawardena and Kirsty Anantharajan remind us that while sexual violence by state actors was largely manifested “as brutalized treatment of the ethnic other,” it was important to remember that sexual crimes are embedded in a larger narrative: one that pre-dated the war and continues in the post-war scenario” (p 37). They also point to the practice of Tamil men being raped as part of torture in custody by state actors and that this issue still remains a taboo subject. They

celebrate the bravery of women for their act of speaking out which “transformed their story into a different rendering of the hopelessness which normally prevails” (p 49). They discuss at length the gaps and anomalies in the legal system which clearly demonstrate the disconnect with women’s lived experiences of rape and require the survivors to perform the stereotype of the credible rape victim which simultaneously paints the incredible rape victim as a predator. The constant denial and ridicule of women’s suffering and sexual crimes by the state in international fora, the courts not serving their truth-telling function, and a breakdown of rule-of-law creates the climate of legal indeterminism (p 115). They underline the need to consider the theory of intersectionality to acknowledge and understand Sri Lankan women’s struggles and the psychosis of fear stalking them.

The inadequacy of the legal system is compellingly illustrated by the late young feminist activist and scholar Priya Thangarajah (Chapter 3). The survivor’s narrative within legal requirement is often met with doubt eroding the hope for justice and undermining the fragile dignity of her existence. Pointing to the deeply flawed evidentiary process, Thangarajah asks, how was it possible within this system “to take into account the inability to speak of the violence? And second, where in this process was there space for trauma and the resulting difficulty in forming a linear narrative” (p 174)? She challenges the notion of evidence itself which draws upon authority and techniques of science. She asserts, “This legal truth, combined with scientific truth, negates all other forms of truth telling” (p 180). The compulsion to produce a credible witness, if she is a woman, is especially difficult as, “women encounter doubt as a condition of bearing witness” (Gilmore 2017: 20). Thangarajah asks us as feminists to argue for applying the same standards to sexual offences during exceptional times and in its banality which may provide a space within the legal system giving a respite to women from evidentiary processes. The stringency of legal requirements and a tolerant silence around sexual violence has a long distressing history of what

Greer (2018) calls non-consensual sex which is banal, deeply ordinary and happens on an unimaginable scale.

Rohini Mohan (Chapter 5) also underlines the fear of rape as a result of prolonged militarisation and consequent discourses of human security that render women as objects of protection or rescue. The various sightings of indeterminate tall apparitions which attacked women was described by many women as ghost, *grease yaka* (demon figures in Sinhalese and Buddhist folklore) or devil was an embodiment of “the creeping, intangible nature of fear, helplessness and impunity” (p 243). It foregrounded the continuing trauma of post-war survivors due to the close proximity of military complexes to Tamil and Muslim villages. As Greer (2018) argues, “The most catastrophic shock must surely come when, as far too often happens, the jury does not convict.” The Sri Lankan security forces were the new face of the military state and had been deployed in large numbers by the Rajapaksa government to rebuild the war-torn economy. Living daily in this environment cannot be understood in terms of trauma as described by PTSD (Post Traumatic Stress Disorder) literature. Mohan discusses how the post-war violence has intensified due to state oppression as well as community insecurity and women have had to modify their behaviour to avert the possibility of rape. The associated social stigma faced by former female combatants by being labelled a prostitute and the systemic silence around sexual violence perpetuates it further.

Intersectionality as Politics

When an intersectional analysis takes women’s lived, embodied experience as paradigmatic, focused less on identity than on structural inequalities of gender, caste, religion and sexuality, it does so as politics and methodology (Gilmore 2017: 13). Although all the chapters advocate intersectionality as a methodology, the focus on Muslim women and former women combatants in Liberation Tigers of Tamil Eelam (LTTE) foregrounds its political charge.

Farzana Hanifa (Chapter 4) adds the much needed focus on sexual violence faced by Muslim women in Sri Lanka, an

area that otherwise suffers from paucity of literature. Sexual violence and regulation is inflicted both by the militant Tamil assertion and a renewed aggression of a vulnerable Muslim masculinity within the household and public spaces policed by the community men themselves. The public articulation of Muslim masculinity is shaped by the prolonged militarisation and a history of precarious and subservient relationship of Muslim leadership to their Sinhala counterparts. It entails that “imposing a quiescent form of masculinity on the Muslim leadership has been a constant throughout Muslims’ post-colonial political history” (p 203). Such a quiescent and vulnerable masculinity has resulted in hyper-authoritative maleness at home and grants impunity to young men to regulate and keep their women under a constant male scrutiny.

Sivamohan Sumathy (Chapters 6 and 7) takes the discussion to the messy walk to freedom which entails a quest for survival on which is premised the quest for justice. This also demands reflexivity from researchers who must bear in

mind the “epistemological premises of our endeavour of researching violence against women, sexual violence in a time of conflict” (p 297). Marking the failures and inadequacies of legal justice, Sumathy moves the discussion to alternative ways of understanding justice and truth-telling which have a transformative meaning of the social and the material. She brings together the linkages between mother, earth and country in a war that “at its most basic level was about land” (p 303) and displacement which is an endless cycle of exchanging one set of terror for another. What does it mean to talk about agency of individuals when an entire collectivity has lost its sense of self and agency? Sumathy problematises the territorial nationalism of Tamils which framed Muslims as the other and drove them out of their homes. She also explores the patriarchal moralities of the militant organisation of the LTTE which entailed strictures and sexual containment much to the approval of the larger Tamil community. She sees the LTTE as a state formation which is also morally conservative

in accordance with the conservative norms of the Tamil society. Therefore, the reluctance to seriously engage with an examination of the LTTE is underscored by a reluctance of Tamil polity examining itself within the prism of its own existence. Tamil nationalism imbricates gender in an identification of woman and land, territory and nation with its attendant discourses of chastity, betrayal and traitors.

If surviving is the condition of justice, living a woman’s life makes the search for justice more elusive, challenging and at the very least demands a complete transformation. The wisp of a wish resonates amidst dark hopelessness as the book ends with “Jesus Is Not There.”

Shubhra Nagalia (shubhra@aud.ac.in) is with the School of Human Studies, Ambedkar University Delhi.

REFERENCES

- Gilmore, Leigh (2017): *Tainted Witness: Why We Doubt What Women Say About Their Lives*, New York: Columbia University Press.
Greer, Germaine (2018): *On Rape*, Australia: Melbourne University Press.

from PRIMUS

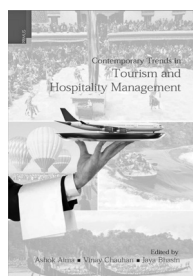


Cross-Cultural Management Practice and Research

edited by Neelu Rohmetra & Anil Gupta

This volume focuses on issues such as competencies, communication, tacit knowledge, entrepreneurial attitudes across cultures, multicultural work teams, and models of organizational learning and crossvergence.

978-93-80607-71-9 • 304 pp. • 2014 • HB
₹ 1495 • \$ 69.95 • £ 46.95

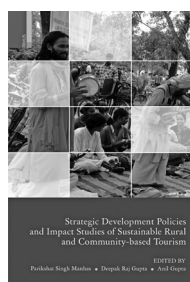


Contemporary Trends in Tourism and Hospitality Management

edited by Ashok Aima, Vinay Chauhan
& Jaya Bhasin

This volume presents an integrated approach to tourism development, focusing on sustainability and authenticity of tourism experiences as effective responses to changes in tourism patterns and relationship matrix.

978-93-80607-72-6 • 202 pp. • 2013 • HB
₹ 895 • \$ 59.95 • £ 39.95

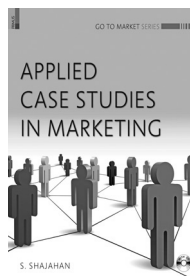


Strategic Development Policies and Impact Studies of Sustainable Rural and Community-based Tourism

edited by Parikshat Singh Manhas, Deepak
Raj Gupta & Anil Gupta

This volume will broaden the prospects of various levels of the tourism industry that are developed or are developing at local, regional, national, and international levels.

978-93-80607-61-0 • 296 pp. • 2014 • HB
₹ 1095 • \$ 59.95 • £ 39.95



Applied Case Studies in Marketing

S. Shajahan

This book is an example of the new content that is needed in marketing curriculum, introducing young MBAs to new material and different ways of viewing the traditional content.

978-93-80607-11-5 • 590 pp. • 2011 • PB
₹ 649 • \$ 79.95 • £ 52.95 (with CD)

Virat Bhavan, Commercial Complex, Mukherjee Nagar, Delhi 110009 • Tel.: (011) 47038192 • Fax: (011) 47038099
publicity.primus@ratnasagar.com • www.primusbooks.com


Available with all major booksellers and online retailers

Primus Books

An imprint of Ratna Sagar P. Ltd.



Generalized derivations and commutativity of prime Banach algebras

R. K. Sharma¹ · B. Prajapati² 

Received: 7 December 2015 / Accepted: 12 July 2016
© The Managing Editors 2016

Abstract In this article we study various conditions on a unital prime Banach algebra that ensure its commutativity. More specifically, we prove that a unital prime Banach algebra A with a nonzero continuous linear generalized derivation g associated with a nonzero linear continuous derivation d satisfying either $g((xy)^n) - d(x^n)d(y^n) \in Z(A)$ or $g((xy)^n) - d(y^n)d(x^n) \in Z(A)$, for sufficiently many x, y and an integer $n = n(x, y) > 1$ is commutative.

Keywords Prime Banach algebra · Generalized derivation · Left multiplier

Mathematics Subject Classification 16W25 · 16N60 · 46J10

1 Introduction

The symbol A shall denote a Banach algebra over the complex field \mathbf{C} with unity e . The symbols $Z(A)$ and M will denote the center and a closed linear subspace of A . An algebra A is said to be prime if for any $x, y \in A$ such that $xAy = 0$, either $x = 0$ or $y = 0$. An additive mapping $d : A \rightarrow A$ is said to be a derivation if $d(xy) = d(x)y + xd(y)$ and $d(cx) = cd(x)$, for all $x, y \in A$ and for all $c \in \mathbf{C}$. An additive mapping $g : A \rightarrow A$ is said to be a generalized derivation associated with a derivation d if $g(xy) = g(x)y + xd(y)$ and $g(cx) = cg(x)$, for all $x, y \in A$

✉ B. Prajapati
balchand@aud.ac.in

R. K. Sharma
rksharma@maths.iitd.ac.in

¹ Department of Mathematics, Indian Institute of Technology Delhi, New Delhi 110016, India

² School of Liberal Studies, Ambedkar University Delhi, Kashmere Gate, Delhi 110006, India

and for all $c \in \mathbf{C}$. An additive mapping $T : A \rightarrow A$ is said to be a left multiplier if $T(xy) = T(x)y$ and $T(cx) = cT(x)$, for all $x, y \in A$ and for all $c \in \mathbf{C}$.

Yood (1991), has shown that if A is a unital Banach algebra and $n = n(x, y) > 1$ is a positive integer such that either $(xy)^n - x^n y^n \in M$ or $(xy)^n - y^n x^n \in M$ for sufficiently many x and y , then $[x, y] \in M$. Ali and Khan (2015) have shown that if A is a unital prime Banach algebra with nonzero continuous linear derivation $d : A \rightarrow A$ such that either $d((xy)^m) - x^m y^m$ or $d((xy)^m) - y^m x^m$ is in the center $Z(A)$ of A for an integer $m = m(x, y) > 1$ and sufficiently many x, y , then A is commutative. In this article we extend these results for a generalized derivation. Let $p(t) = \sum_{i=0}^n a_i t^i$ be a polynomial in real variable t with coefficients in A . As mentioned in Yood (1991), if $p(t) \in M$ for infinitely many real t then each $a_i \in M$.

For a derivation d on a prime ring R , Posner proved the following result:

Lemma 1 [Posner (1957), Theorem 2] *Let R be a prime ring and d be a nonzero derivation of R such that $[d(x), x]$ is in the center of R , for all $x \in R$. Then R is commutative.*

Many other authors have generalized Posner’s result in several ways for rings and algebras (see Bell 1999; Brešar 2004; Herstein 1961; Vukman 1992; Yood 1984, 1990, where further references can be found). One of the generalizations of Posner’s result by Lee and Lee is of our interest:

Lemma 2 [Lee and Lee (1983), Theorem 2] *Let d be a nonzero derivation on a prime ring R and U be a lie ideal of R such that $[x, d(U)] \subseteq Z(R)$. Then either $x \in Z(R)$ or $U \subseteq Z(R)$.*

Ashraf and Ali have given a relationship between the commutativity of a ring and its left multipliers (see Ashraf and Ali 2008). In this article we also find a connection between the commutativity of a prime Banach algebra and its left multipliers.

2 Main results

Theorem 1 *Let A be a unital prime Banach algebra and $g : A \rightarrow A$ be a nonzero continuous generalized derivation associated with nonzero continuous derivation d on A such that $g(e) \in Z(A)$ and $d(g(e)) \neq 0$. Suppose that there are open subsets G_1 and G_2 of A such that either $g((xy)^n) - d(x^n)d(y^n) \in Z(A)$ or $g((xy)^n) - d(y^n)d(x^n) \in Z(A)$ for each $x \in G_1$ and for each $y \in G_2$ and an integer $n = n(x, y) > 1$. Then A is commutative.*

Proof Set

$$f(x, y, n) := g((xy)^n) - d(x^n)d(y^n)$$

and

$$h(x, y, n) := g((xy)^n) - d(y^n)d(x^n).$$

Let $x \in G_1$ be an arbitrarily fixed element. For each positive integer n consider the set $U_n = \{y \in A \mid f(x, y, n) \notin Z(A), h(x, y, n) \notin Z(A)\}$. We show that U_n is open by showing that its complement U_n^c is closed. Let (s_k) be a sequence in U_n^c such that $\lim s_k = s$. Since $s_k \in U_n^c$ we have either

$$h(x, s_k, n) = g((xs_k)^n) - d(x^n)d(s_k^n) \in Z(A) \tag{1}$$

or

$$f(x, s_k, n) = g((xs_k)^n) - d(s_k^n)d(x^n) \in Z(A). \tag{2}$$

Since g and d are continuous it follows that

$$g((xs)^n) - d(x^n)d(s^n) \in Z(A) \text{ or } g((xs)^n) - d(s^n)d(x^n) \in Z(A).$$

This shows that $s \in U_n^c$ and so U_n is open.

By the Baire category theorem, if each U_n is dense then their intersection is also dense, which contradicts the existence of G_2 . Therefore there exists an integer $i = i(x) > 1$ such that U_i is not dense and a nonempty open set G_3 in the complement of U_i such that either $g((xy)^i) - d(x^i)d(y^i) \in Z(A)$ or $g((xy)^i) - d(y^i)d(x^i) \in Z(A)$, for all $y \in G_3$. Take $z \in G_3$ and $w \in A$. So for sufficiently small real t , $(z + tw) \in G_3$ and either

$$g((x(z + tw))^i) - d(x^i)d((z + tw)^i) \in Z(A) \tag{3}$$

or

$$g((x(z + tw))^i) - d((z + tw)^i)d(x^i) \in Z(A). \tag{4}$$

Thus for infinitely many t either (3) or (4), say (3) must hold. Since $g((x(z + tw))^i) - d(x^i)d((z + tw)^i)$ is polynomial in t which is in $Z(A)$, each of its coefficients must be in $Z(A)$. The coefficient of t^i is $g((xw)^i) - d(x^i)d(w^i)$ which is in $Z(A)$. We have therefore shown that, given $x \in G_1$, there exists a positive integer i depending on x such that for each $w \in A$ either

$$g((xw)^i) - d(x^i)d(w^i) \in Z(A)$$

or

$$g((xw)^i) - d(w^i)d(x^i) \in Z(A).$$

Next we show that for each $y \in A$ there is an integer $j = j(y) > 1$ such that for each $v \in A$ either

$$g((vy)^j) - d(v^j)d(y^j) \in Z(A)$$

or

$$g((vy)^j) - d(y^j)d(v^j) \in Z(A).$$

Fix an arbitrary $y \in A$ and for each $k > 1$, define

$$W_k = \{z \in A \mid f(z, y, k) \notin Z(A), h(z, y, k) \notin Z(A)\}.$$

As shown above each W_k is open, so by the Baire category theorem, if each W_k is dense then its intersection is also dense which contradicts the existence of G_1 . Hence there exists an integer $j = j(y) > 1$ and a nonempty open subset G_4 in the complement of W_j . If $z \in G_4$ and $v \in A$ then for sufficiently small real t , $(z + tv) \in G_4$ and either

$$g(((z + tv)y)^j) - d((z + tv)^j)d(y^j) \in Z(A) \tag{5}$$

or

$$g(((z + tv)y)^j) - d(y^j)d((z + tv)^j) \in Z(A). \tag{6}$$

With the same argument as earlier we see that for each $v \in A$, either

$$g((vy)^j) - d(v^j)d(y^j) \in Z(A)$$

or

$$g((vy)^j) - d(y^j)d(v^j) \in Z(A).$$

Now let $S_k, k > 1$ be the set of all $y \in A$ such that for each $w \in A$ either

$$g((wy)^k) - d(w^k)d(y^k) \in Z(A)$$

or

$$g((wy)^k) - d(y^k)d(w^k) \in Z(A).$$

The union of S_k is A . It is obvious to see that each S_k is closed. Again, by the Baire category theorem, some S_n must contain a nonempty open subset G_5 . Take $z \in G_5$ and $x \in A$. For all sufficiently small real t and each $w \in A$ either

$$g((w(z + tx))^n) - d(w^n)d((z + tx)^n) \in Z(A)$$

or

$$g((w(z + tx))^n) - d((z + tx)^n)d(w^n) \in Z(A).$$

By earlier arguments, for all $x, w \in A$, we have either

$$g((wx)^n) - d(w^n)d(x^n) \in Z(A)$$

or

$$g((wx)^n) - d(x^n)d(w^n) \in Z(A).$$

Since A is unital, for all real t and for all $x, y \in A$ we have either

$$g(((e + tx)y)^n) - d((e + tx)^n)d(y^n) \in Z(A) \tag{7}$$

or

$$g(((e + tx)y)^n) - d(y^n)d((e + tx)^n) \in Z(A). \tag{8}$$

Now, by collecting the coefficient of t in the above expressions, we have either

$$g(xy^n + Q) - nd(x)d(y^n) \in Z(A) \text{ for all } x, y \in A \tag{9}$$

or

$$g(y^n x + Q) - nd(y^n)d(x) \in Z(A) \text{ for all } x, y \in A, \tag{10}$$

where $Q = \sum_{k=1}^{n-1} y^k x y^{n-k}$.

Again if we start with $g((y(e + tx))^n)$ in place of $g(((e + tx)y)^n)$, we have either

$$g(y^n x + Q) - nd(y^n)d(x) \in Z(A) \text{ for all } x, y \in A \tag{11}$$

or

$$g(y^n x + Q) - nd(x)d(y^n) \in Z(A) \text{ for all } x, y \in A. \tag{12}$$

At least one of the pairs of equations $\{(9) (11)\}, \{(10) (12)\}, \{(9) (12)\}$ and $\{(10) (11)\}$ must hold. Subtracting these pairs we have either

$$g[x, y^n] - n[d(x), d(y^n)] \in Z(A) \text{ for all } x, y \in A \tag{13}$$

or

$$g[x, y^n] + n[d(x), d(y^n)] \in Z(A) \text{ for all } x, y \in A \tag{14}$$

or

$$g[x, y^n] \in Z(A) \text{ for all } x, y \in A. \tag{15}$$

Now if $g[x, y^n] \in Z(A)$ then by replacing y by $(e + ty)$ we have $g[x, y] \in Z(A)$ for all $x, y \in A$. Replace x by ex we get $g(e)[x, y] + d[x, y] \in Z(A)$, or equivalently,

$$[g(e)[x, y] + d[x, y], z] = 0, \text{ for all } x, y, z \in A. \tag{16}$$

This can be written as $[g(e)[x, y] + [x, dy], z] + [[dx, y], z] = 0$. Replace y by $[y, w]$ we get $[g(e)[x, [y, w]] + [x, d[y, w]], z] + [[dx, [y, w]], z] = 0$. Now use (16) to get $[[dx, [y, w]], z] = 0$; hence, $[dx, [y, w]] \in Z(A)$, for all $x, y, w \in A$. In the light Lemma 2 we have either $[y, w] \in Z(A)$ or $A \subseteq Z(A)$. In both the cases A is commutative.

Now if (13) holds then by replacing y by $(e + ty)$ we have $g[x, y] - n[d(x), d(y)] \in Z(A)$ for all $x, y \in A$. In this expression replace x by $xg(e)$ in order to obtain

$(g[x, y] - n[d(x), d(y)])g(e) + [x, y]d(g(e)) - n[xd(g(e)), d(y)] \in Z(A)$ for all $x, y \in A$. Consequently, since $Z(A)$ is a linear subspace of A and $(g[x, y] - n[d(x), d(y)])g(e) \in Z(A)$, it follows that $[x, y]d(g(e)) - n[xd(g(e)), d(y)] \in Z(A)$ for all $x, y \in A$. Hence if we set $y = x$ and observe that $g(e) \in Z(A)$ implies $d(g(e)) \in Z(A)$, we obtain $[x, d(x)]d(g(e)) \in Z(A)$ for all $x \in A$. So, in particular, $[[x, d(x)]d(g(e)), z] = 0$ for all $x, z \in A$. Replacing z by zy now yields $[[x, d(x)], z]yd(g(e)) = 0$ for all $x, y, z \in A$. Thus, since A is prime and $d(g(e)) \neq 0$, it follows that $[x, d(x)] \in Z(A)$ for all $x \in A$. Hence, by Lemma 1 we may infer that A is commutative. Similarly it can be shown that if (14) holds then A is commutative. \square

Theorem 2 *Let A be a unital prime Banach algebra and $g : A \rightarrow A$ be a nonzero continuous generalized derivation associated with a nonzero continuous derivation d on A such that $g(e) \in Z(A)$. Suppose that there are open subsets G_1 and G_2 of A such that either $g((xy)^n) - x^n y^n \in Z(A)$ or $g((xy)^n) - y^n x^n \in Z(A)$ for each $x \in G_1$ and for each $y \in G_2$ and an integer $n = n(x, y) > 1$. Then A is commutative.*

Proof Proceeding as in Theorem 1, we get either

$$g[x, y] \in Z(A) \text{ for all } x, y \in A \tag{17}$$

or

$$g[x, y] - n[x, y] \in Z(A) \text{ for all } x, y \in A \tag{18}$$

or

$$g[x, y] + n[x, y] \in Z(A) \text{ for all } x, y \in A. \tag{19}$$

Suppose (17) holds. Replace x by ex we get $g(e)[x, y] + d[x, y] \in Z(A)$, or equivalently,

$$[g(e)[x, y] + d[x, y], z] = 0, \text{ for all } x, y, z \in A. \tag{20}$$

This can be written as $[g(e)[x, y] + [x, dy], z] + [[dx, y], z] = 0$. Replace y by $[y, w]$ we get $[g(e)[x, [y, w]] + [x, d[y, w]], z] + [[dx, [y, w]], z] = 0$. Use (20) to get $[[dx, [y, w]], z] = 0$ or $[dx, [y, w]] \in Z(A)$, for all $x, y, w \in Z(A)$. In the light Lemma 2 we have either $[y, w] \in Z(A)$ or $A \subseteq Z(A)$. In both the cases A is commutative.

Now consider $g[x, y] - n[x, y] \in Z(A)$, for all $x, y \in A$. Replace x by ex we get $g(e)[x, y] + d[x, y] - n[x, y] \in Z(A)$ or $[(g(e) - n)[x, y] + d[x, y], z] = 0$ for all $x, y, z \in A$, which is similar to Eq. (20). Thus in this case it can also be shown that A is commutative. Similarly, we can prove that if $g[x, y] + n[x, y] \in Z(A)$ then A is commutative. \square

Theorem 3 *Let A be a unital prime Banach algebra and $g : A \rightarrow A$ be a nonzero continuous generalized derivation associated with a nonzero continuous derivation d*

on A such that $g(e) \in Z(A)$. Suppose that there are open subsets G_1 and G_2 of A such that either $g((xy)^n - x^n y^n) \in Z(A)$ or $g((xy)^n - y^n x^n) \in Z(A)$ for each $x \in G_1$ and for each $y \in G_2$ and an integer $n = n(x, y) > 1$. Then A is commutative.

Proof Proceeding as in Theorem 1, we obtain either

$$g[x, y] \in Z(A) \quad \text{for all } x, y \in A \tag{21}$$

or

$$g([x, y] - n[x, y]) \in Z(A) \quad \text{for all } x, y \in A \tag{22}$$

or

$$g([x, y] + n[x, y]) \in Z(A) \quad \text{for all } x, y \in A. \tag{23}$$

Equations (22) and (23) can be written as $(1 - n)g[x, y] \in Z(A)$ and $(1 + n)g[x, y] \in Z(A)$, respectively. Thus the equations (21), (22) and (23) all reduce to $g[x, y] \in Z(A)$. The result then follows using the argument in the proof of Theorem 2. \square

Theorem 4 *Let A be a unital prime Banach algebra and $T : A \rightarrow A$ be a continuous left multiplier on A such that $T(x) \neq \pm nx$, for all nonzero $x \in A$ and integers $n \geq 0$. Suppose that there are open subsets G_1 and G_2 of A such that either $T((xy)^n) - x^n y^n \in Z(A)$ or $T((xy)^n) - y^n x^n \in Z(A)$ for each $x \in G_1$ and for each $y \in G_2$ and an integer $n = n(x, y) > 1$. Then A is commutative.*

Proof Proceeding as in Theorem 1, we get either

$$T[x, y] \in Z(A) \quad \text{for all } x, y \in A \tag{24}$$

or

$$T[x, y] - n[x, y] \in Z(A) \quad \text{for all } x, y \in A \tag{25}$$

or

$$T[x, y] + n[x, y] \in Z(A) \quad \text{for all } x, y \in A. \tag{26}$$

If $T[x, y] \in Z(A)$, for all $x, y \in A$, then $[T[x, y], z] = 0$, for all $x, y, z \in A$. Replacing y by yx and then z by rz we have $T[x, y]r[x, z] = 0$, for all $r, x, y, z \in A$. Hence, $T[x, y]r[x, y] = 0$, for all $r, x, y \in A$, and so, by hypothesis on T and the fact that A is prime, we have $[x, y] = 0$, for all $x, y \in A$. If $T[x, y] \pm n[x, y] \in Z(A)$, for all $x, y \in A$, then, as before $(T[x, y] \pm n[x, y])r[x, z] = 0$, for all $r, x, y, z \in A$. Since $n > 1$ it follows that $T[x, y] \neq \pm n[x, y]$, for all $x, y \in A$, and so, $[x, z] = 0$, for all $x, z \in A$. This completes the proof.

Theorem 5 Let A be a unital prime Banach algebra and $T : A \rightarrow A$ be a continuous left multiplier on A such that $T(x) \neq \pm nx$, for all $n \geq 0$. Suppose that there are open subsets G_1 and G_2 of A such that either $T((xy)^n - x^n y^n) \in Z(A)$ or $T((xy)^n - y^n x^n) \in Z(A)$ for each $x \in G_1$ and for each $y \in G_2$ and an integer $n = n(x, y) > 1$. Then A is commutative.

Proof The proof is similar to the proof of Theorem 4.

Theorem 6 Let A be a unital prime Banach algebra and $T : A \rightarrow A$ be a nonzero continuous left multiplier on A such that $T(e) \in Z(A)$ and $nT(e) \neq \pm e$, for all integers $n \geq 1$. Suppose that there are open subsets G_1 and G_2 of A such that either $T((xy)^n) - T(x^n)T(y^n) \in Z(A)$ or $T((xy)^n) - T(y^n)T(x^n) \in Z(A)$ for each $x \in G_1$ and for each $y \in G_2$ and an integer $n = n(x, y) > 1$. Then A is commutative.

Proof Proceeding as in Theorem 1, we obtain either

$$T[x, y] \in Z(A) \quad \text{for all } x, y \in A \tag{27}$$

or

$$T[x, y] - n[T(x), T(y)] \in Z(A) \quad \text{for all } x, y \in A \tag{28}$$

or

$$T[x, y] + n[T(x), T(y)] \in Z(A) \quad \text{for all } x, y \in A. \tag{29}$$

Since $T(e) \in Z(A)$, it follows from the fact that A is prime that $T(x) = 0$ implies $x = 0$. Now, if $T[x, y] \in Z(A)$, for all $x, y \in A$, then A is commutative as in the proof of Theorem 4. On the other hand, if $T[x, y] \pm n[T(x), T(y)] \in Z(A)$, for all $x, y \in A$, then as in the proof of Theorem 4, we have

$$(T[x, y] \pm n[T(x), T(y)])r[x, z] = 0, \quad \text{for all } r, x, y, z \in A.$$

Hence, $T[x, y](e \pm nT(e))r[x, y] = 0$, for all $r, x, y \in A$. If $T[x, y](e \pm nT(e)) = 0$ then $T[x, y]r(e \pm nT(e)) = 0$, for all $r \in A$ and so, $T[x, y] = 0$ and hence $[x, y] = 0$. So, $[x, y] = 0$, for all $x, y \in A$. The result now follows. \square

3 Open questions

The authors would like to open the following questions for further studies:

Question 1 Can the hypothesis that $g(e) \in Z(A)$ be removed from the assumptions in Theorem 1, Theorem 2 and Theorem 3?

Question 2 Can the hypothesis that $T(x) \neq \pm nx$ be removed from the assumptions in Theorem 4 and Theorem 5?

Question 3 Can the hypotheses $T(e) \in Z(A)$ and $nT(e) \neq \pm e$, for $n \geq 1$ be removed from the assumptions in Theorem 6?

Acknowledgments The authors would like to express their sincere thanks to the reviewers for the valuable suggestions which help to clarify the whole paper and suggesting a shorten and precise proof of some of the results.

References

- Ali, S., Khan, A.N.: On commutativity of banach algebras with derivations. *Bull. Aust. Math. Soc.* **91**(03), 419–425 (2015)
- Ashraf, M., Ali, S.: On left multipliers and the commutativity of prime rings. *Demonstratio Math.* **41**(4), 763–771 (2008)
- Bell, H.E.: On the commutativity of prime rings with derivation. *Quaestiones Mathematicae* **22**(3), 329–335 (1999)
- Brešar, M.: Commuting maps: a survey. *Taiwanese J. Math.* **8**(3), 361 (2004)
- Herstein, I.N.: Power maps in rings. *Michigan Math. J.* **8**(1), 29–32 (1961)
- Lee, P.H., Lee, T.K.: Lie ideals of prime rings with derivations. *Bull. Inst. Math. Acad. Sinica (NS)* **11**(1), 75–80 (1983)
- Posner, E.C.: Derivations in prime rings. *Proc. Am. Math. Soc.* **8**(6), 1093–1100 (1957)
- Vukman, J.: On derivations in prime rings and banach algebras. *Proc. Am. Math. Soc.* **116**(4), 877–884 (1992)
- Yood, B.: Continuous homomorphisms and derivations on banach algebras. *Contemp. Math* **32**, 279–284 (1984)
- Yood, B.: Commutativity theorems for banach algebras. *Michigan Math. J.* **37**(2), 203–210 (1990)
- Yood, B.: On commutativity of unital banach algebras. *Bull. London Math. Soc.* **23**(3), 278–280 (1991)

Consenting to Labour Appropriation? The Mineworker on South African Gold and Coalmines, 1951 to 2011

Journal of Asian and African Studies
2017, Vol. 52(2) 142–156
© The Author(s) 2015
Reprints and permissions:
sagepub.co.uk/journalsPermissions.nav
DOI: 10.1177/0021909615570953
journals.sagepub.com/home/jas


Dhiraj Kumar Nite

University of Johannesburg, South Africa; Ambedkar University, New Delhi, India

Paul Stewart

University of Witwatersrand, South Africa

Abstract

The argument of the moral economy of mines claims to illuminate the consent and associational power of mineworkers, and thereby the real foundation of social exchanges between management and black mineworkers. Our collection of life histories shows how the moral economy was fragile and its codes not widely accepted. As a tool of analysis it does not include certain facets of the workers' experience, feeling and human essence. The moral–economic relationship was conducive to surplus extraction by eliminating the non-conformist but industrious or sick workers in the labour system. It contributed to morbid sexual and emotional ways of life. The life histories further reveal how the rank-and-file generally endorsed and participated in what Moodie depicts as a positive class compromise struck between management and the workers' union from the 1980s to the 1990s. It brought to them conditions for a regular family life and 'advancing humanity'. This notwithstanding, our narrators found that the norm of apartheid gave way to that of discrimination and differentiation between black workers. Management replaced white 'boss-ism' by economism and a corporatist model of labour–management relationship. It engendered the spirit of new ways to secure opportunity.

Keywords

Consent, moral economy, life history, positive class compromise, corporate model of collective bargaining

Introduction

We bring out certain vignettes of the life-histories of mine workers in the goldfields (Carletonville) and the coalfields (Witbank) in South Africa between 1951 and 2011. Our discussion fills up a few gaps in the existing literature dealing with the experiences of mineworkers and the 'relations in

Corresponding author:

Dhiraj Kumar Nite, Ambedkar University Delhi, Kashmere Gate, New Delhi 110006, India.
Email: dhirajnite@gmail.com

production'. It calls for the reworking of established formulations, namely, the moral economy of the mines, the significance of re-unionization between black mineworkers, and a positive class compromise, which they struck with the management from the late 1980s to the 1990s.

Moodie (1994: 76–96, 2010a: 105) and Alexander (2003, 2005) argue that the mineworker lived through the conditions of living and work on the basis of the moral economy of the mines (MEM), which characterized the relation in production until the mid-1970s.¹ As opposed to the description of the hapless, controlled and alienated black workers (Allen, 1991: 427, 2002: 178–179, 196; Crush et al., 1991),² the MEM arguably embodied the consent (or acquiescence) of black (production) mineworkers. The latter used their associational power to establish the MEM, thereby securing tolerable conditions of living and social life. It meant supplies of a bare subsistence wage (especially cash savings available at the end of a contract); acceptable food (including meat and beer); acceptance of communal chieftainship for primary arbitration; weekends of communal dance, song and sport; permission for restrained protest in cases of disagreement; and the acceptance of a degree of corporal punishment.

The MEM laid down a tenuous bridge of mutual expectation and reciprocal exchanges between management and workers. When the bridge succumbed to undue pressures, exerted by either side, the social cohesion it afforded gave way. The brute reality of domination, subordination and protest resurfaced. The political authorities rushed to the rescue of the 'internal state' of the mines. Nonetheless, the moments of confrontation occurred along the codes of the MEM.

How was the MEM sustained? The *umzi* (rural homestead) orientation of black mineworkers in the Rand goldmines, as Moodie (1994: 21–32; 2010a) points out, was *inter alia* the basis of it. Such an orientation meant that mineworkers joined the industry for reinvesting in their rural homestead and resisting full proletarianization. By supposedly taking a cue from Moodie's work, Phakathi (2012: 281) argues that mineworkers' consent in the goldmines was secured through racial and coercive labour practices in the colonial and apartheid years. The day-to-day running of the production process was marked by the antagonistic and despotic relations of production. His emphasis on workers' coercion, as compared to Moodie's on economic incentive structure and *umzi* integrity of mineworkers, sets the argument apart and may make a case for forced labour, what van Onselen (1976) describes as *Chibaro* in Southern Rhodesian coalmines. In contrast, Alexander (2003: 64–68) suggests that the MEM hinged on the political–economic precondition, such as guaranteed markets for output and collective fixation of wages and work time in Witbank coalmines. The life-histories of our narrators indicate that the MEM as a tool of analysis does not lend us any understanding of certain facets of workers' experience, feeling and human essence, which exceeded the MEM. The latter and its political–economic foundation were conducive to surplus extraction by eliminating the non-conformist but industrious or sick workers in the system. Instead of believing in any static and compact contours of the MEM, the life-histories prompt us to look into its process and constant renewal within it and beyond.

The crisis of the MEM struck the industry from the mid-1970s. The emergence and progress of the National Union of Mineworkers (NUM) further aggravated the crisis of black mineworkers' consent in the 1980s (Moodie 1994, 2010a; Phakathi 2012). The 21-day long mines strike in 1987, following a few strikes and workplace disputes in the previous years, was the pinnacle of the crisis and an attempt at the reconstitution of the MEM. Its outcome was, argues Alexander (2012: 185), a precursor to the political settlement achieved in 1994. The development that occurred in the labour management relationship in goldmines between the mid-1970s and the early 1990s was, argues Moodie (2010a, 2010b), a positive class compromise (PCC). Moodie further stresses two points to explain the PCC: the first, the measures undertaken by the top management of the Anglo-American company initiated PCC. The second, the disciplined and self-effacing strategies and tremendous ability of Cyril Ramaphosa – first general secretary of the NUM – and his concerns for

workers' dignity and welfare propped up PCC in the late 1980s and beyond. Our discussion addresses below two silences, as we note them, in Moodie's details: how did the rank and file of NUM figure in this scheme of PCC? What do they have to say about the content and pitfall of PCC in hindsight? The latter question would have some bearing on our grasp of the Marikana episode, which took a toll of 34 strikers at the Lonmin platinum mine in August 2012.

Here, we look at the epistemic significance of life-histories along the following lines. They offer four sets of detail on our subject: personal experiences, individual opinions and judgment, a collective oral tradition and a web of beliefs. These details find scant place in the archival and other official documents. The same could be said about the details from oral testimonies cited in sociological works, which are usually contemporaneous, but fragmentary. We undertook three rounds of interviews for collecting the life-histories of 22 narrators between 1 June 2011 and 18 July 2012. Interviews took place at the narrators' houses, neighbourhood *shebeens* (grogshops) and the NUM's local offices (Nite and Stewart, 2012).³ Alongside the spoken words, we engaged with the lapses, discrepancies, silences and imaginative inventions found in the memory and other oral testimony (Nite, 2014).

Mineworkers' sense of the past and MEM

The sense of the past shared by mineworkers is indubitably refracted through the memory of collective struggles for liberation from apartheid, and for freedom and dignity of labour in the workplace. Mineworkers narrate the period of MEM as something connected to apartheid, white boss-ism, and un-freedom and inequality of the blacks. They state that their life was harsh and had limited opportunities for them. They battled for a modicum of control over their own life process and advancement. The memory of oppression and confrontation, as it populates the life histories, amounts to negation of any participation in the maintenance of an oppressive environment. This notwithstanding, mineworkers' life histories are, it can be said, replete with references to the shades of a moral economy. An access to these references involves a reading of the narrators' accounts against the grain. We take a couple of examples below.

To begin, Elsie Mkhabela's lifespan covers the period of MEM and its moment of demise. Her grandfather was a collier who moved to Douglas colliery where he got a house in the early 1950s. Mkhabela was born in 1946 and lived in a 'mud house' in the *Skomplaas* (married quarters) of a colliery and was one of the first women to work as a cleaner in the single-sex hostel kitchen of the mines from the mid-1960s. Elsie, as a collier's granddaughter and third generation in the coalfield would have been socialized into and been aware of how relationships between white employers and black workers played themselves out in terms of a moral-economic relationship. Poorly educated and articulating a 'traditional' world view, replete with overtones of 'faith' and hope, Mkhabela was 'someone who loved work' despite hostel kitchen conditions being decidedly unsanitary and the behaviour of the compounded colliery workers boorish and crude. 'The people on the mines did not have a good life', she said, 'I think it was because of the employers', a theme, explicitly couched in racial terms, to which she repeatedly turns. The poor treatment of blacks by whites, for Elsie, in turn shaped relations between black workers, 'We didn't get along well.... Things were not nice [but] we didn't realize it back then that the way we were living our lives was not nice. We were living in fear [of each other]'. One of Elsie's main concerns is that all of her family members became asthmatic, which she attributes to the mines, 'The children would be black with dust.' Yet after unionization – from 1989 – she says, 'We witnessed a difference in the span of our lives... People began to respect each other... We felt that we did our job well'. There were significant changes in terms of salaries and benefits. Democracy made her 'feel free' and she openly admits that her support of nationalization of the mines might be due to her lack of

education.⁴ Unionization of the collieries and democracy changed Elsie's life and her view of it, and opened up a social contract any semblance of which had clearly been completely absent throughout her life in the collieries.

The scathing critiques of 'the old days' that she weaves into her autobiography is itself couched in a candid language to suggest that the same attitude and opinion was not alive nor at work 'back then' – the era of MEM. This is a point, it can be said, of the absence of negation, that by inversion would mean the existence of a tolerable condition of social life and work. The point once again surfaces in another forthright account from Elsie's daughter, Juliet Mkhabela. Juliet was born in 1971 and grew up in the colliery with her mother and father, who also worked in the colliery. She went to primary school in the mine and finished secondary school as a matriculate. Juliet recalls that, 'After standard ten (matric), usually our working father would go to the mines and ask if they could employ children. Depending on luck, children would get a particular type of job and work'. She was not the only informant to refer to mineworkers securing employment for kith and kin. Can this, occurring in the early 1980s, be said to be an element of the old moral economy? Juliet was lucky and now works in the Human Resources (HR) department in a colliery close to where she was born, but only because her father was retrenched and had 'already used his last money to pay for my college fees', which 'forced me to look for work immediately'.

Unlike her mother, Juliet grew up with 'electricity and flushing toilets', but no electric stoves as the colliers' families just 'took coal' in order to cook. Life was 'normal', but not 'wonderful' in one of the 53 houses in the 'black men-headed married quarters', she recalls. Her strict father did not permit her 'to go with friends to the hostels to see traditional dances'. Neither did she mix with anyone from either the 'white married quarters and white single quarters', even though 'it was close by'. Like her mother, Juliet also started out as a cleaner and did 'heavy duties', and similarly reports that she was treated 'badly by men' in 2003, but was elected as an NUM shaft steward from 2004 to 2005. She worked long shifts, which severely impacted her family life. The benefits that unionization ushered in (improved safety, four months of maternity leave, proper Unemployment Insurance Fund registration, and paid funeral arrangements) and its impact, she said, made a 'very, very, very big difference in our lives'. On the other hand, changes in the mine regarding gender relations have been minimal. She finds herself, her NUM membership and stewardship notwithstanding, up against in particular the 'numbers of old uneducated people' who are 'stubborn' and 'we (in the HR office) do not see eye-to-eye with workers... The majority are in the age group to have worked for 26 to 30 years. They expect us to let them do as they want and not as per company rules and regulations'. Juliet can talk knowledgeably about different styles of management and feels a certain difficulty with those people who come into the industry 'who have no history in the mines'.⁵

In the following brief comparison, quite astonishing instances of the extent of social continuity are manifested, even though the explanations for the same kinds of events were couched in different terms, yet in much the same register, across two generations. Alfred Jozine, who was born in 1935 and worked for Anglo American for 40 years until 1999, and Patrick Austin Mphandwe, who was born in 1981 and started work as contract labourer in 1997. Jozine stoically 'got used' to the mines and did not 'blame the mine' even when he was injured.⁶ This appears to be evidence of acceptance of the old moral economy. Instead of being unemployed, Mphandwe similarly thought it was better to 'go work in the Camp' and said, 'I told myself that I am a man' and 'gave myself a little courage', even though he had heard that 'people die in the mine and a lot of other things'.⁷ In moral economic terms, nothing appears to have changed, the differences in their ages and the advent of political enfranchisement and unionization notwithstanding.

After rocks collapsed in a 'fall of ground', Jozine's compatriots ran around looking for 'the ghost', while Mphandwe explains that 'the mine has no brain'. Jozine says his compatriots used *muthi* (traditional protective medicines) and conducted the rite of lamb sacrifice, but that he went

to church and 'kept the Bible and hymn books next to our bed'; while Mphandwe 'told myself God is with me in the mine'. In the midst of persistence of workplace risk, while there is a shift in explanation across the generations, there is a sharing of attitudes to the world of work in the mines. This is not to say that the similarities do not express themselves differently. The only contact Jozine initially had with a woman was to communicate by writing letters to his wife, but later 'found a girlfriend in Bekkersdal'. Mphandwe, on the other hand, reports of a woman at work and admits to not being married, but has five children and maintains 'two families'.

Some statements of the older narrators, to the effect that they did not realize it back then that the way they were living their lives was difficult and that they got used to the labour regime, confirm in a way the historicity of MEM. Below, our discussion moves on to other elements of life-histories that do not fit neatly within the contours of MEM.

Fragility of the MEM

Where Moodie expected to find a workforce in the mines 'ground into submission' and found instead 'a vibrant moral economy' (Moodie, 2012, 1994: 82–83), we expected to find evidence of the integrities of the old moral economy among older workers. We were disappointed, which made us reconsider the extent to which this view had dominated our understanding of the texture of work and life on the mines. The life-histories, it could be said, were not readily illuminated by the use of the concept of the moral economy as a tool of analysis. On the contrary, our informants did not present testimonial data providing us with the evidence we expected, despite having had the notion of the moral economy as our key conceptual lens. The concept simply did not appreciably advance our understanding of the experiences and activities of mineworkers that were reported to us. Consider some instances. Supervisory violence, suggests Moodie (1994), dwindled in the goldmines from 1950 onwards, as the code of conduct was routinized and the workforce became stabilized. Alexander (2003) points out that the same occurred at the collieries from the 1940s.

Violent treatment by a member of authority, spanning from the compound police, hostel chief (*indunas*), and team leaders to ordinary white persons in the mining areas, was reported to have been imminent in everyday lives of many informants. Varieties of abusive treatment, including *kaffir* as slang frequently hurled at workers and threat of dismissal over legitimate defiance further blemished the old list. Moses Xaba reports that:

Sometimes, I went outside of *nkomponi* [the compound hostel] to the nearby shops for enjoyable food and beer on Sundays. A white staff called me to carry garbage and dirt and to dump it at a certain place. I did not receive any payment for such labour. I bore the most arduous work underground because I consistently declined the demand of my boss boy [team leader] to become a *Nyatsi* [mine girlfriend].⁸

In the end, he preferred to quit the job in order to maintain a dignified manhood, which he desired despite financial hardship.

Unlike Xaba, Sechaba Matiase Ezekiel, a weighbridge man at a coalmine, forbore quitting the job. However, he bore the marks of corporal punishment. He reports, 'When we missed work, management took us to a room under the running water. We stood there the whole night. Normally, such punishment was for two days. We had boots but no gloves, ear plugs and glasses. We did everything with our own hands. Naturally, I fell sick, the management made me to drink something to see whether I was really sick for real.'⁹

Workers' critiques of rough work relationships acquired words in their folksongs. Phillimon Motswere reports that they used to sing a song underground to vent their feelings and 'to motivate one another':

Abelungu ba sibiza vho dom

Hebelungu ya sibiza vho dom

Abelungu go down

Abelungu go down

Vha sibiza vho dom.

[The whites say we are *dom* (Afrikaans: stupid/dull). The whites say we are dom. The whites must go down. The whites must go down. They say we are dom.]¹⁰

Here, the black mineworkers grumbled against the absence of reciprocity and mutuality between the two sides of the MEM.

Nyatsi, prostitution, irregular cohabitation and *Famu* (mine dance) formed the cultural patterns of life in the single-sex hostel and within work contracts that were bereft of any provision for family leave for six months or one year to eighteen months, depending on the territorial background of workers. The worker from Lesotho orchestrated *Famu* song and dance at the weekends at hostels. Matiase reminisces, ‘When we sang “*helele mane hehe helelele mane*”, we took off our clothes; sang and danced. The song demanded showing of our body figure to other men. The youngster did it in a group. The older ones would get inside and be hit by the young ones. It was the game to wear off the stress.’

Workers frequently expressed the feeling of being sexually estranged and their manhood challenged. The young Lesotho brigade to whom Matiase belonged sang about not getting married.

Tebogo haye haye wee tebogo

[When will you get married?]

haye haye

[No you cannot! No you cannot!]

Wee tebogo haye haye

[When will you get married? No! No!]

Matiase and his workmates teased each other over the anxiety of delayed marriages and the *nyatsi* relationships between young boys and older mining men. Luke Mathebula, a *laisher* (shoveller) and first-aid person, sang a *ntlamo* (mining song) in the weekly *mtshongolo* (Zulu dance) to express his anxiety about irregular family life:

ithi wazingeleza umuzi wenye indoda, owakho wawu shiya nobani, we madala, wazingeleza umuzi wenye indoda owakhho wawushiya nobani, we madala.

[While you are going around in another man’s house, hey old man, who is left with our wife back home, hey old men.]¹¹

‘We sang it,’ Mathebula continues, ‘because it was very hard then. We worked here and left our family behind in the homeland. We thought that while we were here for a whole year, our wife might have been usurped by the person who did not work. It made our hearts sore. The things were getting messy back home because we did not regularly go there in our attempt to finish the *Join* [contract].’

These folksongs were motivational songs conveying the migrant men's denouncement of the existing situation. Matiase reports that the employer opined that 'when a man does not sleep with a woman, he becomes stronger'. Employers did not allow mineworkers to go home during the period of 'join' (work contract of twelve to eighteen months). If someone slept outside, the management asked him, 'where were you, give an explanation?' He says, 'We taught ourselves to accept the life the way it was. When the nature of a man came into life, certain behaviour [is] discordantly manifested.' Matiase continues:

I have kids who have their own children now. They saw me only for a very short period of time. I have not seen the woman I married to an extent that I don't really know her or she knows me. If this company closes and I lose [my] job, we will know that whether we have married the right person or not. When I told the management 'one of my children is sick,' they replied, 'You are not a doctor. What are you going to do over there?' I used to get permission to visit home only in November. That was the time when I went to make a child. That is why our children in most cases shared the same months of birth. One can calculate the months from the time we were at home and see what is wrong with birthdays. It badly affected our conjugal relationship. Therefore, we fought under the banner of NUM for the rights of my family and leaves for sickness or funeral in order to be with my family during difficult times. Previously, when I got a telegram from Soweto, management wanted a letter from the Teba [The Employment Bureau of Africa – the recruiting institution of the mines] and did not allow us [to] visit a sick relative. You see, it was just slavery... Some would flee. I used to wait for nine months while I was just writing letters to my wife and children saying 'I love you; you know how much I love you.' I would write about four papers, telling them how I felt... At the end of the day we were human being, we had feelings. We longed for our wife and children. One was lucky if he worked with a neighbour from home. He gave him something to take home if he was on leave.

Persons like Matiase thus deprecated the conditions of living and social life that were tortuous and had roots in the single-sex hostel and work contracts that were devoid of family leave. They questioned the coercive behaviour of management.

One may read this narrative as a posterior articulation of some politically initiated informants, as they were, from 2011 to 2012. Such a reading, nonetheless, may find it hard to dismiss the folksongs that workers composed and danced to in the heydays of the MEM, and other letters that Matiase wrote.¹² These cultural artefacts represent an element of the 'getting used to' manner of adjustment with the mining areas. These would imply that workers were anything but acutely alienated and they borrowed from the rural cultural resources in attempting to adapt to the new situation. Moodie (2010a: 105) argues that the existence of moral economy permitted workers an adherence to the rural values and rural subsistence economy rather than wage increases per se. Not surprisingly, the facets of workers' everyday feeling, experience and humanity that the life-histories above lay bare appear to have seriously interrogated the claim of labour-management relationship in the shape of the MEM.

The moot question before us, therefore, is: how was the moral economic relationship, identified by Moodie and Alexander, sustained? This relationship was conducive to surplus extraction and renewed itself, oral testimonies show, by removing the non-conformist but industrious persons, like Xaba, out of the system and disciplining the rest. It also meant the denial of any opportunity to the black workers for a fuller, human life; and was causative of morbid sexual and emotional ways of life. These men, who spent a long time establishing such moral economy, suggestively, taught themselves following incident after incident how to refashion a truncated socio-cultural life, known as the mining social/culture, within the limits of the MEM. Opposed to the static and compact contours of the MEM, the life histories highlight its fragile terrain, which failed to gain the consent of many workers within and beyond it.

Re-unionization and a positive class compromise

Given that the memory of the African Mineworkers Union (AMWU) was buried in the past of a generation before, it was a momentous step when mineworkers formed the National Union of Mineworkers (NUM) in December 1982.¹³ The biographical accounts reflect the enthusiasm and seriousness with which the initial clandestine forms of organization began in 1977. Threats of dismissal were made. The *indunas* (hostel compound tribal chiefs) were watchful of gatherings of workers. There is little doubt that the re-unionization of black mineworkers heralded a fight for the liberation of the workplace and participative management. For the NUM leadership, of course, this was at the same time a fight for national liberation. For the militants in the NUM it strongly appears that economic independence was intimately linked to political freedom.

In the early 1980s, the NUM was, recalls John Masilela, the first mass front mobilized to advance the political battle cry, '*Viva ANC Viva!*'¹⁴ This claim of being 'the first mass front' might, however, be attributed to the South African Allied Workers' Union (SAAWU) in the Eastern Cape. The strikes at the mines that followed were a natural corollary, buoyed by the prospect of achieving a broader political goal. The path of national democratic revolution in the 1990s, including the spectacular moments of the release of Nelson Mandela and others in 1990 and the first opportunity to vote in April 1994, were reported to have been the necessary political preconditions for the consolidation of the material effects that NUM came to exercise. Cecilia Mohlouta informs us that the union only acquired an effective degree of power to change things in the 1990s. She does, however, attribute her own salary increase and being able to take a Sunday off to the mineworkers' strike of 1987.¹⁵ What she suggests here, contrary to Alexander (2012: 185), is that the outcome of the great 1987 mines strike might not have been a precursor to the political settlement achieved in 1994. Indeed, the ability to draw a correct lesson by a few top managers and the NUM leaders had an important bearing on future developments (Moodie 2010b, 2013).

The discussion below throws light on the way that the rank and file of the NUM figured in what Moodie describes as the PCC, and what they report to us on the contents and pitfalls of PCC. Mining workers adopted the umbrella of the NUM due to both ideological persuasion and raw coercion. Many clearly felt the urge for economic and political betterment. Managerial despotism shared the same ground as the racial regime of white domination; in particular this was powerfully felt in the below underground workplaces by many of our informants, who were subject to all white supervisory and managerial personnel. Such racial domination expressed itself in the limited opportunities of the advancement for black workers and the readiness with which dismissal for insignificant offences could be meted out. The new generation of radical youth of the 1970s, Mathebula and Masilela recall, found themselves too vulnerable to compromise. Nor were they any more prepared to passively watch while their white colleagues enjoyed the benefits of a diametrically opposed lifestyle. This was the radical expression of an urban proletariat in contrast to *umzi*-orientated migrant labourers, who sought a living wage for their families. The new and younger generation was politically informed and bent on establishing comparable individual self-respect and broader social liberation.

Masilela says he wanted his siblings to have the same educational opportunities as the families of white mining staff. The personal cost had been high. He delayed his marriage for 12 years – between 1976 and 1988 – in order to support his four siblings at school. A familist (family-building) movement for social and intellectual uplift appears to have been occurring in the mining community. It motivated their political enthusiasm.¹⁶ Over and above this, while working as a shaft steward at the Douglas colliery, he had managed to send (via the NUM), he tells us, three black colleagues to Cuba to study mining engineering from 1987 to 1989. This was where workers had

taken matters into their own hands, with Masilela reporting that the union created an armed brigade of young workers at Douglas colliery in the years 1983 to 1989. It also included Sechaba Matiase from Lesotho. They wielded a *sjambok* (whip) during their parades to secure control inside mine hostels during the strikes in 1984. This was understood and exercised as a form of counter-power in the face of challenges from the hostel police and *indunas*. This was deemed a necessary tactic in the presence of a range of cleavages that divided mining communities. Such cleavages ran along the lines of generation, ideological orientation, geo-political affinity and the ways in which labour was controlled.

The *umzi* tradition informed the opinion of many of the older workers. They had become habituated to and continued to appreciate supplies of rationed food, cheap beer and the rent-free accommodation that the mines provided. They had grown used to, Alfred Jozine acknowledges, the racialized authoritarian character of workplace relations. They wanted concrete assurances and clarification over the possible gains that would result from this new struggle. Some were uncomfortable with the political tone and affiliation of the NUM. It appears that a good number of mine-workers from Lesotho and Mozambique held the view that their nations already enjoyed political freedom (Nite and Stewart, 2012: Matiase's and Jozine's accounts). There was, in addition, a controversy and debate around 'free homelands' versus the ANC's national objective. A long-standing loyalty to *indunas* was a further factor with which the new militant generation had to contend. These issues were to result in intense conflict in the mines, coming to a head both during and after the 1987 mineworkers' strike.

The liminality of millenarian ungovernability, which Bozzoli (2004) notices among the Township youth, did not seem to guide exercises of raw coercion by our narrators; nor did they intend to achieve it in the mines. Masilela recalls, 'many strikers went home during the 21-day long 1987 strike.' He used to inform them by telephone about the progress of the strike. Upon the conclusion of the strike, he sent them messages to come back to rejoin work. At the Douglas colliery, he negotiated with the management to accept 'rejoining' of these colleagues over a week after the strike came to an end. However, some workers delayed and lost their jobs.

Moodie has described the conflict of perceptions between those mobilizing for unionization, on the one hand, and the traditional, generally older workers, on the other. The latter enjoyed the favour of management in the early days. Later, the management, not without their own internal conflicts, initiated a reconciliation with the NUM in order to contain violence and the interruption of production resulting from the factional fights and brawls between black workers and white supervisors. This was the PCC, Moodie (2010a, 2010b) argues, and which our evidence suggests generally enjoyed the support of the rank and file. Our respondents came to appreciate, certainly later, the gains secured from the compromise, such as the granting of living-out allowances, the establishment of a provident fund, medical aid and pension, and paid maternity, sickness and family leave. None of them vented any instances of complaint against why the NUM has been recesive towards the demand for nationalization!

Benefits of unionization: a paradox of PCC

The informants relate variedly to these changes. Jozine appreciates the abolition of pass laws in 1986, the provisioning of the 'blue card' (unemployment benefits card) and acknowledges that it was the union, of which he was a member from about 1989, that helped him to secure visiting permits for his family members and gain access to family accommodation for them during their visits to the mines.

The significance of unionization for Elsie Mkhabela was the right of refusal: in other words, the right to say that following certain instructions was not part of her job description. Linked to this, it

was the recognition of self-respect and a measure of control over the matters of work and life that were of crucial importance. For example, Mazibuko relates:

Let me say that there were changes the union effected. White people, who despised us people of black skins, realized that 'these people also think, he is not a baboon as he has got a brain.' Now they listened when we raised any matter. Previously, they did and uttered whatever they wanted. With the union, we had the right to be treated like people and to be heard. Even if something was being done we could now suggest that we think this can be done this way. In a way we asked for a change and it would take place after talks. Before that it was Boss and Mrs. We didn't have a say. Even in the nursing field where we had to work together, a superiority complex influenced whites. They have it even now, but they don't show it the way they used to before the unions.¹⁷

There is little doubt that the worst forms of despotic and uncaring practices were swept away with the advent of unionization, even though these may have taken some time in coming into effect. The occupational career of Masilela exemplified it. He was among the first black mineworkers to have benefitted from the removal of restriction over black artisanship in the mining industry, which came to him as a result of the recommendation of the Wiehahn commission from 1979 to 1981.

I was lucky to be selected to attend the coal preparation course at the Colliery Branwood College. The plant manager, Ivor Duprée decided to send me to the college. I passed the course, obtained the certificate and came to back to my old job. I did not use that certificate and remained a weighbridge man until the dismantling of apartheid in 1988, for it was the white man's job. White guys used to say that you can have the certificate but you are not going to use it anyway. (Nite and Stewart, 2012: Masilela's account)

The effect of the 1987 mines strike initiated the end of job reservation and a window of new opportunity for Masilela.

Previously, migrant workers, returning to serve out a new labour contract, would not have been re-employed if they were found to be suffering from tuberculosis or lung disease.¹⁸ While the practice of 'medical boarding' remains a complaint still heard in the mines today, the system has been stripped of its worst abuses. Phillimon Motswere still coughs and his claims for compensation were not successful; this notwithstanding, he did not lose employment and received medical care at the mine hospital under the new dispensation. 'Management makes sure,' Martha Maseko reports, 'that a person quitting a mine job is now subject to an exit medical examination so as to prevent any claims for occupational diseases in the future.'¹⁹ The rationale for this, namely to prevent compensation claims against the industry, is by the way and merely reflects the changing balance of forces between social classes.

It is perhaps only by having employed a life-history method that the overall extent to which mineworkers felt, and gave evidence of, significantly improved lives could have been established. Siphwiwe Litchfield's father managed to support her during her diploma in ceramics technology and electrical science.²⁰ Martha Maseko concerns herself with how to plan for the university education of her children. John Booi successfully completed his boilermaker's certification.²¹ While Juliet Mkhabela discontinued her university education after the retrenchment of her father from the coalmine in 1993, she is currently pursuing a certificate course in Human Resources. Many have an eye on the bursary scheme that many mines now offer for themselves and for their children.

The women certainly grabbed the new opportunities now available to establish a greater degree of personal independence. That the mines have since 2002 been required to reserve 10 percent of employment opportunities for black women is attributed to the NUM in these life histories (Nite and Stewart, 2012: Juliet's, Siphwiwe's and Maseko's accounts). Whatever the actual origin of this

policy, it is aimed at two ends. The mines should become a wherewithal for skill formation among black women, and there should be a degree of parity between the employment of white women, previously employed in the mine offices, and black women. The social dividend of this policy is clearly manifest in the life of Juliet Mkhabela who says, 'There is nothing to stop me now.' This represents positive hope for the future.

While widely welcomed, these changes have not gone far enough for many. For Jozine, workers are still tormented, unsafe and bear the brunt of a lack of care regarding health risks. Certainly, racial discrimination has not suddenly been completely eliminated. This continues as when, for example, Vukile Booï was denied training on the grounds of race. He fought the matter and, as his account shows, managed to win the day. He has been a boilermaker artisan since 1997 and, as the only black artisan, continued to fight against more subtle forms of racial discrimination in his new workplace, and was dismissed again in 1999 for his pains. His case took two years in the Commission for Conciliation, Mediation and Arbitration (CCMA). He says, 'I won it. I came back victorious to the mine. Today, I am a shaft steward.'

If Moodie is correct that the resolution to the significant violent confrontations in the mines in the 1980s lay with a compromise between contending classes, then one would expect new institutional responses to claw back the considerable costs incurred in granting concessions to organized black labour as manifested in their improved conditions of life. The new systems of collective bargaining in a multiracial democracy, institutionalized by the Labour Relations Act 1995, required that adjustments and new ways of ensuring continued profitability be found. Employers, consequently, adopted three-fold measures to protect returns to the shareholders. Since 1997 they have extended the benefits of production bonuses, previously available only to supervisory staff and team leaders until the 1980s, to crewmen. The evidence of the mine overseer, Anton Vosloo, concurs with these dates.²² In some mines this bonus comes into effect only if output exceeds the established monthly target laid down for the crew. Under the *zama zama* (overtime) shift arrangement some mineworkers are engaged in production over weekends and earn production bonuses rather than being paid at normal overtime rates. Some workers like this arrangement; while the NUM has been known to resist calls for *zama zama* shifts. For the management, it guarantees returns without higher labour costs, which have been ballooning as a result of new social wages. At times, for instance, crewmen have secured greater earnings from these production bonuses than from their basic monthly salaries. At the same time, the rush for production, which this system encourages, compromises safety. This situation embodies what Phakathi (2012: 289) calls a new or 'soft touch' form of worker coercion due to the malign effects of the new production system.

Further, after 1987 the industry once again increased the recruitment of non-South African labour, not least to attenuate the presence of the new generation of highly politicized local labour. The attempt was short-lived and appears to have petered out since 1994 with the dawn of a democratic South Africa. It could be said, however, that the industry managed to devise a way around the problems that its recalcitrant workforce caused it. This was to turn to subcontracted labour and has been well documented (Bezuidenhout 2006; Bezuidenhout and Kenny, 1999; Crush et al., 2001). Labour contractors increasingly supply, control and manage the labour force. London Mkhomqo, a miner and shaft steward, informs us that in the company for which he works (Xstrata), contract labour formed nearly 40 percent of the total workforce in the south Witbank coal mines in 2011.²³ These are regular workers, but are classified as temporary. Subcontracted labour does not qualify for social insurance benefits, such as paid leave, and their hours are known to be notoriously long and unrecorded. While the NUM has long believed in organizing this 'underclass' of labourers, not least to prevent further segmentation of the labour market, it has had few successes on this front and has taken it up as a national political issue, tells Mkhomqo. We are yet not sure of any effect of his statement.

For these subcontracted mineworkers, the PCC turned out to be a source of their problems. In the early 1990s, scholars like Crush et al. (1991: 210–211) and Whiteside (1993) have underscored the tendency of emergence of a corporatist model – the tripartite rule of big government, big business and big unions – of the labour–management relationship in the mining industry. Under this labour regime, they conjectured, black miners could become privileged elite, protected by a closed shop union. The subsequent decades witnessed history *partially* unfolding along the lines of their conjecture. Management successfully created the subcontracted labour as an underclass, which has gradually been whittling away the weight of the so-called ‘privileged elite.’ An answer to this political economic challenge does not straightforwardly invoke the demand for nationalization between our informants.

Our informants express a remarkably grounded set of opinions about nationalization of the mines, including ones fraught with ambiguity. ‘In the hands of government,’ Mkhomqo opines, ‘the mines may not turn out further safer than what it is at present. Currently, the mines are bound to follow the sound safety rules laid down by government.’ Similarly, ‘workers may not receive a better economic deal than what is presently available to us, because government already refuses to offer any substantially improved deal to its own employees. Indeed, the government administrator sucks out their own employer (i.e. government), which will indubitably cause bankruptcy in case of industrial management,’ argues Booi.

The mining companies transfer certain revenues to community-help programmes, like schools, computer training and other skill-building centres, clinics and parks in the (black) community. The mining regime grounds itself in such community-helping programmes. The latter represents a *modus vivendi*, which capital and democratic government have arrived at under the paradigm of corporate social responsibility. ‘Employers should first fulfil the demand of employees before transferring of revenue to other charity work,’ opines Litchfield. The employees should have free access to these social services financially supported by mining companies in the community, says Booi. These testimonies, it could be said, allude to the fact that a utilitarian imagination of social change has become the ideological foundation of the contemporary labour regime. This is little to serve the demand for nationalization that would transfer industrial surplus for redistributive justice between the non-mining populations.

Conclusions

The argument of the moral economy of mines claims to illuminate the consent and the function of associational power of the mineworkers, as it was the real foundation of social exchanges between management and black mineworkers. The life histories bring out how the moral economy was fragile and as a tool of analysis hindered a clear understanding of the facets of workers’ experience, feeling and human essence. Mineworkers questioned the coercive behaviour of supervisors and the dangerous conditions of their workplaces. They deprecated their deficient sexual life, which was tortuous and had roots in the single-sex hostel and work contracts devoid of family leave. The moral economy of the mines *inter alia* involved the elimination of non-conformist but industrious persons out of the system (contra Alexander 2003). It also meant the denial of any opportunity for a fuller human life; and was causative of morbid sexual and emotional ways of life.

The life histories further shows how the rank and file generally endorsed and participated in what Moodie depicts as a positive class compromise struck between management and the workers’ union in the 1980s to 1990s. Mineworkers found themselves justified for investing in national democratic revolution, which they saw as a necessary precondition for the consolidation of union effects in the 1990s. The combined effects of economic and political struggles brought to them a series of modifications in the labour regime with a view to gaining a regular family life and

advancing humanity. This notwithstanding, we find our informants sharing varied opinions over the transformation seen in the last three decades. Depending on their personal experiences, the transformation was celebratory and truncated. For black mineworkers, the norm of exclusion gave way to that of discrimination between, and differentiation of, labourers. It engendered the spirit of a new range of fights to secure opportunities. Management effectively replaced white boss-ism by economism and a corporatist model of labour management relationship.

Acknowledgements

Mr Bongani Xezwi and Ms Jabulile Masimang helped us complete the interviewing process. Mr Xezwi, Ms Sharon Harmse and Ms Mukondiee Nethavhakone assisted in transcribing and translating the interviews. We express our special thanks to the anonymous referee of the journal for suggesting certain corrections to other lapses in transliteration. We have been humbled by the generosity of 22 informants.

Notes

1. They have applied and developed this concept, whose origin goes to a seminal work by Thompson (1971). Scot (1977) has worked out a similar discussion through the concept of the moral economy of the peasant in the case of peasant life in Burma (contemporary Myanmar) and Vietnam in the twentieth century.
2. The root of this argument is Burawoy's (1985: 209–252) discussion on colonial despotism in Zambian copper mines in Southern Africa.
3. Two field staff members helped us complete the interviewing process. Three staff members, assisted in transcribing and translating the interviews conducted mostly in the vernacular, including the Zulu, the Xhosa and the Sotho. Interviews in the vernacular with the old mineworkers were guided by our assumption that the narrators would be at ease in sharing their life histories with us. Translators and transcribes, decidedly, were confronted with a gap between their knowledge of contemporary vernacular and English, on one side and, on the other, the 'deep Zulu' (dated Zulu words). They sought the favour of their own neighbours in order to overcome, to an extent, the difficulty of transliteration. Recorded interviews are preserved at the South African Research Chair in Social Change, University of Johannesburg and with Paul Stewart, University of Witwatersrand.
4. Elsie Mkhabela: first interviewed at her Lynville residence in July 2011. She started working as a domestic in the South Witbank coalmine from 1967. She worked as a permanent employee ('kitchen girl' and hostel cleaner) between 1984 and 2010 at an Anglo American coalmine.
5. Juliet Mkhabela: first interviewed at her Lynville residence in August 2011. She is a fourth generation mineworker in her family and daughter of Elsie Mkhabela. She was employed in a coalmine in 2003 as a weighbridge operator and was promoted to the Human Resource department. She was a shaft steward of the NUM for two years.
6. Alfred Jozine: first interviewed in July 2011 at Khutsong. He is a seventy-six year old man. He came from Mozambique (Maputu) and settled in Khutsong Township. He had some schooling in a Portuguese school at his village. He joined a goldmine in 1957. Following his retirement in 1996, he survives by running a small grocery shop from his house.
7. Patrick Austin Mphandwe: first interviewed at Khutsong Township on 21 August 2011. He was born in the township and worked in a goldmine at Boksburg, a platinum mine at Rustenburg and a goldmine mine at Klerksdorp from 1997 to 2007. By the time of our third round of interviews, in April 2012, he had been retrenched from his job at the First uranium mine in Carletonville where he had worked from 2008 to 2012.
8. Moses Xaba: first interviewed at Khutsong Township in July 2011. He was born at Pietermaritzburg in 1953, was employed at Doornfontein mine as a shoveller in 1969 and lost his job in 1974. He now runs a small business in Khutsong Township. The old worker used to make a young recruit his *nyatsi* and have thigh sex.
9. Sechaba Matiase Ezekiel: first interviewed at Witbank NUM's office on 1 July 2011. He was born in Lesotho in 1953. He stepped into his father's profession in 1972 upon his death in a Witbank colliery. He

- had schooling only for reading and writing. During our last interview in June 2012, we found him retired from the BHP Billiton-owned colliery and busy taking his belongings back to Lesotho.
10. Phillimon Mamohjela Motswere: first interviewed at his residence at Arkaville in August 2011. He was born in 1943, worked in the capacities of shoveller, conveyor belt operator, instructor and machine operator from 1961 to 2004, when he went on pension from an Anglo American coalmine.
 11. Luke Mathebula: first interviewed at Khutsong in July 2011. He came from Phongolo. He was born in 1958 and attended school until standard five. He joined a goldmine in Carletonville in 1974, but lost his job in 1997. He currently manages a grocery and vegetable shop.
 12. Shifting from his earlier position, Moodie (2010b) has recently showed that in the 1970s even older mineworkers expressed a feeling of being humiliated by racism and abuse in the mines.
 13. For a discussion on the AMWU, see Allen (1991: 324–352).
 14. John Masilela: first interviewed at NUM's Witbank office in June 2011. He was born in 1955 at a farm in the Witbank area, studied until standard eight and worked at a coalmine since 1976. He retired in December 2012 and died in a road accident in March 2012.
 15. Cecilia Mohloua: first interviewed at his RDP house in Badela on 26 August 2011. She was born in Transkei homeland in 1955, married in 1974 and joined her husband at an Anglo's goldmine family quarter in 1979. In the same year, she also took up the job of kitchen girl at the mine. She quit the job due to arthritis in 2008.
 16. The mineworker from Marikana has shared this with the interviewer with a view to explaining why they have been asking for wages of R12,500 from the Lonmin Management. See Alexander (2012).
 17. Nsangweni Mazibuko: first interviewed at his residence in Arkaville in August 2011. He was born in 1936, joined a coalmine as a nurse in 1957 and retired in 1999. He was head of the liaison committee in the 1970s and a shop steward between 1984 and 1999.
 18. For details see McCulloch (2013).
 19. Martha Maseko: first interviewed at her residence in Ogies in August 2011. She was born in 1959 and worked in the capacities of tea lady, mine clerk, hostel secretary, control room staff and chairperson of the womens' cell at a Khutala coalmine, owned by BHP Billiton, from 1987 to 2012.
 20. Sipiwe Litchfield: first interviewed at the Witbank NUM office in September 2011. She was born in 1977 at Witbank coalfield, studied for a diploma in ceramic technology and a certificate in electrical and plant management. She joined an Xstrata colliery in 2005 as a weighbridge person, was promoted to electrician in 2005, and is elected as a shaft steward.
 21. John Vukile Boo: first interviewed at the Witbank NUM office and his Extension Two residence in July and December 2011. He was born in the Eastern Cape in 1967, matriculated in 1989 and joined the Tevistockdoorp coalmine, owned by the JP company (the current Xstrata), in 1992.
 22. Anton Vosloo: interviewed at his Carletonville residence in January 2012. He began working as a miner (overseer) and rose to a managerial position on the basis of his practical experience of work. He has been working in various capacities at a goldmine since 1988.
 23. London Mkhomqo: interviewed at the Witbank NUM office and his Extension Ten residence in July and December 2011. He was born at Witbank in 1971, joined the JP coalmine in 1992, promoted to the position of miner in 2006 and elected to shaft steward in 2009.

References

- Alexander P (2003) Paternalised labour, policing and political economy: Highveld Colliery strikes 1925–49. *Social Dynamics: A Journal of African Studies* 29(1): 49–77.
- Alexander P (2005) A moral economy, an isolated mass and paternalised migrants: Transvaal Colliery strikes, 1925–49. In: Berger S, Croll A and LaPorte N (eds) *Towards a Comparative History of Coalfield Societies*. Burlington: Ashgate, pp. 238–252.
- Alexander PT, Lekgowa B, Mmope L, et al. (2012) *Marikana: A View from the Mountain and a Case to Answer*. Johannesburg: Jacana Press.
- Allen VI (1991) *The History of Black Mineworkers: The Techniques of Resistance, 1871–1948*, vol. I. London: The Moor Press.

- Allen VI (2002) *The History of Black Mineworkers: Repression and Dissent in the Compound*, vol. II. London: The Moor Press.
- Bezuidenhout A (2006) Mining externalization in South Africa under apartheid. Report, Sociology of Work Unit, University of Witwatersrand.
- Bezuidenhout A and Kenny B (1999) Contracting, complexity and control: An overview of the changing nature of subcontracting in the South African mining industry. *The Journal of the South African Institute of Mining and Metallurgy* 99(4): 185–191.
- Bozzoli B (2004) *Theatres of Struggle and the End of Apartheid*. Athens, OH: Ohio University Press.
- Burawoy M (1985) *The Politics of Production: Factory Regimes under Capitalism and Socialism*. London: Verso.
- Crush J, Jeeves A and Yudelman D (1991) *South Africa's Labour Empire: A History of Black Migrancy to the Gold Mines*. Cape Town: David Philip.
- Crush J, Ulicki T, Tseane T, et al. (2001) Undermining labour: The rise of sub-contracting in the South African mines. *Journal of Southern African Studies* 27(1): 5–31.
- McCulloch J (2013) Medicine, politics and disease on South Africa's gold mines. *Journal of Southern African Studies* 39(3): 543–556.
- Moodie TD (1994) *Going for Gold: Men, Mines and Migration*. London: California University Press.
- Moodie TD (2010a) Comprehending class compromise in the history of class struggle in South African gold mines: Variation and vicissitudes of class power. *South African Review of Sociology* 41(3): 99–116.
- Moodie TD (2010b) Becoming a social movement union: Cyril Ramaphosa and the National Union of Mineworkers. *Transformation: Critical Perspectives on Southern Africa* 72/73: 152–180.
- Moodie TD (2012) The history of mining on Witwatersrand. A Special Lecture delivered at the International Mining History Congress 2012, Johannesburg.
- Moodie TD (2013) Bra Soks: An inside story of the rise of the National Union of Mineworkers at Vaal Reefs gold mine. *South African Historical Journal* 65(3): 383–402.
- Nite DK (2014) Sharing life-history and other memory: The mining persons in South Africa, 1951–2011. *South Africa Historical Journal* 66(1): 121–141.
- Nite DK and Stewart P (2012) *Mining Faces: An Oral History of Mineworkers on the Gold and Coalmines in South Africa*. Johannesburg: Jacana Press.
- Phakathi TS (2012) Worker agency in colonial, apartheid and post-apartheid gold mining workplace regimes: South Africa. *Review of African Political Economy* 39(132): 279–294.
- Scot J (1977) *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*. London: Yale University Press.
- Thompson EP (1971) The moral economy of the English crowd in the eighteenth century. *Past and Present* 50(1): 76–136.
- Van Onselen C (1976) *Chibaro: African Mine Labour in Southern Rhodesia, 1900–1933*. London: Pluto.
- Whiteside A (1993) South Africa's labour empire: A history of black migrancy to the gold mines. *Africa: Journal of the International African Institute* 63(2): 282–284.

Author biographies

Dhiraj Kumar Nite is a Researcher in Historical Anthropology, and has written on the labour relations and experiences of the mining people in India and South Africa.

Paul Stewar is a Researcher in Sociology, and has written on the labour - management relationship and history of the mining people in South Africa.