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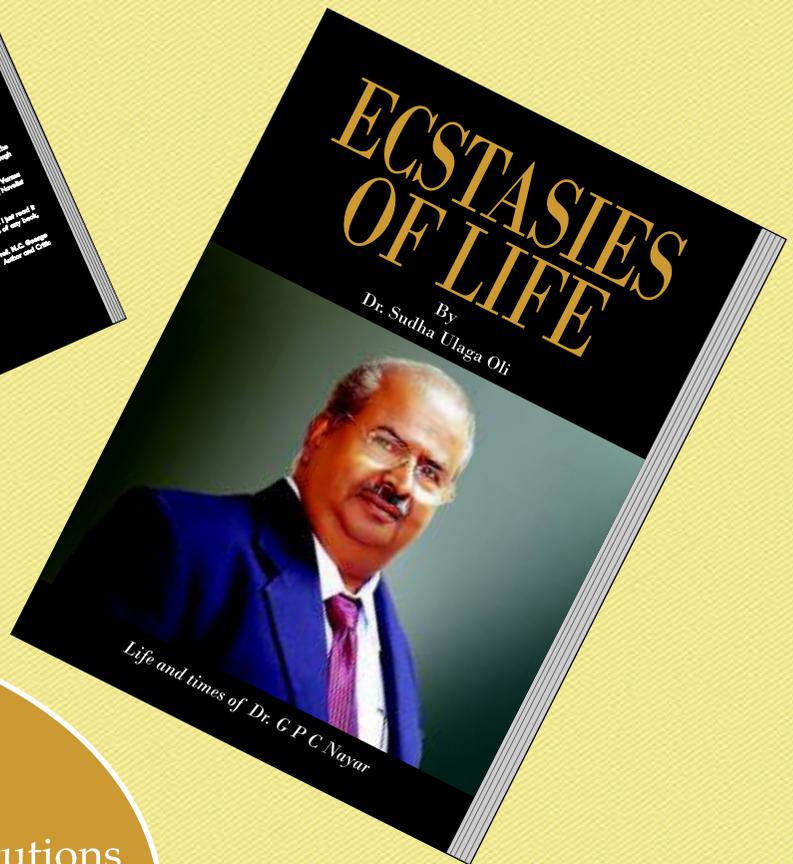
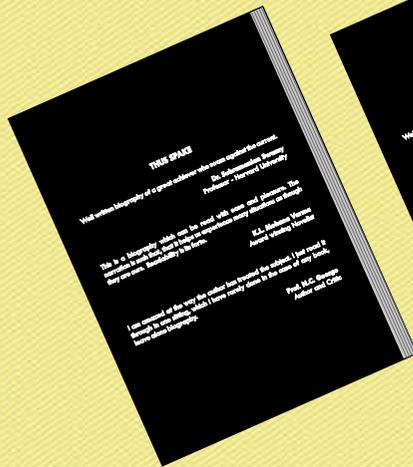
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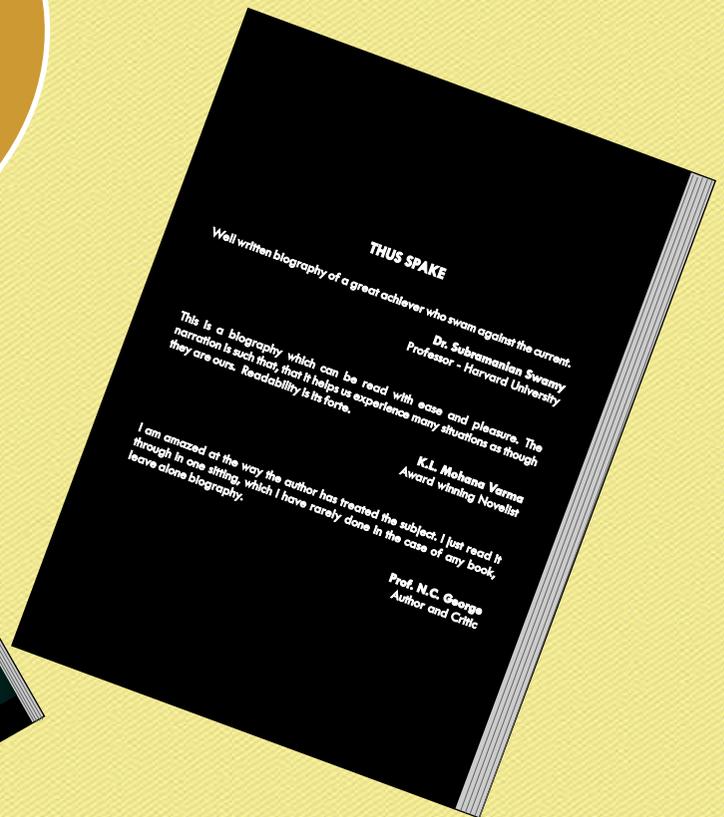
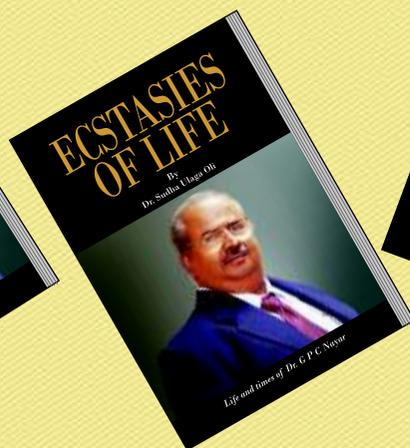
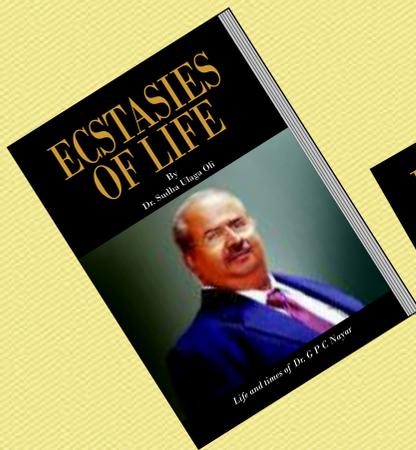
Neetu Sharma

DMM Model in Celebrity: Brand Advertisements

Aakash Ashok Kamble



Here's an entrepreneur who has created some excellent academic institutions in an unfriendly environment. It is a saga of trials and tribulations in an extremely readable manner by a consummate writer in English.



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Chairman's Overview

Money can make a major influence on our life. Because, it can determine what we can do and how well we can do what we need to do for a better life. Hence, if we are to take control of our life, we need to learn how to manage our money efficiently.

In a similar way, a company's performance in the area of finance affects all aspects of its operations. No matter how well a company produces and markets its products, in the event of its poor management of finance the business can flop. As such, money can be termed as a potent lubricant which can help to keep the enterprise dynamic, progressive and one that creates values.

Of late, some of our readers had been requesting us to bring out more research studies pertaining to the topic of money management. In this issue, we have pleasure to bring to you more papers related to this vital area of management.

While the lead article in the series deals with safe-guarding investments through delta-hedging, the second article is on the factors that affect mutual fund investors' perception about the investment choice and satisfaction. A study on the penetration of the various financial services offered by banks to the urban unorganised sector workers is the third in the series. And, the fourth is an investigation into the future prices of castor seeds.

As usual, we have in this issue a variety of learned articles on diverse contemporary topics like stress & academic performance, performance-linked reward, employee engagement, solid waste management, public policy making, et al.

I am confident that this issue will be truly informative and educative to our readers.

Dr. G. P. C. NAYAR

Chairman, SCMS Group of Educational Institutions.

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Editorial



Culture and adaptation: Imperatives, Electives, and Exclusives

Cultural adaptation is a golden phrase in business. It does not connote one has to do away with one's own culture to adapt to another. Of course one has to adhere to some cultural beliefs religiously. One has to know what one can abstain from too. Moreover, one has to be surely discreet in what one has to agree to some beliefs under specific situations.

Some companies show apathy towards adaptation. They think they are superior to others. Therefore they will not budge from their culture. They are reluctant to that. They think that it's others who have to adapt to their culture. Cultural imperialism doesn't let a culture adapt itself to other so called subservient cultures. One telling example is business organizations despite their initial prejudices for their native tongue, have successfully accepted English culture through the language in their communication activities.

Business demands adaptation. The more it is adaptive, the more it is international. It shows that its success rests on its adaptation. Adaptation here means adaptation to business culture through three groups of its manifestations: cultural imperatives, cultural electives, and cultural exclusives.

Cultural imperatives are customs that we must conform to if we wish to ensure success in business. Building relationships is an offshoot of cultural Imperative. Relationship management is now a common phrase. In China and Japan it is used meticulously. Business people do not business with companies. They do it with people. As we launch business in another country, the cultural imperative demands spending time building relationship there. Never shall we underestimate the relevance of building trust with your business partner. It will break or make a deal. Cultural electives are customs we have to conform to, but there is no compulsory conformation demanded. We may be uncomfortable with many customs and beliefs in other countries. But we may politely decline what we don't solicit. In the Czech Republic it is said liquor is offered to break the ice at b-meetings. Time is not a factor. To friendship and trust, it is mandatory even in the dawn. You can politely accept the offer, you can have a ceremonial sip, or you pretend you sip. Arabs offer coffee to sign friendship. You are expected to accept it. It doesn't mean you need drink it. Most such customs fall under the cultural elective category.

Cultural exclusives are customs that are meant for locals only. We will even break a deal if we partake in these customs. A Christian in Middle East shall not act like a Muslim, which is deemed an insult to Islam. Never crack a joke on another country's politics. Never speak critically or skeptically on another's custom. We have to be very strict in dealing cultural exclusives.

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Discrete Delta-hedging : Indian Market

N. S. Nilakantan & Shalini Talwar

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Black-Scholes model is imperfect despite its prevalent use in hedging, as it assumes continuous hedging and zero transaction cost. This paper draws upon the ongoing research to explore this aspect by empirically testing the model for discrete delta-hedging with European call options on 12 NIFTY-constituent stocks. B-S replication strategy is studied by carrying out Monte Carlo simulations of the model and analysing the results for the uncertainty in the replication error. Three scenarios based on Monte Carlo simulation: hedging once, twice, and four times a day have been analysed. Based on the analysis, observations have been formulated and recommendations suggested.

Key Words : B-S portfolio, Call option, delta-hedging, option payoffs, transaction costs.

JEL Classification: C02, G10, G13, G17.



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Black-Scholes (1973) model and its extensions are prevalent in the estimation of the premium of European and other options. The model suggests that once the future volatility of the stock is known, we can replicate the option payoff by continuously rebalancing the portfolio consisting of the underlying stock and a risk-free bond. The model assumes an efficient market where no transaction costs are incurred, the returns are lognormally distributed and trading is carried out continuously.

After its emergence, particularly during the past four decades, the model has been found to be imperfect in many ways, despite its widespread use. It ignores the impact of the market and assumes nil transaction cost. It also assumes that hedging takes place continuously which is not practical. Nevertheless the model is rational, and therefore it is possible to consider modifications of its assumptions and results. According to Kamal (1998), the Black-Scholes-Merton theory can be used to investigate its own shortcomings. This is found to be a focus area of research for many researchers worldwide.

The B-S model suggests delta hedging of the portfolio in the context of the asset price being a continuous variable. In practice, the stock prices are restricted to discrete values and changes can be observed only during trading hours. While it is practically impossible to implement continuous delta hedging, a discrete hedging strategy deviates from the Black-Scholes model and the final P&L may deviate from zero. This deviation is called replication error. In general, we expect to reduce this error by increasing the number of discrete hedges with the hope that, by decreasing the discrete intervals of rehedging, this error can be minimised to almost follow the Black-Scholes model.

This paper presents an extension of the Black-Scholes model for option pricing by applying discrete delta-hedging to call options on top 12 NIFTY-constituent stocks which constituted more than 60% of the market capitalisation of NSE during April 2014. The B-S portfolio has been hedged with real as well as simulated data. The effect of increase in the frequency of hedging has been measured to see how it would affect the value of final profit & loss and its standard deviation. Authors' expectation was that with the increase in the frequency of hedging, the final profit/loss figure would progressively tend to zero and its standard deviation would also decrease. The paper rests on hypothesis that, as the hedging frequency increased, it would lead to decrease in standard deviation.

The paper outline is as follows: in Section 2, literature review catalogues the research conducted in the field so far. In section 3, the methodology is discussed followed by section 4, where the outcomes of discrete hedging with actual prices (post-facto) and with different hedging scenarios (1, 2, and 4 times a day) using Monte Carlo simulation are presented. Discussion of results and conclusion is given in section 5.

Discrete hedging

In the light of the impracticality of continuous hedging, we can think of the alternative of frequent hedging of the option at discrete time intervals. In Kamal (1998), the Goldman Sachs team studied the possibility of discrete hedging, by examining the error that arises when you replicate a single option throughout its lifetime according to the Black-Scholes replication strategy, with the constraint that only a discrete number of rebalancing trades at regular intervals is allowed. To study the replication error, they carried out Monte Carlo simulations of the Black-Scholes hedging strategy for a single European-style option and analysed the resulting

uncertainty (that is, the error) in the replication value. They showed that these errors follow a simple rule-of-thumb that is related to statistical uncertainty that arises in estimating volatility from a discrete number of observations: the typical error in the replication value is proportional to the vega of the option (its volatility sensitivity, sometimes also called kappa) multiplied by the uncertainty in its observed volatility.

Trabelsi and Trad (2002) studied the same aspect of discrete hedging by examining a hedging strategy in which they supposed that the hedger trades at a fixed number N of rebalancing times. In the context of repeated discrete hedging, it is also necessary to consider transaction costs which are assumed to be nil in the Black-Scholes model.

Hedging with Transaction Costs

Implementing a financial decision is not free of costs. Transaction costs are incurred as and when the re-hedging leads to buying and selling of stocks. The presence of transaction costs usually leads to reduced portfolio returns. While trading strategies are developed after considering all costs which are incurred to facilitate the transaction, the theoretical models like Black-Scholes in general ignore transaction costs.

The option valuation problem including transaction costs has been studied extensively in the financial literature. It is known that transaction costs can be included into the Black-Scholes-Merton equation by considering appropriately adjusted volatility (Leland 1985; Avellaneda and Paras 1994; Toft 1996 and Mastinsek 2006). Focusing on the issue of transaction costs, a major leap forward was made by Leland (1985), who altered the Black-Scholes delta hedging methodology by incorporating transaction costs into the mix. This move significantly improved the performance of the Black-Scholes methodology with proportional transaction costs. Mastinsek (2006) considered the discrete hedging process after incorporating transaction costs. The paper dealt with the problem of discrete-time delta hedging and discrete-time option valuation by the Black-Scholes model. He considered the hedging error and obtained a discrete-time adjusted Black-Scholes equation. Based on the analysis, he suggested that by anticipating the time sensitivity of delta in many cases the discrete-time delta hedging can be improved and more accurate delta values dependent on the length of the rebalancing intervals can be obtained.

Hayashi and Mykland (2005) developed an asymptotic approach for evaluating hedging errors. Since Black-Scholes' hedging strategy was self-financing which is not possible generally in incomplete markets, they are interested in the incompleteness when only discrete-time hedging are allowed. For this, they utilize an asymptotic approach, and study the asymptotic distribution of hedging errors as the time interval of the discreteness goes to zero. The results obtained give a prospect for further developments of the framework under which various parametric strategies could be compared in a unified manner.

Other noteworthy works on dynamic hedging with transaction costs include Hodges and Neuberger (1989), Davis et al. (1993), and Whalley and Wilmott (1993), all of whose methodologies set boundaries on the hedging positions and indicated rebalance only once the positions held fell outside those boundaries. Such methodologies draw conclusions by taking advantage of some features of certain utility functions, such as the exponential utility function Whalley and Wilmott (1994a, b, 1995, 1997), Davis and Norman (1990), Hoggard et al. (1994), and Henrotte (1993) Dewynne et al. (1994, 1995) expanded the discussion to include exotic options. Boyle and Vorst (1992) used the binomial method in arriving at conclusions similar to Leland (1985). Neuberger (1994) talks of underlying asset following a Poisson model. Bensaid et al. (1992), Clewlow and Hodges (1997), and Edirisinghe et al. (1993) have also discussed dynamic hedging with transaction costs.

As can be witnessed from the excerpts of research work reproduced above, dynamic hedging with transaction costs has received much attention in the recent past.

Portfolio Approach to Option Valuation

The portfolio approach to asset pricing and asset management has deep roots in the financial economics literature. Early work for linear securities like stocks dates back to Markowitz (1952), Sharpe (1964), Lintner (1965), and Ross (1976). Their work and findings indicate that security-specific risks, also called idiosyncratic risk factors, can and should be diversified as much as possible and that in equilibrium only systematic or common risk factors are priced. The dominant approaches in most of the theoretical options literature, however, are based on pricing and hedging of individual options (e.g. Black and Scholes, 1973) or portfolios of options on a single underlying security (e.g. Mello and Neuhaus, 1998).

The important distinction between idiosyncratic risk and systematic risk known from the literature on linear securities hardly appears to play a role for option hedging. In the Black-Scholes-Merton setting the price of an option is determined by its total volatility, i.e. both its idiosyncratic and systematic part. Similarly, in this theory the hedge portfolio for an option hedges the total risk rather than the systematic risk only.

Peeters, Dert, and Lucas (2003) studied the hedging of large portfolios of options in discrete time. They took a portfolio perspective on option pricing and hedging and showed that, within the standard Black-Scholes framework, large portfolios of options can be hedged without risk in discrete time. Based on their results, they showed that preference free valuation of option portfolios using linear assets only is applicable in discrete time as well and that for portfolios of finite size, the optimal hedge strategy makes a trade-off between hedging linear idiosyncratic and higher order systematic risk.

After a careful study of the many papers, we picked up the aspect of discrete hedging within the basic B-S model. Goldman Sachs (Kamal, 1998) studied this aspect in some detail based on simulation. That work, however, depended on hypothetical simulation and not on actual prices or real cases of options based on market stocks. Hence we decided to conduct simple tests in the Indian market on the specific aspect of discrete delta hedging on various single stock options.

Methodology

Black-Scholes Option Pricing Model

The value of a call option for a non-dividend paying underlying stock in terms of the Black-Scholes parameters is:

$$C(S, t) = N(d_1)S - N(d_2)Ke^{-r(T-t)}$$

$$d_1 = \frac{1}{\sigma\sqrt{T-t}} \left[\ln\left(\frac{S}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)(T-t) \right] \quad (\text{EQ. 1})$$

$$d_2 = \frac{1}{\sigma\sqrt{T-t}} \left[\ln\left(\frac{S}{K}\right) + \left(r - \frac{\sigma^2}{2}\right)(T-t) \right] \quad (\text{EQ. 2})$$

$$= d_1 - \sigma\sqrt{T-t} \quad (\text{EQ. 3})$$

Where:

- $N(\cdot)$ is the cumulative distributive function of the standard normal distribution
- T is the time to maturity

- S_0 is the spot price of the underlying asset at time $t=0$
- K is the strike price
- r is the risk free rate (annual rate, expressed in terms of continuous compounding)
- σ is the volatility of returns of the underlying asset.

The above formula can be used for a dividend-paying stock by ensuring that the present value of all the dividends during the life of the option is reduced from the stock price and the reduced stock price is used in the formula. A dividend is considered as occurring during the life of the option only if its ex-dividend date occurs during the life of the option.

Profit/loss on Call Options

Suppose an option seller sells a European call option at time $t=0$, with strike price K and expiring at $t = T$. Assuming that we operate within the B-S framework, the underlying stock price evolves log-normally with a known volatility σ (staying constant during the lifetime of the option). For simplicity, we assume the stock pays no dividends. In the sample data, we have analysed the dividend situation and ensured that necessary adjustments are made in the stock price S_0 at time $t=0$.

The hedger now follows a B-S hedging strategy, rehedging discrete number of times at equally-distanced time intervals as the stock price changes. At expiration, the hedger is ready to deliver the stock to the call option buyer. If $K > S_T$, the option buyer will not buy the stock from the hedger, in which case the hedger will unwind the position. If $K \leq S_T$, the hedger will clear his position by selling the stock to the option buyer. In both the cases, the final profit or loss can be calculated as:

Final P&L = Option Premium – Cost of B-S hedge at T.

Delta Hedging

Delta is defined as the sensitivity of an option to the underlying stock, keeping other variables unchanged. It is mathematically represented as

$$\delta = \frac{\partial C}{\partial S}$$

Discrete Hedging

If the hedger had followed the exact Black-Scholes replication strategy, rehedging continuously, as the underlying stock

evolved towards its final value at expiration, the final P&L would be exactly zero. This is the essence of the statement that the Black-Scholes formula provides the “fair” value of the option. In this paper an attempt is made to estimate the impact of discrete hedging on the final profit/loss value.

To study the replication error, Monte Carlo simulations of the Black-Scholes hedging strategy were carried out for single European call options and the results were analysed through the resulting uncertainty (that is, the error) in the replication value. Three scenarios, namely- hedging once a day, twice a day and four times a day- till the end of the stock trading period, have been analysed based on Monte Carlo simulation.

The paper rests on the hypothesis that as the hedging frequency increased, it would lead to proportionate decrease in standard deviation. Goldman Sachs suggested in their note that the standard deviation of the final P&L could be approximated by

$$\sigma_{P\&L} \approx \sqrt{\frac{\pi}{4}} (\kappa) \frac{\sigma}{\sqrt{N}} \tag{EQ.4}$$

Where $\hat{\epsilon}$ is the options vega – the B-S sensitivity of the option price to volatility, evaluated at the initial stock price S_0 at time $t=0$.

$$\kappa = \frac{dC}{d\sigma} (t=0, S=S_0) = S_0 \sqrt{T} \frac{\exp(-d_1^2)}{\sqrt{2\pi}} \quad \text{where } d_1 \text{ is given by Eq.1.}$$

Since the value of $\sqrt{\pi/4}$ comes to around 0.886, we could very well approximate this to be equal to one. N is the number of times the hedger rebalances during the life of the option. If it rebalances four times as frequently, it halves the typical size of the hedging error. When we hedge intermittently instead of continuously, we sample the underlying price discretely. Hence, we obtain an approximate measure of the true volatility of the underlying price and the estimated volatility itself has an error. This error introduced by discrete sampling is analogous to sampling error, where the standard error-standard deviation of the sampling distribution is defined as $1/\sqrt{N}$. Hence the standard deviation of the measured volatility based on N samples can be taken σ/\sqrt{N} . Therefore, the volatility we may actually see in hedging the option is:

$$\sigma_{\text{sampled}} \approx \sigma \pm \sigma/\sqrt{2N} \tag{EQ.5}$$

The option price captured in replication is an option price related to some volatility in this range so that

$$C_{(\sigma_{\text{sampled}})} - C_{(\sigma)} \approx \kappa (\sigma_{\text{sampled}} - \sigma) \quad \text{EQ.6}$$

where $C_{(\sigma)}$ is the Black-Scholes option price corresponding to volatility σ . The options vega $\hat{\kappa}$ is used for approximately accounting for the option's sensitivity to the error in volatility. We should then expect an average profit/loss of zero with a standard deviation in profit/loss that is proportional to the standard deviation of the measured volatility:

$$\sigma_{\text{P\&L}} \approx (\hat{\kappa}) \frac{\sigma}{\sqrt{N}} \quad \text{EQ.7}$$

This equation is very close to EQ. 4, excepting for the numerical difference between $\sqrt{\pi/4}$, and 1.

Hypothesis and Sample Data

In this paper, an attempt has been made to increase the frequency of hedge to see how it would affect the value of final profit/loss and its standard deviation. It was expected that the final profit/loss figure would progressively tend to zero as the frequency of hedge increased while its standard deviation would also decrease.

We selected call options on top 12 NIFTY-constituent stocks which constituted more than 60% of the market capitalisation of NSE during April 2014 and hedged the B-S portfolio with real as well as simulated data. The data on the options and the underlying stocks were collected from NSE's website. After analysing the data on dividends declared during the life of the options, it was found that only the stock price of ONGC needed adjustment for dividend declared during the life of the option. This was done by adjusting the present value of the dividend from S_0 , the opening stock price.

Actual Delta Hedging once-a-day

The actual stock prices are used to see how the hedge works. For SBI stock, we analysed the call option on SBI stock, at a strike price of Rs. 1750 with a settled premium of Rs. 61.05 for the near-month option (expiring on April 24, 2014). The strike prices were identified by the highest transaction volumes registered for the call options on that date. The stock price S_0 was 1725.6 (opening price on March 24, 2014).

The value of r , the risk-free interest rate, was taken as 8.87 % p.a., which is the T-bill rate indicated by NSE on 24th Mar, 2014. The volatility considered is annualised volatility, σ which is taken from NSE as 30.91% in the case of SBI, calculated by NSE following EWMA methodology. Using these figures, the values of d_1 and d_2 were calculated as $d_1 = -0.17$ and $d_2 = -0.26$, based on equations (EQ.2 & 3). The corresponding call option premium was calculated as Rs. 56.01, based on the B-S formula (EQ.1). Based on the settled call premium of Rs. 61.05 for the near-month SBI call option, implied volatility was calculated by inverting the equation using DerivaGem software (Hull, 2005), as against the annualised volatility of 30.91%, the implied volatility came out to be 33.45 %, a little away from the assumed volatility.

Hedging is done once daily and the cost of hedging is calculated accordingly based on the above inputs and parameters. Similarly, the details for the actual daily hedging for the other 11 stocks were also worked out. The details of the exercise for SBI are shown in **exhibit 1** in Appendix. Based on actual stock price movements of SBI, the cost of hedging and final profit/loss are Rs. 53.95 and Rs.2.06 respectively. Summary figures of actual hedging for SBI and other options are presented in **exhibit 2** (Appendix).

Simulated Hedging

Similar results were also derived through Monte Carlo simulations where we simulated the hedging during the period over a large number of runs (50000) and derived the average profit/loss and the standard deviation. First, it is considered that investor delta-hedges only once a day on all trading days during the period till maturity. As shown in **exhibit 3** (Appendix), we see that the option ends in the money and is exercised. The average cost of hedging and final profit/loss, over 50000 runs are obtained as Rs.52.83 and Rs.3.19 respectively.

The frequency of hedging was increased to twice and four times a day and the final summary results are obtained separately for a) hedging once per trading day, b) hedging twice a day, and c) hedging four times a day. Summary results of the simulations under different scenarios for all the stock call options are presented in **Table 1**.

Table 1- Consolidated Results – Simulated Hedging

Stock Options	Once a day			Twice a day			Four Times a day		
	Stock Price at T	Cost of Hedging	Average Final P/L	Stock Price at T	Cost of Hedging	Average Final P/L	Stock Price at T	Cost of Hedging	Average Final P/L
SBI	1733.95	52.78	Rs. 3.23	1734.38	52.86	Rs. 3.16	1733.75	52.84	Rs. 3.17
L&T	1224.28	27.68	Rs. 2.19	1226.07	27.81	Rs. 2.05	1225.27	27.77	Rs. 2.10
ONGC	305.25	11.07	Rs. 0.69	304.85	11.11	Rs. 0.66	305.21	11.14	Rs. 0.63
RELIANCE	891.87	33.75	Rs. 1.82	892.28	33.82	Rs. 1.75	891.96	33.83	Rs. 1.74
ITC	358.31	11.21	Rs. 0.67	358.38	11.22	Rs. 0.66	358.26	11.21	Rs. 0.68
ICICI	1203.47	15.30	Rs. 1.61	1204.54	15.30	Rs. 1.54	1203.89	16.01	Rs. 1.61
HDFC	846.25	9.81	Rs. 1.02	845.86	9.78	Rs. 1.04	845.79	9.78	Rs. 1.04
HDFC Bank	736.02	5.07	Rs. 0.68	736.12	5.07	Rs. 0.67	735.80	5.08	Rs. 0.67
INFY	3311.76	112.64	Rs. 6.76	3312.09	112.67	Rs. 6.73	3311.81	113.07	Rs. 6.33
M&M	977.89	25.67	Rs. 1.62	978.62	25.54	Rs. 1.76	979.53	25.58	Rs. 1.71
TATA POWER	79.82	3.29	Rs. 0.16	79.76	3.29	Rs. 0.16	79.80	3.28	Rs. 0.16
TCS	2139.59	30.03	Rs. 2.97	2140.82	30.06	Rs. 2.94	2139.53	30.12	Rs. 2.88

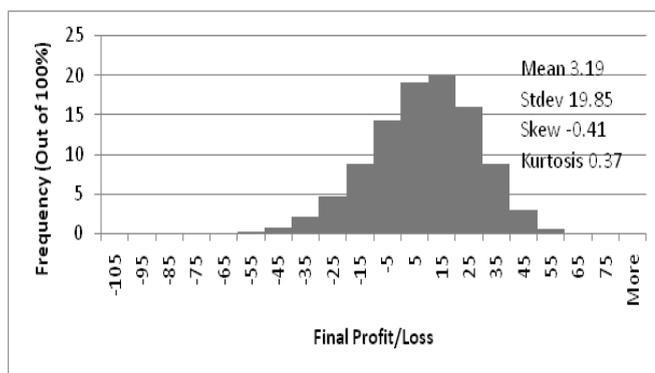
Source: Based on authors’ calculations

It can be observed from the table that the final profit/loss is not near zero excepting for TATAPOWER where it is 0.16. However, we observe that the profit/loss in different scenarios of once, twice and four times a day hedging, does not vary much. In the cases of Infy the difference is more.

The results of the simulation are collated for SBI option, and presented as a histogram of relative frequency (See

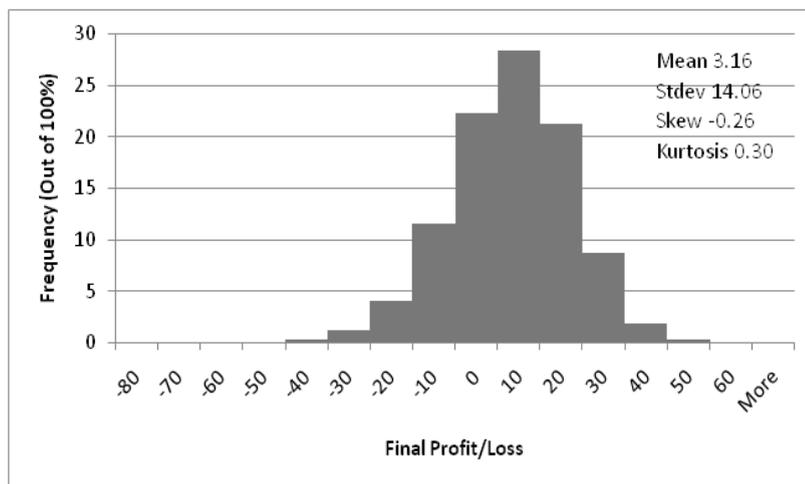
figures 1-a, b and c). It can be seen that the final distribution of replication error i.e. the final profit/loss has some skewness and kurtosis indicating non-normality. The non-normality of the profit/loss was also tested with Kolmogorov–Smirnov test (K–S test). It was found that the simulation under different scenarios throws-up non-normal distributions in almost all cases.

(a) Hedging once a day



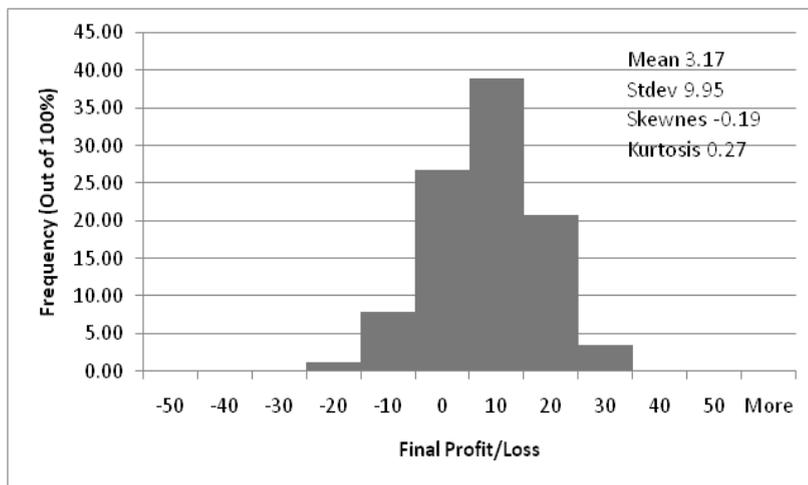
Source: Based on authors’ calculations

(b) Hedging twice a day



Source: Based on authors' calculations

c) Hedging four times a day



Source: Based on authors' calculations

Figures 1-a,b, andc : Histograms for the final profit/loss of the hedging strategy for various rebalancing trades for SBI call options

However, the skewness and kurtosis figures go down in the scenarios of hedging twice and four times a day. This means that representing the risk of final profit/loss in terms of a standard deviation of the distribution, is quite useful. The standard deviation is 35.4% of the option premium for daily rehedging.

Based on the actual hedging and simulation-based hedging performed for the 12 stock options, a comparative summary of the standard deviations of the final profit/loss is presented in **table 2**.

Table 2 - Consolidated Result- Simulated Hedging – analysis of S.D. of Profit/Loss

Stock Options	hist vol prev month%	hist vol curmt mth%	annualised volatility%	options vega	Once a day			Twice a day			Four Times a day		
					Theoretical S.D.	Simulated avg. S.D.	Expected S.D.	Theoretical S.D.	Simulated avg. S.D.	Expected S.D.	Theoretical S.D.	Simulated avg. S.D.	Expected S.D.
SBI	26.2	36.7	30.9	190.3	13.2	19.9	-	9.3	14.1	14.0	6.6	9.9	9.9
L&T	32.3	30.5	40.6	117.3	10.7	14.3	-	7.5	10.3	10.1	5.3	7.3	7.2
ONGC	34.7	25.8	50.1	34.7	3.9	5.0	-	2.8	3.6	3.5	1.9	2.5	2.5
RELIA NCE	31.9	26.0	37.2	102.3	8.5	12.4	-	6.0	8.9	8.8	4.3	6.3	6.2
ITC	18.7	19.9	29.8	41.1	2.7	4.0	-	1.9	2.9	2.8	1.4	2.0	2.0
ICICI	36.0	30.8	35.0	86.4	6.8	9.9	-	4.8	7.1	7.0	3.4	5.2	4.9
HDFC	19.5	26.2	23.6	75.0	4.0	5.4	-	2.8	3.8	3.8	2.0	2.7	2.7
HDFC Bank	31.9	18.3	29.2	36.2	2.4	4.1	-	1.7	3.0	2.9	1.2	2.1	2.1
INFY	44.4	21.4	40.6	371.8	33.7	46.2	-	23.8	33.0	32.7	16.9	23.5	23.1
M&M	34.3	28.3	31.7	109.2	7.7	10.5	-	5.5	7.5	7.4	3.9	5.4	5.2
TATA POWE R	42.6	38.4	37.8	9.1	0.8	1.2	-	0.5	0.8	0.8	0.4	0.6	0.6
TCS	38.4	29.4	35.5	163.8	13.0	18.7	-	9.2	13.4	13.3	6.5	9.5	9.4

Source: Based on authors' calculations

The standard deviation obtained in simulations for once-a-day hedging is different/ higher in all the options than the theoretical standard deviation (calculated from the options vega). We however can observe that the obtained standard deviation reduces approximately for all stocks by $\sqrt{2}$ and 2, when the hedging is performed twice and four times in a given trading day respectively. Thus the proportion of \sqrt{N} is maintained at both twice and four times a day hedging.

Table 2 also presents some details of the volatility of the underlying stocks. An analysis of these figures indicates that the volatility figures, in various cases of options, are much different between the previous period (Feb-Mar) and the life of the option (Mar-Apr). These are also different from the annualised volatility estimated and reported by NSE, which is adopted in our analysis. The differences between theoretical and simulated s.d. of the final profit/loss may be due to the differences in underlying volatility.

In this paper, we replaced one of the major assumptions, namely that of continuous hedging, by hedging at discrete intervals during the life of the option and implemented the B-S delta hedging process with 12 major stock call options

on the NSE. While continuous hedging as per B-S would theoretically result in final profit/loss of zero, discrete hedging would obviously introduce replication errors. Our research objective was to verify the deviation from this theoretical position and analyse the standard deviation in the replication error due to sampling error and simulation. Our hypothesis was that, with increase in hedging frequency, the average profit/loss should decrease and its standard deviation should also reduce. This was analysed by hedging at three different frequencies and could observe that the standard deviation reduces proportionately.

Based on our analysis, we make the following observations and recommendations:

- The replication error (represented by final profit/loss) is not zero, in the Indian market.
- The final distribution of replication error i.e. the final profit/loss is not normal, in all the cases, as also verified with the K-S test. However, representing the risk of final profit/loss in terms of a standard deviation of the distribution is quite useful.

- The standard deviation obtained in simulations for once-a-day hedging is different/ higher in all the options than the theoretical standard deviation (calculated from the options vega).
- However, the obtained standard deviation reduces approximately for all stocks by $\sqrt{2}$ and 2, when the hedging is performed twice and four times in a given trading day respectively. Thus the proportion of \sqrt{N} is maintained at both twice and four times a day hedging.
- It was possible for us to verify the relationship between $\sigma_{P\&L}$ at different $\frac{1}{\sqrt{N}}$ hedging frequencies, which is proportional to $\frac{1}{\sqrt{N}}$.
- Since the Goldman Sachs paper (Kamal, 1998) dealt with simulation in a hypothetical manner, it may be worthwhile to repeat this exercise in a developed market to bring out a comparative perspective.

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Appendix

Exhibit 1 – Workings of Delta hedging Actual once-a-day (SBI call option)

State Bank of India		Data as taken on May 21,2014							
Delta Hedging for Real Data									
So	1725.6								
K	Rs. 1,750.00								
r	8.85%								
T	0.08								
Sigma	30.91%	Annualised Volatility							
d1	-0.030								
d2	-0.119								
C	Rs. 56.01								
P	Rs. 67.55								
c+ke^-rT	Rs. 1,793.15		<==	Put Call Parity					
p+So	Rs. 1,793.15								
Date	Day		Stock Price	Time to Expiry	d1	Delta = N(d1)	Cost of Purchased Shares	Interest Cost	Cumulative Cost
24-Mar-14	1		1725.6	0.075	-0.044	0.482	Rs. 832.26	Rs. 0.00	Rs. 832.26
25-Mar-14	2		1743.4	0.071	0.072	0.529	Rs. 80.95	Rs. 0.20	Rs. 913.41
26-Mar-14	3		1767.5	0.067	0.238	0.594	Rs. 115.77	Rs. 0.22	Rs. 1,029.40

21-Apr-14	18		2072.1	0.008	6.175	1.000	Rs. 0.02	Rs. 0.44	Rs. 1,803.07
22-Apr-14	19		2048.55	0.004	8.117	1.000	Rs. 0.00	Rs. 0.44	Rs. 1,803.51
23-Apr-14	20		2065.2	0.000		1.000	Rs. 0.00	Rs. 0.44	Rs. 1,803.95
							Rs. 1,796.68	Rs. 7.26	Rs. 1,803.95
Final stock price		Rs. 2,065.20							
Cost of hedging		Rs. 53.95							
Final P/L		Rs. 2.06							
No. of Hedging (N)		21.00							

Source: Based on authors' calculations

Exhibit 2 - Actual Hedging- once -a-day

Stock Options	Stock Price So	Strike Price K	hist vol prev mth	his vol curnt mth	Actual Hedging		
					Price at T	Cost of Hedging	Final P/L
SBI	1725.6	1750	26.19%	36.71%	2065.20	53.95	Rs. 2.06
L&T	1219.45	1300	32.27%	30.53%	1346.55	6.24	Rs. 23.63
ONGC	307.9	320	34.70%	25.77%	326.00	5.87	Rs. 7.70
RELIANCE	888.15	900	31.93%	26.04%	967.15	30.83	Rs. 4.74
ITC	356.6	360	18.69%	19.87%	353.20	7.76	Rs. 4.12
ICICI	1,198.10	1,300	36.04%	30.75%	1299.55	-0.57	Rs. 18.19
HDFC	841.9	880	19.47%	26.23%	879.55	6.59	Rs. 4.23
HDFC Bank	732.4	800	31.88%	18.34%	733.00	2.28	Rs. 3.46
INFY	3296.05	3400	44.36%	21.35%	3172.65	10.67	Rs. 108.7
M&M	973.9	1000	34.33%	28.29%	1039.15	23.44	Rs. 3.85
TATA POWER	79.4	80	42.60%	38.36%	83.65	3.28	Rs. 0.17
TCS	2128.25	2300	38.38%	29.41%	2213.75	12.90	Rs. 20.10

Source: Based on authors' calculations

Exhibit 3: SBI call option delta hedging MC simulation (once-a-day)

State Bank of India	Data as taken on May 21,2014						Don't Disturb
Delta Hedging for Real Data			Period in Consideration			24-3-2014	23-4-2014
So	1725.60	Closing price of Mar 22,2014		K(vega)	198.55		
K	1750.00						
r	0.09				13.72		
T	0.08			Theoretical s.d of Profit/loss			
Sigma	0.31	<- Annualised Volatility					

d1	-0.030									
d2	-0.119									
C	56.01									
P	67.55									
$c+ke^{\wedge}rT$	1793.15			<==	Put Call Parity					
p+So	1793.15									
Date	Day	rn	change	Stock Price	Time to Expiry	d1	Delta = N(d1)	Cost of Purchased Shares	Interest Cost	Cumulative Cost
				1725.60						
24-Mar-14	1	0.172	-0.018	1694.16	0.075	-0.261	0.397	672.63	0.000	672.63
25-Mar-14	2	0.902	0.025	1737.24	0.071	0.029	0.512	199.15	0.163	871.95
26-Mar-14	3	0.708	0.011	1756.16	0.067	0.158	0.563	89.93	0.211	962.09
21-Apr-14	18	0.003	-0.053	1455.75	0.008	-6.646	0.000	-0.11	0.011	46.77
22-Apr-14	19	0.389	-0.005	1448.08	0.004	-9.698	0.000	0.00	0.011	46.78
23-Apr-14	20	0.977	0.039	1504.47	0.000		0.000	0.00	0.011	46.79
								44.42	2.368	46.79
			Simulation 1	50000 Runs						
No. of runs			1	50000						
actual stock price (23-Apr-14)			2065.2							
simulated stock price (23-Apr-14)			Rs. 1,504	1733.95						
Cost of hedging			Rs. 46.79	52.78						
Final P/L			Rs. 9.22	Rs. 3.23						
min P/L				-Rs. 103.78						
Max P/L				Rs. 69.87						
St.Dev				Rs. 19.70						
No. of Hedging (N)			20	20						
No. of Hedging (N)			20	20						
No of runs			50000 runs							
		Stock Price	Cost	Final P/L	S.D.					
		1504.47	Rs. 46.79	Rs. 9.22	Rs. 19.70					
	1	1803.23	101.78	-45.77						
	50000	1499.29	39.94	16.07						

Source: Based on authors' calculations

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Choice and Satisfaction: Mutual Fund Investment

K. Hari and K. Ayappan

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Mutual fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost. Mutual fund has played a significant role in financial intermediation, the development of capital markets, and the growth of the Indian economy. The present study makes an attempt to highlight the number of factors that affect the investors' perception about the investment choice, leading to their satisfaction. The study reveals that Analysis factor has positive influence on Investment choice. Investment choice has positive influence on return, while Risklessness factor does not influence satisfaction.

Key Words : Mutual funds, Investment choice, Satisfaction, Structural equation model



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Mutual fund is an investment tool that allows small investors access to a well-diversified portfolio of equities, bonds and other securities. Each shareholder participates in the gain or loss of the fund. Units are issued and can be redeemed as needed. Mutual fund is a trust that pools the savings of a number of investors who share a common financial goal. The money thus collected is then invested in capital market instruments such as shares, debentures and other securities. The income earned through these instruments and the capital appreciation realized is shared by its unit holders in proportion to the number of units owned by them.

In today's dynamic environment people go for those investment instruments through which they can get more return (HemanthS.2008). Different persons defined mutual funds in different ways. SEBI (Mutual Fund) regulations 1993 defines Mutual funds as "A fund established in the form of trust by a sponsor to raise money by the trustees through the sale of unites to the public under one or more schemes for investing in securities in accordance with these

regulations". The mutual fund is a type of professionally – managed collective investment scheme which pools money from many investors. Thus a mutual fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost.

The investors would like to know how to go about the risk of investment, how much to invest at any moment and when to buy or sell the securities. This depends on investment process as investment policy, investment analysis, valuation of securities, portfolio construction, and portfolio evaluation and revision. Every investor tries to derive maximum economic advantage from his/ her investment activity. For evaluating an investment, avenues are based upon the rate of return, risk and uncertainty, capital appreciation, marketability, tax advantages and convenience of investment. The choice of the best investment options will depend on personal circumstance as well as general market conditions. In most cases, the right investment is a balance of three things i.e., liquidity, safety and return.

Mutual fund has played a significant role in financial intermediation, the development of capital markets and the growth of the Indian economy. The Indian mutual fund industry has been no exception. Though it is relatively new, it has grown at a dynamic speed, influencing various sectors of the financial market and the national economy. Mutual fund industries have already entered into a world of exciting innovative product. These products are now tailor-made to suit specific needs of investors. Intensified competition and involvement of private players in the race of mutual funds have forced professional managers to bring innovation in mutual funds. Thus, mutual fund industry today offers valued products ranging from equity, debenture or balanced funds to liquid, money market, sector specific funds, index funds, gilt edged funds, children plans, education plans, insurance linked plans and exchange traded funds. With the introduction of diverse options, investors need to choose a mutual fund that meets their risk acceptance and risk capacity levels and has similar investment objectives as those of the investors. With the plethora of schemes available in the Indian markets, an investor needs to evaluate and consider various factors before making an investment decision. Since India has started integration with the worked markets and the economy being no more a closed one, external factors are complex in nature, affect the investors in their decision making.

It is the time of mutual fund companies to understand the fund selection / switching behavior of the investors and to design the fund scheme according to the changing needs of consumer, otherwise survival of funds will be difficult in future. The present study made efforts in this regard to highlight the number of factors that affect the investors' perception about the mutual fund.

Large studies have been conducted in India and abroad covering different aspects of mutual fund. Many researchers have studied different dimension of behavioral finance. Although there are enough research evidences which support the concept of behavioral finance, still it seems to be in embryonic state. There are very few studies available about investors' perception, preferences, attitudes and behavior. According to SEBI – NCAER Survey (2000), households preference for instruments match their risk perception: Bank Deposit has an appeal across all in class; 43% of the non-investor households equivalent to around 60 million households (estimated) apparently lack awareness about stock markets. Bard M. Barber and Jerrance Odean (2000) conducted a study on "Behavior of MF investors" in which they analyzed the MF purchase and Sales decision of over 30000 households which reveals that investor buys funds with strong past performance, investors are sensitive to the form in which fund expenses are charged. Vanniarajan T. and Gurunathan T. (2007) analyzed some factors in their work on "investment in Mutual funds: A Customer Centric Analysis" emphasized that MF companies are focusing on customized products due to hectic competition. The study focuses on important factors leading to investment in mutual funds which are monetary, core product, fund strength, promotional measures, customer expectations and service quality. Research was conducted by Rajeswari and Ramamoorthy (2001 cited in Rao, 2011) on "An Empirical study on factors influencing the mutual fund/scheme selection by retail investors." The results of the study revealed that among product qualities the most important factor was performance of the fund followed by brand name of scheme; among sponsor related factors the most important factor was to expertise the sponsor by managing money and in customer services the most important factor was disclosure on investment objective, the second important one was methods and periodicity of valuation in advertisements. The household investors' selection of investments is based on their judgment about the overall suitability of each investment avenue. A comparison of the responses of all

available studies shows a similar pattern; the safety considerations dominated the overall suitability criterion (SEBINCAED, 2000; Gupt and Choudhury, 2001; Gupta et al., 2001; Singh, 2003; Gupta, 2005). Walia and Kiran (2009) conducted a research on investors' risk perceptions towards the mutual fund services. In this study they identified investor's expectations and parameters that caused dissatisfaction. In this study innovation of mutual funds portfolio are also highlighted that these innovations should be according to investors' expectations. Major finding of this study is that investors want innovative products and want to add quality in existing services. Dr. Sameer Gupta and Sharfoat Ajaz (2012) identified five factors of attitudinal and information preferences of retail investors towards MF scheme while making investment decisions. They found investment returns were less emphasized by the investors. Further the study revealed that there was a statistically significant relationship between preference of investors and investment decisions (Subramanya P.R. and T.P. Renuka Murthy, 2013). A study revealed that majority of investors preferred MF for the returns and felt that it was a safe measure of investment. Further they found that most of the investors assumed that Mutual funds were risk free and investors saving were not influencing the attitude of investors.

The objective of the research paper is to determine the factors that influence the investment choice and satisfaction among mutual fund investors and also to develop a model based on investment factors.

Hypotheses:

H1 – Reference has a positive influence on investment choice.

H2 – Analysis has a positive influence on investment choice.

H3 – Investment has a positive influence on return.

H4 – Investment has a positive influence on risklessness factors.

H5 – Return has a positive influence on satisfaction.

H6 – Risklessness has a positive influence on satisfaction.

The research design for the study is descriptive in nature. The primary data is collected from individuals who have invested in mutual fund. The research is being carried out with structured questionnaire which has been personally administered on the sample size of 100, chosen on a convenient basis from major towns in Thanjavur district, Tamil Nadu. The opinion of the mutual fund investors regarding their preferences toward mutual fund investment with five point scale viz., 1-strongly agree, 2- agree, 3- neutral, 4- disagree, 5-strongly disagree. The researchers have applied factor analysis to find out the factors determining the investment preference and also develop a model based on the investment preference factors with the aid of SPSS software (version20) and smart PLS2.3 respectively.

Important mutual fund investment Factors

The important mutual fund factors among investors are identified with the help of factor analysis. Before conducting the factor analysis, the validity of data for factor analysis is examined with the help of Kaiser-Mayer-Ohlin measure of sampling adequacy and Bartlett's test of sphericity. The KMO measures of sampling adequacy (0.656) is greater than the standard minimum of 0.50. And the chi-square is significant even at zero percent level. Both these tests confirm the validity of the data for factor analysis. The scores on twenty eight variables related to mutual fund investment among investors are included for factor analysis. The factor analysis results in five important mutual fund investment factors namely Analysis, Reference, Investment Choice, Returns, and Risklessness. The factor loading of the mutual fund investment variables included in the above said five factors and its reliability co-efficient, the Eigen value and the percent of variation explained by the investment factors are presented in Table 1.

Table 1 Important investment factors in mutual fund

<i>Factors</i>	<i>Variables in mutual fund investment</i>	<i>Factor loading</i>	<i>Reliability Co-efficient</i>	<i>Eigen value</i>	<i>Percent of variation</i>
Return			0.8301	7.441	24.849
	Mutual funds gives positive, regular & greater return than term deposits	0.765			

<i>Factors</i>	<i>Variables in mutual fund investment</i>	<i>Factor loading</i>	<i>Reliability Co-efficient</i>	<i>Eigen value</i>	<i>Percent of variation</i>
	Mutual fund investing gives a definite positive return	0.719			
	Prospectuses of mutual fund companies plays important role for making investment decisions	0.672			
	Return of the principal amount invested in mutual fund is assured.	0.671			
	Mutual fund is a good investment option in financial instruments.	0.644			
	I prefer to discuss with professional financial advisor before making any investment in mutual fund.	0.553			
Investment Choice			0.7991	3.935	16.135
	I Prefer liquidity of money while making investment decision	0.830			
	I prefer inflation resistance while making investment decision	0.819			
	I prefer safety to principal amount while making investment in mutual fund	0.709			
	Due to professional investment a good return can be expected of mutual fund	0.696			
	I prefer capital growth while making investment decisions	0.693			
	Funds rating from a rating service of a mutual fund company must be considered	0.624			
	I prefer brand name of the firm while making investment decision	0.618			
	I Prefer tax benefit while making investment decision	0.542			

<i>Factors</i>	<i>Variables in mutual fund investment</i>	<i>Factor loading</i>	<i>Reliability Co-efficient</i>	<i>Eigen value</i>	<i>Percent of variation</i>
Analysis			0.7853	3.418	15.6685
	I always review mutual fund shareholders reports	0.794			
	Diversification of portfolio make me to invest in mutual fund schemes	0.689			
	I always review research analyst report from brokers	0.656			
	Financial statements give overview of the mutual fund companies	0.636			
	Portfolio held by mutual fund is important for making investment decisions	0.634			
Reference			0.5986	2.491	13.885
	Investment in mutual fund realizes the benefits of stock market investing	0.803			
	It is imperative for me to monitor the print and electronic media for making informed investment decisions	0.800			
	Views of my friends and family play a major role in investment decisions	0.603			
	Entry and Exit out of mutual fund is easy	0.501			
Risklessness			0.6658	1.859	13.45
	Ups and downs of stock market will not affect the return from mutual fund	0.808			
	I prefer stability of income while making investment decision	0.759			
	Mutual fund returns are fully protected and guaranteed by SEBI	0.706			
KMO measure of sampling adequacy: 0.7859		Bartlett's Test of sphericity: Chi-square: 128.38* * Significant at 1 per cent level.			

The narrated five investments related factors explain the investment variables in mutual funds among investors to the extent of 83.98 percent. The most important factor for investment is the ‘return’ factor. It consists of six variables with the reliability co-efficient of 0.8301. The Eigen value and the percent of variation explained by this factor are 7.441 and 24.85 percent respectively. The second important factor is ‘investment choice’ which consists of eight variables with the reliability co-efficient of 0.7991. The Eigen value and the percent of variation are 3.935 and 13.14 percent respectively. Third factor is ‘analysis,’ which consists of five variables with the reliability co-efficient of 0.7853. The Eigen value and the percent of variation are 3.418 and 15.67 percent respectively. Fourth factor is ‘reference’ which consists of four variables with the reliability co-efficient of 0.5986. The Eigen value and the percent of variation are 2.491 and 13.89 percent respectively. The last important factor is ‘Risklessness’ which consists of three variables with the reliability co-efficient of 0.6658. The Eigen value and the percent of variation explained by this factor are 1.859 and 13.45 percent respectively.

Structural Model

The six constructs of the study are conceptually related to one another by the structural model as shown in the figure: 1

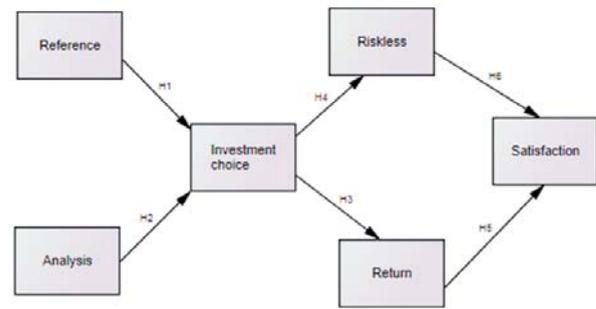


Figure : 1 Theoretical Model

A PLS model is analyzed and interpreted in two stages: 1) The assessment of the reliability and validity of the measurement model and 2) The assessment of the structural model. This sequence ensures that the constructs’ measures are valid and reliable before attempting to draw conclusions regarding relationships among constructs. Structural model specifies relations between latent constructs. Estimating and analyzing the path coefficients between the constructs test and the structural model. Path coefficients are indicators of the model’s predictive ability.

Measurement Model

The measurement model for reflective constructs is assessed in terms of Individual Item reliability, Construct reliability,

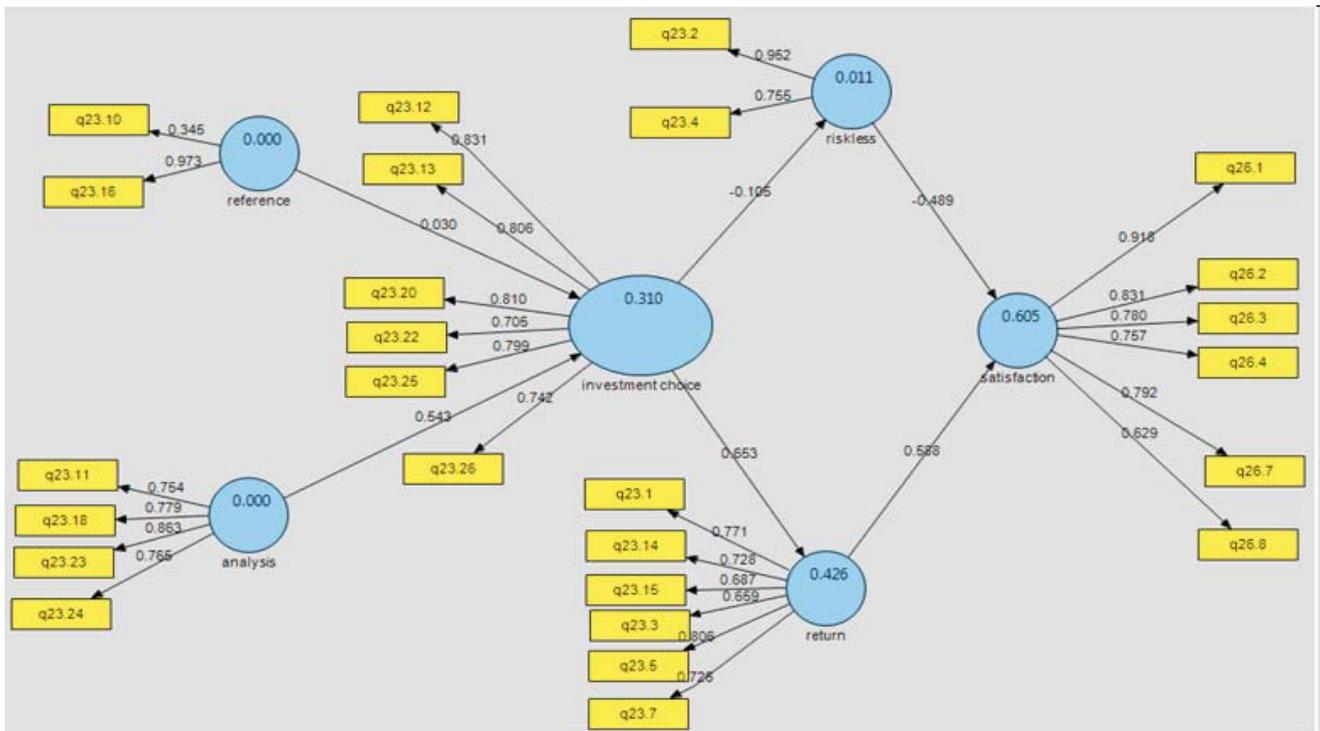


Figure : 2 Final Path Model

and Convergent validity and Discriminant validity. Initially the relationships are displayed between the constructs of analysis factor and reference factor with investment choice which has the relationship with riskless factors and return factor and both have the relationship with customer satisfaction. PLS algorithm was applied and the resultant relationship, coefficients and values of loadings are shown in figure 2. In PLS, loadings of respective factors on their respective latent constructs are examined to assess the reliability of the factors. Since the final model was decided after dropping out insignificant factors having factor loadings of less than 0.5.

Reliability: Referring to table 2, for factor loadings, the cut-off criterion of 0.5 was considered as a strong factor loading coefficient (Hair et al. 2010; Hulland 1999). In addition to

Cronbach's alpha, reliability of each variable was assessed through Fornell and Larcker's measures of composite reliability. This measure is preferred over Cronbach's alpha because it offers a better estimate of variance shared by the respective indicators and because it offers a better estimate of variance shared by the respective indicators and because it uses the item loadings obtained within the homological network (Hair et al. 2006). In this study the composite reliability values construct range from 0.65 to 0.90 which has exceeded the standard value of 0.70 (Fornell and Larcker, 1981; Hair, Anderson and Black, 1998). The factor loadings, Cronbach's alpha, Composite reliability and Average Variance Extracted (AVE) values calculated by PLS algorithms are tabulated in table 2

Table 2: Factor loadings, Cronbach's alpha, Composite reliability and AVE values

Constructs	Factor loadings	Cronbach's alpha	Composite reliability	Average variance Extracted
Analysis		0.8015	0.8698	0.6262
q23.11	0.7538			
q23.18	0.7788			
q23.23	0.8629			
q23.24	0.7652			
Investment choice		0.8752	0.9048	0.6138
q23.12	0.8313			
q23.20	0.8099			
q23.22	0.7055			
q23.25	0.7991			
q23.26	0.7416			
Reference		0.6144	0.6503	0.5331
q23.10	0.3446			
q23.16	0.9733			
Return		0.8301	0.8727	0.5344
q23.1	0.771			
q23.14	0.7276			
q23.15	0.6867			
q23.3	0.659			
q23.5	0.8062			
q23.7	0.7261			
Risklessness		0.6829	0.8479	0.7385
q23.2	0.9519			
q23.4	0.7555			
Satisfaction		0.8764	0.9074	0.6231
q26.1	0.9183			
q26.2	0.8308			
q26.3	0.78			
q26.4	0.7567			
q26.7	0.7924			

Convergent validity : The evidence of convergent validity was assessed to examine the variance extracted for each factor. The AVE also exceeded the recommended value of 0.50 (Fornell and Larcker, 1981; Barclay et al. 1995; Hair, Anderson and Black,1998) which range from 0.53 to 0.73 and results indicated that variance extracted from the constructs possessed convergent validity.

Discriminant validity: Discriminant validity is the extent to which any single construct is different from the other constructs in the model (Carmines and Zeller, 1979; Cheung and Lee 2010). Discriminant validity has been assessed by measuring the pair-wise correlations between factors obtained have been compared with the variance extracted

estimates for the constructs making up each possible pair. To assess the discriminant validity AVE should be greater than the variance shared between the construct and other constructs in the model (Chin, 1998). In addition, discriminate validity is confirmed if the diagonal elements are significantly higher than the off-diagonal values in the corresponding rows and columns. The diagonal elements are the square root of the AVE score for each construct.(Teo, 2009; Roldan and Sanchez – Franco, 2012). These values are shown in table 3. Result revealed that all the constructs possess Discriminant validity.

Table 3: Showing the Discriminant Validity Results

Constructs	Investment					
	Analysis	choice	Reference	Return	Risklessness	Satisfaction
Analysis	0.7913					
Investment choice	0.5559	0.7834				
Reference	0.4387	0.2679	0.7301			
Return	0.6193	0.6529	0.329	0.7310		
Risklessness	-0.1038	-0.1045	-0.2798	-0.0351	0.8593	
Satisfaction	0.5449	0.5951	0.2702	0.6056	-0.5095	0.7893

From table 3, the measurement demonstrates that there is adequate discriminant validity, since the diagonal elements are significantly greater than the off-diagonal elements in the corresponding rows and columns. In total, the measurement model has demonstrated adequate convergent validity and discriminant validity.

Structural Model Analysis

In PLS method, structural model and hypothesis have been tested by computing path coefficients (β). PLS provides to determine how well the model fits the hypothesized

relationship, is the squared multiple correlations (R²) for each dependent construct in the model. R² values of the dependent constructs indicate whether a particular PLS model accomplishes the objective of maximizing the variance explained (Chin, 1998). The bootstrapping technique has been used (using 1000 sub samples) to evaluate the statistical significance of each path coefficient. The t-values of the parameter indicate the strength of the relationship in the parameter represents; therefore the higher the t-value, the stronger the relationship (Huang, Lin and Chuang, 2007).

Table 4: Showing the path coefficients along with their ‘T’ values

H	Constructs	Original Sample (O)	Sample Mean (M)	Standard Deviation	Standard Error	T Statistics (O/SE)	Path coefficient (β)	Result
H1	Reference -> Investment choice	0.0297	0.0387	0.0401	0.0401	0.741	0.0089	Not Supported
H2	Analysis -> Investment choice	0.5429	0.5426	0.0502	0.0502	10.808***	0.3438	Supported
H3	Investment choice -> Return	0.6529	0.6537	0.0323	0.0323	20.2179***	0.7521	Supported
H4	Investment choice -> Risklessness	-0.1045	-0.1061	0.069	0.069	1.5153	-0.3804	Not Supported
H5	Return -> Satisfaction	0.5884	0.5898	0.025	0.025	23.491***	0.4683	Supported
H6	Risklessness -> Satisfaction	-0.4889	-0.4906	0.0216	0.0216	22.642***	-0.1231	Supported

Note: ***p<0.01 at t-value= 2.58

The results in table 4 indicated that analysis factor ($\beta = 0.3438, p < 0.01$) has a direct and positive influence on investment choice whereas reference factor ($\beta = 0.0089, p > 0.05$) has positively related but does not support the hypothesis of investment choice, which explains 31% (R^2) of the variance present in investment choice. Further it has been observed that investment choice has a direct and positive influence on Return factor ($\beta = 0.7521, p < 0.01$) which explains 43% (R^2) of the variance present in return factor, whereas Risklessness factor negatively related but does not support the hypothesis ($\beta = -0.38704, p > 0.05$) of investment choice. From the table, it was examined that return factor ($\beta = 0.4683, p < 0.01$) has direct and positive influence on satisfaction whereas Risklessness factor ($\beta = -0.1231, p > 0.05$) was negatively related but does not support the hypothesis of customer satisfaction, explaining 17.2% (R^2) of variance present in satisfaction.

Model Evaluation

Structural model is mainly evaluated by Goodness-of-fit (GoF) and by using Stone-Geiser Q^2 test for predictive relevance. Goodness-of-fit (GoF) has been used to measure the overall fit of the model. For this model the GoF index is 0.4547 (see table 5). Further the quality of path model can also be evaluated by cross-validated redundancy index (Q^2) for the endogenous variable. A Q^2 greater than zero implies that the structural model has satisfactory predictive relevance for the model (Roldan and Sanchez – Franco, 2012). In PLS two kinds of Q^2 statistics are estimated by using Blindfold method of calculations. They are cross-validated communality (H^2) and cross-validated redundancy (F^2). The results are shown in table 5 and figure 3

Table 5: Showing Model Evaluation results

Constructs	R ²	Communality	H ²	Redundancy	F ²
Analysis	-	0.6262	-	-	-
Investment choice	0.3098	0.6138	0.001	0.1867	0.001
Reference	-	0.5331	-	-	-
Return	0.4263	0.5344	0.001	0.2131	0.001
Risklessness	0.0109	0.7385	0.001	0.0052	0.001
Satisfaction	0.6054	0.6231	0.001	0.2207	0.001
Average	0.3381	0.6115		0.1564	
GoF = $\sqrt{\text{average } R^2 \times \text{average communality}} = \sqrt{0.20675} = 0.4547$					

It is observed from the table 5 that for this model all the constructs had values of H^2 and F^2 are positive, hence the model has acceptable relevance.

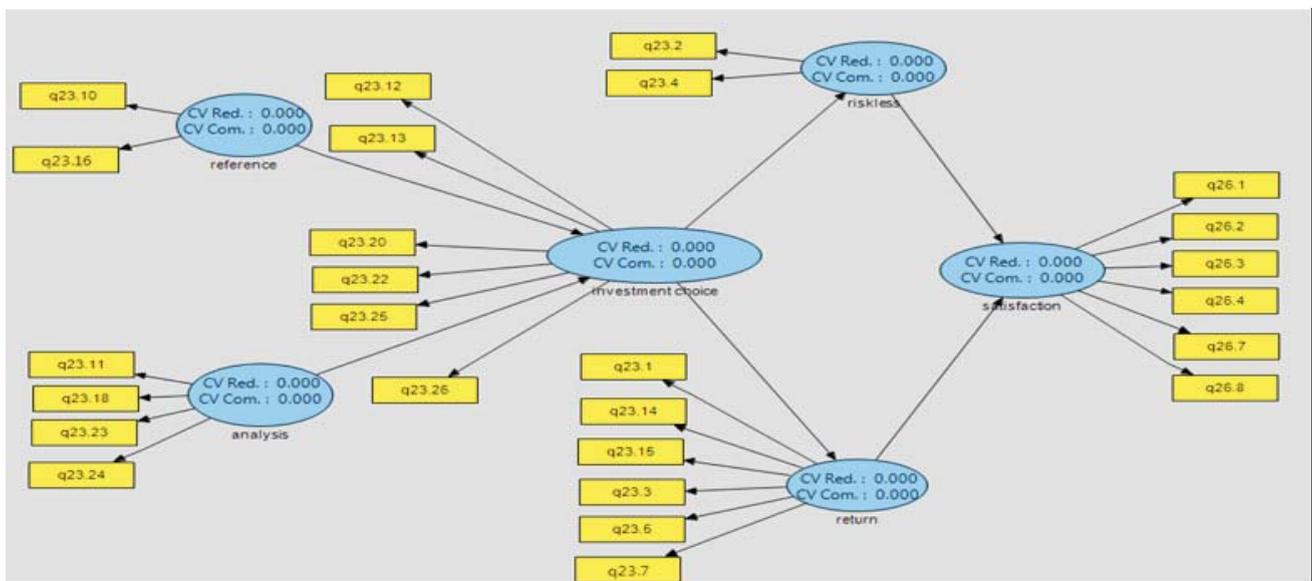


Figure :3 Blind Folding Path Modeling

Conclusion and Implication

Indian mutual fund industry is gradually moving towards growth phase. Mutual fund is today a very important savings and investment vehicles for most of the people in developing countries and they provide excellent opportunities to obtain a more diversified portfolio in new area value creation and management. According to the latest data available with AMFI the industry's total Asset Under Management (AUM) increased by 80,000 crore during first quarter of June 2014 as largely driven by fresh investment by retail investors in both equity and debt instruments (Milind Barwe, 2014). The present study was an attempt done to understand the perception of mutual fund investors about investment choices. In this study, an attempt to analyze the satisfaction has been carried out based on investors' perception. The researcher has identified five factors viz., Reference, Analysis, Investment choice, Risklessness and Return of investors toward while making investment decision. The study further reveals that Analysis factor has a positive influence on investment choice where as reference factor does not have influence on investment choice. Investment choice has positive influence on return while Risklessness factor has negative influence on investment choice. Further it is observed that return factor has positive influence on satisfaction and Risklessness factor does not influence satisfaction. The results of the study have significant implications to mutual fund companies. Understanding of investor's behavior is an important task for the asset managers in order to be successful in facing many challenges and opportunities. In addition, any future research could replicate the study with a large sample and wider coverage.

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Financial Inclusion : Urban-Poor in India

Vikram K. Joshi

A b s t r a c t

The present study analyzes the awareness and penetration of the various financial services offered by banks to the urban unorganized sector workers. The primary data is collected from the informal sector urban workers working in Nagpur city of India in the first quarter of 2014. A logistic regression model is used to establish the relationship between dependent variable (holders/non-holders of bank, a/c) and the awareness scores of various banking services. The study concludes that the awareness of long term loan, the educational loan, and cheque facility are the most significant factors amongst the others to increase the financial inclusion in India.

Key Words : Financial Inclusion, Nagpur, Urban Poor.

JEL Classification : G21, G29.



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Workforce in informal or unorganized sector comprises nearly 92 percent in the unorganized segment. The entire farm sector falls under informal category, while only one-fifth of the non-farm workers are found in the organized segment. The unorganized sector is always starved of capital required for the economic activity. As they fail to get access to the organized sources of finance, they borrow from the unorganized credit market often at high interest rates. There is an urgent need for banks to intervene in order to raise their capital. Banks have become quite active over the past decade in promoting institutional finances for the unorganized sector. Public and private commercial banks and central and state level term lending institutions, and cooperative societies are encouraged by the State to provide loans to the unorganized workers at low interest rates. Also the efforts are taken to encourage unorganized workers to access the various financial services offered by banks, so that the share of these institutional sources in total outstanding loans of unorganized sector workers will

increase. As cited by Chakrabarty K.C. (2012), the World Bank database, known as the Global Financial Inclusion database (Global Findex), provides survey based data as part of the annual Gallup World Poll. The survey conducted in 2011 covered at least 1,000 adults each in 148 economies using randomly selected, nationally representative samples.... The cross country comparison reveals that bank account penetration, measured as a percent of adult population, varies widely across the countries. In high-income economies, account based financial inclusiveness is much higher with 89 percent adults having accounts with formal financial entities. For India, account penetration is reported to be 35 percent (43.7 percent for men and 26.5 percent for women) while China scored better at 63.8 percent (67.6 percent for men and 60 percent for women). South Korea reported high account penetration at 93 percent, universality of education, and particularly, the spread of financial literacy. The present study tries to know the awareness and penetration of various financial services offered by banks to urban unorganized sector workers and evaluates services which are significant in increasing the penetration of banking services offered by banks. The rest of the paper is organized as below: Section two deals with literature review under which the initiatives taken in India to achieve this are discussed. Section three discusses the methodology adopted for the study. Section four includes the empirical findings, and Section five concludes.

According to Global Partnership for Financial Inclusion (GPII, 2011), a forum of G20, defined financial inclusion as “a state in which all working age adults have effective access to credit, savings, payments and insurance from formal service providers.” “Effective access” involves convenient and responsible product and service delivery channels at a cost affordable to the consumer and sustainable for the service provider so that the financially excluded population uses formal financial services rather than informal channels that provide convenient but costly services on near 24 x 7 basis (Khan H.R., 2012). Access to affordable financial services – especially credit and insurance – enlarges livelihood opportunities and empowers poor to take charge of their lives. Such empowerment aids social and political stability. Apart from these benefits, financial inclusion imparts formal identity, provides access to payments system and to savings safety net like deposit insurance. Hence financial inclusion is considered to be critical for achieving inclusive growth; which itself is required for ensuring overall sustainable growth in the country (Thorat U. 2007).

The process of financial inclusion started long-back in 1969 with nationalization of banks. The recent efforts pursued by the RBI to further financial inclusion are: (i) In Nov. 2005, RBI asked banks to offer a basic banking ‘no-frills’ account with low or zero minimum balances and minimum charges to expand the outreach of such accounts to the low income groups, (ii) Banks were asked to introduce a General Purpose Credit Card (GCC) facility upto Rs. 25,000, (iii) The ‘Know Your Customer’ (KYC) procedure for opening accounts was simplified for those accounts with balances not exceeding Rs. 50,000 and credits thereto not exceeding Rs. 100,000 in a year, (iv) Smart Cards were introduced for opening bank accounts with biometric identification to help the customers of Kisan Credit Cards (KCC) to get banking services near their doorstep, (v) Link was established to mobile hand held electronic devices for banking transactions, (vi) The RBI in consultation with State governments encouraged to adopt Electronic Benefit Transfer (EBT) by banks (Subbarao, 2009).

The recent introduction of direct benefit transfer, leveraging the Aadhar platform, will help facilitate delivery of social welfare benefits by direct credit to the bank accounts of beneficiaries. The government, in future, has plans to route all social security payments through the banking network, using the Aadhar based platform as a unique identifier of beneficiaries.... RBI has set a roadmap for banking services in unbanked villages. In the first phase, banks were advised to draw up a roadmap for providing banking services in every village having a population of over 2,000 by March, 2010 In the second phase, roadmap has been prepared for covering remaining unbanked villages i.e., with population less than 2,000 in a time bound manner ... In order to continue with the process of ensuring access to banking services to the excluded, banks have now been advised to draw up a fresh 3 year Financial Inclusion Plan for the period 2013-16 The focus is also now more on the volume of transactions in new accounts opened as a part of the financial inclusion drive (Chakrabarty, 2013). Financial literacy is an important adjunct for promoting financial inclusion. RBI has adopted an integrated approach, wherein the efforts towards financial inclusion and literacy go hand in hand. Through financial literacy and education, RBI disseminates information on the general banking concepts to diverse target groups, including school and college students, women, rural and urban poor, pensioners and senior citizens to enable them to make informed financial decisions ... nearly 800 financial literacy centres set by banks (Joshi D.P., 2013).

Hemavathy Ramasubbian and Ganesan Duraiswamy (2012) have analyzed the issues pertaining to implementation of financial inclusion in economically downtrodden districts of Tamil Nadu, India. It had been suggested that though over the past six years the financial inclusion strategy has improved the life style of BPL, but missing focus on savings and credit improvement strategies degrades the benefits of financial inclusion.

Rama Pal and Rupayan Pal (2012) analyzed income related inequality in financial inclusion in India using a representative household level survey data, linked to State-level factors. The paper also provides estimates of the effects of various socio, economic and demographic characteristics of households on propensity of a household to use formal financial services, and compare that for rural and urban sectors. It shows that the extent of financial exclusion is quite severe among households across all income groups... The greater availability of banking services foster financial inclusion, particularly among the poor.

Majumdar & Gupta (2013) mentioned that, households belonging to minority community, backward classes, people below poverty line, the illiterate, people working as agriculture labourers and workers often on daily wage basis are the most excluded ... A number of no-frills account holders do not operate their accounts regularly ... A suitable targeting in the provision of overdraft facilities for these accounts may offer an incentive to such account holders to continue their accounts.

Thus, irrespective of several measures, the score of financial inclusion amongst the poor is very low. Also most of the working population in urban areas work under utterly deplorable conditions in unorganized sector with a very few livelihood options. Many of them do not have any access to formal banking services and hence are financially excluded. Against this backdrop, the paper tries to study the issues and options and targeted strategies associated with financial inclusion of the urban poor in Nagpur City.

(i) Demographics

As per the Census 2011, Nagpur city located at the central part of India had a population of 2,523,911, with sex ratio of 961 females per 1,000 males. The effective literacy rate of Nagpur city is 93.13 percent, with 96.16 percent as the male literacy rate and 89.99 percent as the female literacy rate. 52.5 percent of Nagpur's population is in the 15-59 years

age category and around 9.89 percent of the population is under 6 years of age.

(ii) Research Design

As the research is descriptive in nature the study relies on primary data collected from the informal sector workers who are urban poor working in Nagpur city in the first quarter of 2014. The primary data was collected by conducting an interview through a structured questionnaire and the primary intention of the survey was to observe the awareness and extent of financial inclusion amongst the urban-poor. The questionnaire was tested for reliability test. The questionnaire consisted of questions based on the awareness related to various financial services offered by the banks, whether they hold account in banks and the problems faced by the urban poor while transacting with the banks. The responses are taken on 5-point scale. The dependent variable taken for the study is holders/non-holders of bank a/c and the independent variables are the awareness with respect to various financial services offered by banks which includes deposit facility, loan facility, payment facility and other miscellaneous facilities, and their sub-types offered by banks as given below:

$$Y = f(X1, X2, X3, \dots, X16)$$

Where Y = 1 if holds an a/c and 0 otherwise,

X1 = awareness of current a/c,

X2 = awareness of saving a/c,

X3 = awareness of fixed deposit facility,

X4 = awareness of long term loan facility,

X5 = awareness of short term loan facility,

X6 = awareness of demand loan facility,

X7 = awareness of overdraft facility,

X8 = awareness of housing finance facility,

X9 = awareness of educational loans,

X10 = awareness of cheque facility,

X11 = awareness of direct debit facility,

X12 = awareness of safe custody vaults,

X13 = awareness of insurance,

X14 = awareness of mobile banking,

X15 = awareness of ATM,

X16 = awareness of credit card facility.

Sample Design

Urban poor workers were divided into homogeneous groups called the strata and a sample of 100 urban poor workers

belonging to informal sector is selected as the respondents through a stratified convenience sampling. The sample profile is given as below:

Table 1: Sample Composition

Category Strata	Vegetable vendors	Street Hawkers	Panipuri /Snacks Vendors	Fruit Vendors	Newspaper Vendors	Rickshaw/auto drivers	Total
East	5	5	4	4	3	4	25
West	5	5	4	4	3	4	25
North	5	5	4	4	3	4	25
South	5	5	4	4	3	4	25
Total	20	20	16	16	12	16	100

(iii) Methodology

The awareness index is calculated for all the banking services offered by the banks using the following formula:

$$\text{Awareness Index} = \frac{\text{total of actual score} \times 100}{\text{max. score} \times \text{no. of respondents}}$$

A logistic regression model is used to derive the relationship between dependent variable (holders/non-holders of bank a/c) and the awareness scores of various banking services offered by the bank. The estimated coefficients for the independent variables are estimated using either the logit value or the odds value as the dependent measure. Each of these model formulations are shown below:

$$\text{Logit} = \ln [\text{Prob}_{\text{event}} / (1 - \text{Prob}_{\text{event}})] = b_0 + b_1 X_1 + \dots + b_n X_n$$

$$\text{Odds}_i = [\text{Prob}_{\text{event}} / (1 - \text{Prob}_{\text{event}})] = e^{b_0 + b_1 X_1 + \dots + b_n X_n}$$

Both model formulations are equivalent, but whichever is chosen affects how the coefficients are estimated. The logistic transformation uses the maximum likelihood procedure in an iterative manner to find out the most likely estimates for the coefficients.

The logistic regression measures model estimation fit with the value of -2 times the log of the likelihood value, referred to as -2LL or -2 log likelihood. The minimum value for -2LL is 0, which corresponds to a perfect fit (likelihood = 1 and -2LL is then 0). Thus, the lower the -2LL value indicates the better fitting of the model.

In addition to the statistical chi-square tests, several different “R² – like” measures have been developed to represent

overall model fit. These pseudo R² measures are interpreted in a manner similar to the coefficient of determination in multiple regression. The Cox and Snell R² measure operates in the same manner, with higher values indicating greater model fit. However, this measure is limited in that it cannot reach the maximum value of 1, so Nagelkerke proposed a modification that had the range of 0 to 1. Both of these measures are interpreted as reflecting the amount of variation accounted for by the logistic model, with 1.0 indicating perfect model fit.

Hosmer & Lemeshow test provides a comprehensive measure of predictive accuracy in logistic regression model based on actual prediction of the dependent variable. Also Classification matrix approach is used for measuring how well group membership is predicted. Wald Statistic is used to test the significance of the coefficients in logistic regression model. If the logistic coefficient is statistically significant, we can interpret it in terms of how it impacts the estimated probability and thus the prediction of group membership. Finally the values of probability for group average centroids are calculated for each group (Hair et al. 2011).

EMPIRICAL FINDINGS

The reliability test is carried out for the questionnaire. Cronbach’s alpha test determines the internal consistency or average correlation of items in a survey instrument to gauge its reliability. A high value of alpha is often evidence that the items measure an underlying construct. The results are presented as under:

Table 2: Reliability Statistics

Cronbach's alpha	N of Items
0.872	17

As seen in table 2, the reliability statistics for Status holds an A/c in the bank and the awareness of various financial services is calculated. It is observed that the value of Cronbach's alpha is significantly high (above 0.70) which indicates a high value of internal reliability.

The RBI has issued the directives on attaining 100 percent financial inclusion, hence the efforts have been made in the whole country for some time to attain this objective. The Commercial banks, local self-governmental institutions and district administrations are working hard in this direction. In this study, the workers of informal sector were surveyed to obtain the information on various aspects of financial inclusion.

Firstly, the respondents have been asked to report whether they hold a saving account/current account in the bank. Of the 100 respondents across various parts of the city, 66 workers are reported to have saving account as can be seen in Fig 1. Thus, the percentage of financial inclusion across the city amongst the urban poor is 66 percent. Also they have been asked whether they are part of SHGs, out of 34 respondents who do not hold account in bank, 18 reported to be the part of SHGs and 16 are financially excluded.

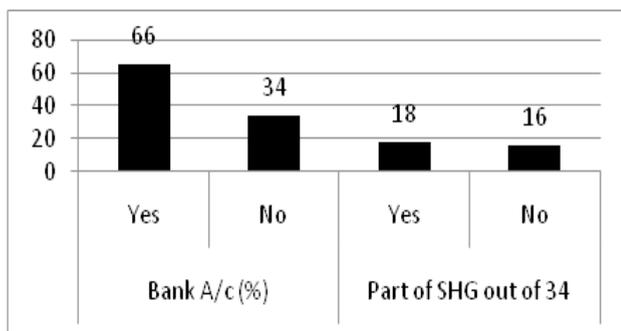


Figure 1: People having bank a/c (%) & Part of SHG

The awareness index for various financial services offered by the banks is calculated on the basis of scores given on the basis of degree of awareness and is presented in Fig. 2. It is observed that in case of deposit facility the saving a/c have the highest awareness index of 72.4, for the current a/c it is 24.4 and for the fixed deposits it comes to be 26.8. As far as payment options are concerned, the awareness

index in case of cheque facility is 50 and that for direct debit it is 21.6. In case of different loan facilities offered by the bank, the awareness index in case of housing finance is the highest with 61.2, for long-term loans it is 46.8, short-term loans 44.8, educational loan 43.2, overdrafts 25.2 and demand loan 23.2. For the various other services offered by the banks, the awareness index is highest in case of ATM facilities which is 72, insurance 62.4, mobile banking 32.4, safe custody vaults 27.6 and credit card facility 23.6. Also the overall awareness index for various banking services is estimated (Fig. 3). The awareness index in case of other services of banks is highest viz., 43.6, for deposit facility 41.2, for loan facility 40.7 and payment option 35.8. The aggregate awareness of banking services offered worked out to be 41.1 which is very low. Thus, it can be interpreted that the awareness of various banking services offered by banks is very low amongst the urban poor in Nagpur city.

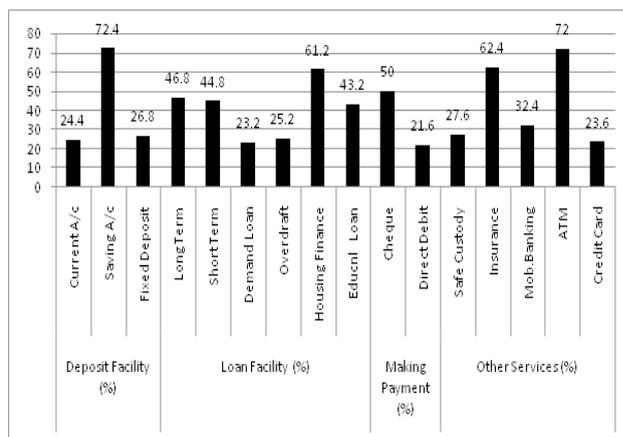


Figure 2: Awareness Index

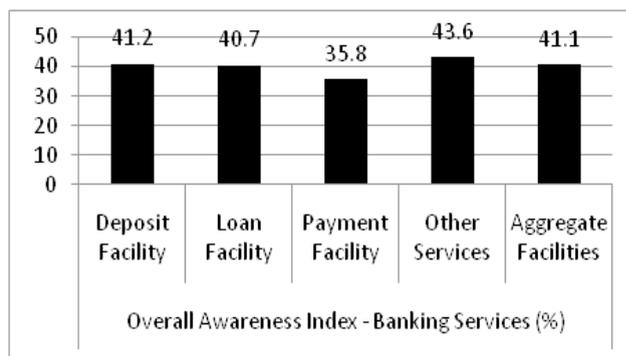


Figure 3: Awareness Index

The frequency of usage of various banking services offered by the bank is presented in Fig. 4. It is observed that out of the total respondents 32 percent opt for the facility once in a year and 24 percent once in 6 months. 34 percent are the non-users in this category. 66 percent respondents opt for loan facility once in a year and 34 percent are the non-users. There are 12 percent respondents who use cheque facility once in a year and 12 percent once in 6 months and 70 percent are the non-users. 66 percent uses ATM facility out of which 30 percent twice in a week and 36 percent once in a week, while 34 percent are the non-users. In case of safe lockers 96 percent are non-users and 4 percent use once in a year, and 98 percent are the non-users of mobile banking whereas 2 percent use it once in a week.

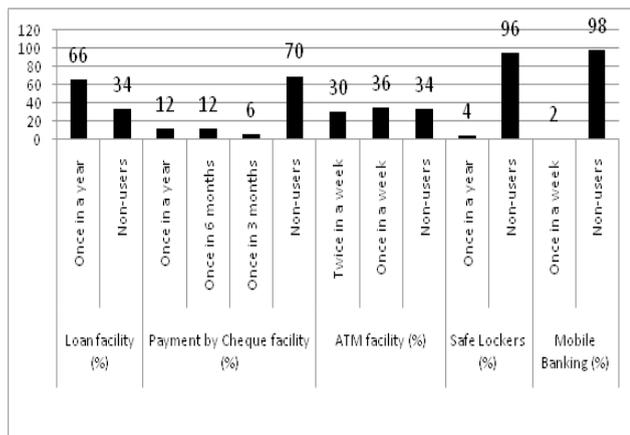


Figure 4: Frequency of Use

The respondents were asked to mention the problems faced by them while transacting with the bank and opening an a/c. The various parameters given to them were lack of awareness, lack of nearby availability, lack of cooperation by bank employees, improper guidance, and lack of transparency. It is observed that 70 percent respondents are not much aware about the various banking processes and hence are afraid of going to banks. 98 percent respondents are not regular visitors of the banks as there is no nearby availability. This is again indicative of the lack of awareness amongst the urban-poor. As far as cooperation by the employees in the bank, proper guidance and transparency is concerned, these problems are faced only by 24 percent, 12 percent and 24 percent respondents respectively. Hence, it can be inferred that the lack of awareness about the banking processes is the major reason for low turnover in the bank by the holders and non-holders of bank accounts. This is presented in fig. 5 below:

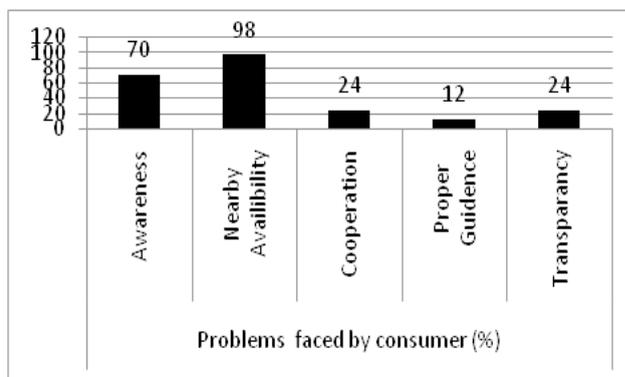


Figure 5: Problems Faced by Consumers in bank

Econometric Analysis

The logistic regression model is used and forward stepwise (Wald) method is applied to study the impact of awareness regarding various banking services offered by the banks on probability of having an account in the bank. The results are presented below in table 3, 4, 5 and 6.

Table 3: Model Summary – Goodness of Fit

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	88.986 ^a	.324	.449
2	60.700 ^b	.491	.679
3	48.102 ^c	.551	.763
4	48.166 ^c	.551	.762
5	41.872 ^c	.578	.800

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.
 b. Estimation terminated at iteration number 8 because parameter estimates changed by less than .001.
 c. Estimation terminated at iteration number 9 because parameter estimates changed by less than .001.

Table 4: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.326	3	.228
2	.762	7	.998
3	4.195	7	.757
4	1.725	7	.973
5	3.760	8	.878

Table 5: Classification Table^a

Observed		Predicted			
		Y		Percentage Correct	
		0	1		
Step 1	Y	0	22	12	64.7
		1	6	60	90.9
	Overall Percentage				82.0
Step 2	Y	0	28	6	82.4
		1	6	60	90.9
	Overall Percentage				88.0
Step 3	Y	0	26	8	76.5
		1	4	62	93.9
	Overall Percentage				88.0
Step 4	Y	0	26	8	76.5
		1	4	62	93.9
	Overall Percentage				88.0
Step 5	Y	0	30	4	88.2
		1	4	62	93.9
	Overall Percentage				92.0

^a. The cut value is .500

Table 6: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	X15	1.249	.249	25.074	1	.000	3.488
	Constant	-3.451	.797	18.754	1	.000	.032
Step 2 ^b	X4	2.631	.820	10.281	1	.001	13.883
	X15	.846	.260	10.570	1	.001	2.330
	Constant	-5.980	1.356	19.455	1	.000	.003
Step 3 ^c	X4	4.368	1.304	11.226	1	.001	78.912
	X10	2.075	.717	8.365	1	.004	7.965
	X15	.088	.347	.064	1	.800	1.092
	Constant	-10.175	2.555	15.856	1	.000	.000
Step 4 ^c	X4	4.511	1.201	14.114	1	.000	90.990
	X10	2.182	.593	13.548	1	.000	8.864
	Constant	-10.289	2.552	16.260	1	.000	.000
Step 5 ^d	X4	4.255	1.169	13.247	1	.000	70.459
	X9	1.208	.512	5.574	1	.018	3.348
	X10	1.903	.566	11.286	1	.001	6.706
	Constant	-11.567	2.665	18.837	1	.000	.000

a. Variable(s) entered on step 1: V17.

b. Variable(s) entered on step 2 : V6.

c. Variable(s) entered on step 3: V12.

d. Variable(s) entered on step 5: V11.

In the first stage the variable X15 is included first as it is having the highest score statistics indicating the measure of association and highly significant p value (table not presented in the paper). The log likelihood value (-2LL) here is 88.986 which is very high. The pseudo R² values are in the range of 0.324 to 0.449. The Hosmer & Lomeshow chi-square measures the overall fit shows significance for the one variable logistic model. The examination of the results, however, shows that the variables X4, X9 and X11 have statistically significant score statistics (table not presented in the paper) indicating that their inclusion would significantly improve the overall model fit. The results are presented in table 3 to 6.

It can be seen that after stepwise iterations, in the step 5 the log likelihood (-2LL) decreases significantly to 41.872. The pseudo R² value also improves appreciably and is in the range of 0.578 to 0.800. The Nagelkerke R² comes to be 0.80 which determines the 80 percent influence of included variables in step 5. Also Hosmer & Lomeshow chi-square test is insignificant which shows that the constructed logit model is significant (0.878 from table 4). Also the hit ratio for the predicted group comes to be highest viz., 92.0 (presented in table 5).

The estimated coefficients for the three independent variables and the constant are also evaluated for statistical significance. The Wald statistic is used to assess significance in a manner similar to the t-test used in multiple regression. The logistic coefficient for X4 (4.255), X9 (1.208) and X10 (1.903) and the constant (-11.567) are all significant at the 0.01 level except X9 (at 0.02 level) based on the statistical tests of the Wald statistic. No other variables would enter the model and achieve at least a 0.05 level of significance.

The direction of relationship can be assessed directly from the sign of the logistic coefficients. In this case, all the three variables have positive signs, indicating a positive relationship between both independent variables and predicted probability. As the values of X4, X9 or X10 increase, thus increasing the livehood that a person will be categorized as having an account. Also the values of exponential coefficients are above 1.0 indicating a positive relationship and below 1.0 a negative relationship. In this case, the values of 3.348, 6.706 and 70.459 indicate positive relationships.

The calculation of estimated probability values for the group centroid of Nagpur city is shown below:

Table 7: Estimated Probability Values for the Group Centroid of Nagpur City

		Group 0 Non-holders of a/c	Group 1 Holders of a/c
Centroid	X4	1.059	3.0
	X9	1.412	2.545455
	X10	1.647	2.939394
Logit value		-2.22102	9.866576
Odds		0.108498	19275.23
Probability		0.097878	0.999948
Calculated as: $Logit = -11.567 + 4.255 X4 + 1.208 X9 + 1.903 X10$			
Calculated as: $Odds = e^{Logit}$			
Calculated as: $Probability = [Odds/(1 + Odds)]$			

As seen in table 7, the independent variables are X4, X9 and X10, the group means for the two groups, is used. The predicted probability shown in table 7 above, is for the average member of each group. It can be seen that the centroid for group 0 (non-holders of a/c) has predicted probability of 9.78 percent, while the centroid for group 1 (holders of a/c) has predicted probability of 99.9 percent. Thus, it can be inferred that if the awareness about the long term loan facility, awareness about the educational loans, and awareness about the cheque facility as a mode of

payment increases, there is a high probability associated with holding a bank a/c by the urban poor.

The study finds that the extent of financial inclusion of the urban poor is 66 percent which includes the workers belonging to informal or unorganized sector in Nagpur city of India. Even though the financial inclusion seems to be moderate, the frequency of usage of the various services offered by the banks, viz., deposit facility, loan facility, payment facility and various other facilities like ATM, mobile banking, safe lockers, etc., is very low. The reason behind

this is lack of awareness about the various products (services) offered by the banks which results into hesitation by the people in using these services and hence low penetration.

It is observed that amongst the various problems faced by the people in using the banking services, the nearby availability and the lack of awareness are the most prominent one amongst the others which include lack of cooperation, improper guidance, and lack of transparency. Irrespective of the various efforts taken by the RBI and Commercial banks in India, the penetrations of the various services amongst the urban poor is very low and hence are deprived of the various financial services offered by the banks. It is necessary for the banks to create the awareness which is directly associated with the penetration of the various financial services increase in extent of financial inclusion.

The logistic regression model is used to study the impact of awareness of various services offered by the banks and its impact on probability of holding an account in the bank; it is found that if the awareness of long term loan facility, the educational loan facility and cheque facility are the most significant factors amongst the others. If the awareness of these facilities increases amongst the urban poor to average, there is a high chance (probability) of 99.9 percent to have an account in the bank for the non-holder. The banking services have benefited only the urban rich and those who are better off in terms of financial soundness than the urban-poor who still lives in very deplorable conditions. Thus, it is concluded that the RBI must focus its emphasis more on creating the awareness about the niche financial services as mentioned above to increase the financial inclusion of the urban-poor.

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Castor seeds Futures: NCDEX and NMCE

S. Kirithiga and R. Azhagaiah

Abstract

This paper investigates the relationship between the castor seed futures of National Commodity and Derivatives Exchange (NCDEX) and National Multi Commodity Exchange (NMCE). The castor seed future prices of near-month contracts over a period of 5 years from September 2009 to August 2014 were collected from NCDEX and NMCE websites. The study applied correlation and error correction model (ECM) for analysis and the study result shows that there exists a long-run as well as short-run co-integration between the castor seed future prices in NCDEX and NMCE, proving that there is an arbitrageur or cross-hedging possibility between the two commodity exchanges in respect of castor seed futures in India.

Key Words : Castor Seed, Error Correction Model, NCDEX, NMCE, Price Spread.



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Indian commodity market is in its developing phase providing the price discovery for the commodities. The price spreads available in the markets give better investment opportunities for investors as well as hedgers, to make their hedging better. The commodity price is generally determined by the common economic factors of demand and supply. The price spread which exists between futures contracts of the same commodity and the deliverable in the same month but traded in different exchanges, is termed as inter-market spread.

Castor seed is obtained from Castor plant (*Ricinus communis*) grown in arid and semi-arid regions. It is a non-edible oilseed crop; basically a cash crop, with an average of 46% oil content in it. It is cultivated in 30 different countries on a commercial scale across the globe. Countries like India, China, Brazil, Russia, Thailand, Ethiopia and Philippines are the major castor seed growing countries accounting for about 88% of global production. In India, castor seed is a kharif crop, sowing in July-August and harvesting from

December-March. States like Gujarat, Rajasthan and Andhra Pradesh are the major *castor seed* producing states in India. Castor oil extracted from *castor seed* and its by-products are used in manufacturing of soaps, lubricants, hydraulic and brake fluids, paints, dyes, coatings, inks, cold resistant plastics, waxes and polishes, nylon, pharmaceuticals and perfumes. India is the major player of castor derivatives in the global export market.

Castor seed is a non-food item that contributed major share (47.72%) of volume traded among the non-food commodity traded in Indian commodity exchanges from April to June 2014, out of which *NCDEX* and *NMCE* are the major castor seed traded exchanges, contributing about 96.76% and 1.83% respectively of value traded.

Literature review

Leybourne, Lloyd, and Reed (1994) studied the conceptual framework for identification and testing of the excess co-movement hypothesis, i.e. price correlation over and above that which can be explained by macro-economic determinants of 12 commodities namely, *cocoa, coffee, copper, cotton, gold, lumber, aluminium, crude oil, silver, soy, sugar* and *wheat* and on monthly values of nine macro-economic variables over the period of 1987 to 1994. The study suggested that excess co-movement occurs infrequently in monthly time series. Moreover, out of the 12 commodities examined only *lumber* and *cocoa* display the co-movement property, casting doubt on the existence of commodity price co-movement.

Booth, Brockman, and Tse (1998) made an attempt to investigate the relationship between *US* and Canadian wheat futures prices to analyse the degree of information spill between the two countries' futures exchanges viz *CBOT* and Winnipeg Commodity Exchange (*WCE*) from 2nd January 1980 to 31st December 1994 with co-integration and *ECM*. The results showed that the two series are co-integrated in long run.

Jensen, Johnson and Mercer (2000) analysed the role of commodity futures in portfolios which comprised stocks, bonds, T-bills, and real estate from 1973 to 1997 using Markowitz theory. The study differentiated sample into expansive versus restrictive monetary policy periods and found that the commodity futures have substantial weight with significant return at all risk levels in the efficient portfolios in restrictive monetary period, whereas in expansive monetary period the commodity futures have little

or no weight with no return enhancement at all levels of risk in the efficient portfolios.

Dawson and White (2001) examined the interdependencies between commodities' prices arise due to the changing macro-economic variables or the common responses by speculators. The study used futures contracts of *barley, cocoa, coffee, sugar, and wheat* on the London International Financial Futures and options Exchanges (*LIFFE*) from December 9, 1991 to April 3, 2000. The study tested the stationary using unit root and long-run relationship by Johansen's co-integration. The results showed that there are no interdependencies between any two prices; price discovery of one contract provided no information about the others, which concluded that the market traders assess the macro-economic effects on the commodity prices in relation to a commodity in isolation.

Thomas and Karande (2002) analysed the price discovery of India's castor seed markets across the production and commercial centre with the futures' price and spot price of castor seed from May 1985 to December 1999. The study used Garbade and Silber (1982) model and found that in commercial centre, three out of four contracts resulted into futures market dominates price discovery whereas in production centre neither of the markets showed price discovery.

Zapata, Fortenbery, and Armstrong (2005) studied the relationship between 11 *sugar* futures prices traded in New York and the world *sugar* cash prices from January 1990 to April 2002. The study found that the futures market for *sugar* leads the cash market in price discovery and hence, the *sugar* futures contract seems to be a useful vehicle for reducing overall market price risk faced by cash market.

Ai, Chatrath, and Song (2006) examined evidence against Pindyck and Rotemberg (1990) with quarterly data for five commodities viz., *wheat, barley, corn, oats, and soybeans* of US markets from January 1957 to September 2002 using correlation of commodities and their residuals. The study suggested that the co-movements are not excessive and that much of the co-movements come from common tendencies in demand and supply factors.

Domanski and Heath (2007) discussed the factors behind their growing appeal and assess the extent to which market characteristics, such as price volatility, have changed as a result. The study concluded that the commodity markets have become more like financial markets in terms of the

motivations and strategies of participants, but the physical characteristics of commodity markets are still important.

Mattos, Garcia, and Pennings (2008) investigated the dynamics of sequential decision-making in agricultural futures and options markets. The study identified considerable heterogeneity in individual dynamic trading behaviour and the strategies for loss-averse traders who consolidate gains and avoid using gains in risk-seeking market activities were effective.

Harri, Nalley, and Hudson (2009) examined the price relationship of the five primary agricultural commodities, exchange rates, and oil prices from January 2000 to September 2008. By using co-integration and Augmented Dickey-Fuller (ADF) methods the study found price linkage of oil with *corn*, *cotton* and *soybeans*, but not with *wheat* and that exchange rates do play a role in the linkage of prices over time.

Nazlioglu and Soytaş (2010) examined the short and long run interdependence between world oil prices, lira dollar exchange rate, and individual agricultural commodity prices constituting wheat, maize, cotton, soybeans, and sunflower of Turkey from January 1994 to March 2010. The impulse response and causality analysis suggested that the Turkish agricultural prices do not significantly react to oil price and exchange rate shocks in the short-run as well as in the long-run. Hence, the study found neutrality of agricultural commodity markets in Turkey to both direct and indirect effects of oil price changes.

Kumar and Pandey (2011) investigated the cross market linkages of Indian commodity futures for *soybean*, *corn*, *aluminium*, *copper*, *zinc*, *gold*, *silver*, *crude oil* and *natural gas* taken from *NCDEX*, *MCX*, *CBOT*, New York Mercantile Exchange (*NYMEX*) and London Mercantile Exchange (*LME*) in terms of return and volatility spill over. Johansen's co-integration test, error correction model, Granger causality test and variance decomposition techniques were used to investigate the return spill over. Multivariate Generalized Auto Regressive Conditional Heteroskedasticity (*GARCH*) model was used to investigate volatility spill over. The study found that there existed co-integration among the Indian and the world futures markets and world markets have bigger unidirectional impact on the Indian commodity markets.

Natanelov *et al.* (2011) studied the interaction between *crude oil* futures market and *cocoa*, *coffee*, *corn*, *soybean*, *soybean oil*, *wheat*, *rice*, *sugar*, and *gold* futures markets of USA

from July 1989 to February 2010. The Johansen co-integration, causality from vector error correction model (*VECM*) and threshold co-integration were used for analysis. The study proved that mature and well established commodity futures markets exhibited co-movement with crude oil in the long run; policy macro-economic factors increased the volatility and complexity of price dynamics between crude oil and agricultural commodities.

Sekhar (2012) made a systematic attempt to assess the extent and degree of integration among *rice*, *castor oil*, *oilcakes*, *tea*, and *coffee* on the export side and on the import side, *gram*, *groundnut oil* and *mustard oil* in India from 1986/1987 to 2006/2007. The study used the Gonzalo-Granger (*G-G*) model to assess the extent of market integration. The study indicated that the commodity markets do not face inter-state or inter-regional movement restrictions as gram and edible oils appeared well-integrated, on the other side, rice market does not show integration at the national level due to the maximum inter-state movement restrictions. The study suggested that the markets can play a more effective role if they are supplemented with more open policy initiatives.

Research Methodology

Out of 31 agricultural commodities traded in *NCDEX* and 14 agricultural commodities traded in *NMCE* only castor seed has been selected for the study as it is the major traded common commodity in both the exchanges as per the April 2014 – June 2014 bulletin report of *FMC*.

The study is an empirical one carried out on the castor seed futures collected from National Commodity and Derivatives Exchange (*NCDEX*) and National Multi Commodity Exchange (*NMCE*) websites www.ncdex.com and www.nmce.com for the period from September 2009 to August 2014, which considers more recent data than the previous studies conducted in India. The aim of the study is to determine the relationship between *NCDEX* and *NMCE* castor seed futures to bring out the information spill over between these two exchanges.

The study period has been split into year-wise to analyse the relationship between the two exchanges in a better manner. Hence, five year-wise period September 2009 – August 2010, September 2010 – August 2011, September 2011 – August 2012, September 2012 – August 2013, and September 2013 – August 2014 has been used for analysis.

Objectives of the Study

The two main objectives of the study are to test the independence of the NCDEX and NMCE castor seed futures prices and to study whether there exists short-run and long-run co-integration between the NCDEX and NMCE castor seed futures prices.

Research Hypotheses

To achieve the research objectives, the following hypotheses are developed:

H_0^1 “The castor seed futures prices of NCDEX and NMCE move independently.”

H_0^2 “There is no long-run co-integration between castor seed futures prices in the NCDEX and in the NMCE.”

H_0^3 “There is no short-run co-integration between castor seed futures prices in the NCDEX and in the NMCE.”

Plan of Analysis

The analysis of the study has been divided into two parts. The first part of the analysis deals with the study of descriptive statistics of the castor seed futures prices and the second part of the analysis gives focus on the ECM.

Research Methods

To analyse the data, appropriate research methods applied in the study such as, descriptive statistics (mean and standard deviation) are used to study the fluctuations in the value of predictor and response variables. Karl Pearson’s Correlation co-efficient is used to study one-to-one relationship between the castor seed futures and selected commodity exchanges in India. The stationary of the time series is investigated with the Augmented Dickey-Fuller (ADF) test (1979). The error correction model (ECM) of Engle and Granger (1987) is used to analyse the long-run and short-run co-integration between the castor seed futures prices of the selected commodity exchanges.

The developed equation is as follows:

$$X_t - X_{t-1} = \alpha_0 + \alpha_1 \hat{Z}_{t-1} + \sum_{i=1}^m c_i (Y_{t-i} - Y_{t-i-1}) + \sum_{j=1}^m d_j (X_{t-j} + X_{t-j-1}) + \varepsilon_t \dots (1)$$

The ECM represented by the equation (1) decomposes the dynamic adjustments of the response variable, X_t , to changes in the predictor variable, Y_t , into two components: first, a long-run component given by the co-integration term, $\alpha_1 \hat{Z}_{t-1}$, also known as the error-correction term (ECT);

and, second, a short-run component given by the first summation term in the right-hand side of eq. (1). The ECM requires the variables to be at first differential. It explains long-run equilibrium relationship when the error correction term is negative and significant and explains short-run equilibrium relationship when the lagged values of the response and predictor variables are significant.

Findings of the Study

The major findings of the study are as follows:

The mean futures prices of castor seed in NCDEX and NMCE are ₹ 3,719.87 and ₹ 3,711.78 respectively over the study period (September 2009 – August 2014) shows (vide table 1) that castor seed futures prices is higher in the NCDEX than that of in the NMCE but it is only a negligible difference (₹ 8.09). The standard deviation measuring the deviation of futures prices from the mean futures prices shows that castor seed futures prices in NMCE has lowest standard deviation (₹ 623.74) when compared to that of in NCDEX (₹ 624.00).

Table 1

Descriptive Statistics of Castor Seed Futures Prices in NCDEX and in NMCE

Descriptive Statistics	NCDEX	NMCE
Mean	3719.87	3711.78
Standard Deviation	624.00	623.74
Skewness	0.29	0.21
Minimum	2475.00	2443.80
Maximum	5809.50	5430.00

Source: Computed results based on compiled data collected from NCDEX and NMCE.

Table 2

Correlation of Castor Seed Futures Prices between NCDEX and NMCE

Period	Correlation
September 2009 - August 2010	0.99
September 2010 - August 2011	0.99
September 2011 - August 2012	0.99
September 2012 - August 2013	0.99
September 2013 - August 2014	0.99
September 2009 - August 2014	1.00

Source: Computed results based on compiled data collected from NCDEX and NMCE.

There is a high positive correlation between the castor seed futures prices of *NCDEX* and *NMCE* over the study period (September 2009 – August 2014). It reveals that the castor seed futures prices in *NCDEX* are affected by the castor seed futures prices of *NMCE*. Hence, there is an information spill over between the two exchanges (*vide table 2*).

Thus, the H_0^1 “the castor seed futures prices of *NCDEX* and *NMCE* move independently” is rejected as in all study periods the castor seed futures prices in both the commodity exchanges are influenced by information spill over between them.

The *ECM* assumes that the variables are non-stationary at level and stationary at first difference, hence, the *ADF* unit root test at levels have not been performed. But the *ADF* test at first difference shows that the castor seed futures prices in the *NCDEX* and in the *NMCE* are stationary at first difference. Hence, the *ECM* can be performed to check the long-run and short-run co-integration between the castor seed futures prices in the *NCDEX* and in the *NMCE* in India (*vide table 3*).

Table 3
Unit Root Test *ADF* of Castor Seed Futures Prices in *NCDEX* and in *NMCE*

Period	5% Critical value of ECM	NCDEX		NMCE	
		ADF Value	Prob.	ADF Value	Prob.
September 2009 - August 2010	-3.3400	-19.6716	0.0000	-18.6818	0.0000
September 2010 - August 2011	-3.3400	-20.6121	0.0000	-18.1776	0.0000
September 2011 - August 2012	-3.3400	-11.6633	0.0000	-10.4089	0.0000
September 2012 - August 2013	-3.3400	-18.7229	0.0000	-16.7881	0.0000
September 2013 - August 2014	-3.3400	-20.0265	0.0000	-18.5644	0.0000
September 2009 - August 2014	-3.3400	-42.8502	0.0000	-39.0512	0.0000

Source: Computed results based on compiled data collected from *NCDEX* and *NMCE*.

Table 4
Regression of Castor Seed Futures Prices at level in *NCDEX* and in *NMCE*

Periods	R-squared	Durbin-Watson Statistics	Result
September 2009 - August 2010	0.9801	0.3112	Spurious Regression
September 2010 - August 2011	0.9822	0.5071	Spurious Regression
September 2011 - August 2012	0.9762	0.7756	Spurious Regression
September 2012 - August 2013	0.9773	0.8864	Spurious Regression
September 2013 - August 2014	0.9895	1.0004	Regression
September 2009 - August 2014	0.9922	0.5958	Spurious Regression

Source: Computed results based on compiled data collected from *NCDEX* and *NMCE*.

As *NCDEX* has higher traded value and volume of castor seed futures than that of the *NMCE*, the regression model is fit taking castor seed futures prices in *NCDEX* as the predictor variable and that of in *NMCE* as the response variable for the entire study period and five sub-periods separately.

Table 4 shows the R^2 and Durbin Watson statistics of the regression models of castor seed futures prices in *NCDEX* and those in *NMCE* for the five sub-periods and the study period which are fitted to determine the long-run co-integration of futures prices between the castor seed futures prices in *NCDEX* and in *NMCE* in India. From the result it is

clear that the R^2 is greater than the Durbin Watson statistics, which proves that the regression models of non-stationary

time series are spurious regression, except for one sub-period (September 2013 – August 2014) where the R^2 is less than the Durbin Watson statistics.

Table 5
Residual ADF test of Regression Models of NCDEX and NMCE Castor Seed Futures Prices at level

Period	Residual ADF	5% Critical value of ECM	Result
September 2009 - August 2010	-6.2348	-3.3400	Stationary
September 2010 - August 2011	-7.7974	-3.3400	Stationary
September 2011 - August 2012	-7.0424	-3.3400	Stationary
September 2012 - August 2013	-11.0895	-3.3400	Stationary
September 2013 - August 2014	-15.6596	-3.3400	Stationary
September 2009 - August 2014	-11.1532	-3.3400	Stationary

Source: Computed results based on compiled data collected from NCDEX and NMCE.

When the regression model is spurious, the residual of the regression models is put to unit root test to check for stationary of the residual, which states that the ADF test values are greater than the 5% critical value of Engle-Granger(vide table 5). Thus, it is inferred that the regression models are no more spurious and there exists a long-run co-integration between the castor seed futures prices in the NCDEX and that of in the NMCE. Thus, H_0^2 “There is no

long-run co-integration between the castor seed futures prices in the NCDEX and that of in the NMCE” is rejected.

The ECM shows that the error correction terms (ECT) are negative and significant, which explain long-run co-integration between the response and predictor variables thereby adding to the rejection of the H_0^2 , i.e., “There is no long-run co-integration between the castor seed futures prices in the NCDEX and that of in the NMCE” (vide table 6).

Table 6
Error Correction Term (ECT) of Castor Seed Futures Prices in the NCDEX and in the NMCE

Period	ECT	Prob.
September 2009 - August 2010	-0.1574	0.0000
September 2010 - August 2011	-0.1357	0.0000
September 2011 - August 2012	-0.4324	0.0000
September 2012 - August 2013	-0.4076	0.0000
September 2013 - August 2014	-0.5999	0.0000
September 2009 - August 2014	-0.2392	0.0000

Source: Computed results based on compiled data collected from NCDEX and NMCE.

Table 7 shows that the R^2 is less than the Durbin Watson statistics which proves that the regression models of non-stationary time series at first difference are valid regression. Thus, the coefficients of these regression models do explain the short-run co-integration between the castor seed futures

prices in the NCDEX and those of in the NMCE in India. Thus, H_0^3 is rejected, therefore it supports that “there is short-run co-integration between the castor seed futures prices in the NCDEX and that of in the NMCE.”

Table 7
ECM of Castor Seed Futures Prices at First Difference in NCDEX and in NMCE

ECM	R-squared	Durbin-Watson Statistics	Result
September 2009 - August 2010	0.7918	1.9362	Regression
September 2010 - August 2011	0.7940	1.8364	Regression
September 2011 - August 2012	0.7798	1.6567	Regression
September 2012 - August 2013	0.8169	1.8637	Regression
September 2013 - August 2014	0.8718	1.9254	Regression
September 2009 - August 2014	0.7973	2.0356	Regression

Source: Computed results based on compiled data collected from NCDEX and NMCE.

Thus, the futures prices of castor seed futures prices in the *NMCE* are co-integrated with those of in the *NCDEX*, hence both in long-run as well as in short-run.

Conclusion

Indian economy is basically an Agrarian Economy. The estimate released by Central Statistics Office (*CSO*) shows that the share of agricultural products or agriculture and allied sectors' contribution to *GDP* of India was 51.9% in 1950-51, which has come down to 13.7% in 2012-13. The country has about 600 million farmers, 50 lakhs traders and 120 crores consumers (The Times of India, 11th December 2011). In spite of the efforts for economic development and industrialization, agriculture is still in the doll drum. ("*India lives in villages and agriculture is the soul of the Indian economy*" - Mahatma Gandhi).

Agricultural sector in India is self sufficient to meet the food requirements of its citizens. The Indian agriculture sector provides raw materials for industries. Indian commodity markets provide for the hedging and price discovery functions for various agricultural commodities. India is one of the leading producers and exporters of castor seed and its derivatives and thus, it is one of the highly traded non-food agricultural commodities in Indian commodity exchanges. This study made an attempt to analyse the influence of one commodity exchange futures price of castor seed upon the other commodity exchange in India.

The study has been carried out on castor seed futures by empirically analysing the relationship between the castor seed futures price spread of the *NCDEX* and that of the *NMCE* in India over the period of five years from September 2009 to August 2014 constituting around 3,942 futures prices. The relevant data required for the study were collected from *NCDEX* and *NMCE* on 20th August 2014. Karl Pearson's

correlation co-efficient is used to determine the one-to-one relationship between castor seed futures prices in the *NCDEX* and that of in the *NMCE*. The *ECM* is used to determine the relationship between the castor seed futures prices in the *NCDEX* and that of in the *NMCE*.

Analysis made with the help of the research methods brought some concrete inferences regarding the inter-market futures price spread between the castor seed futures prices in the *NCDEX* and that of in the *NMCE* in India. The study summarized that the castor seed futures prices in the *NCDEX* impacted that in the *NMCE* resulting into a cross-hedging opportunity. Hence, the outcome of the study may be used as a ready reference for future researchers on the area under discussion. Further, the results are relevant for various market participants, including farmers, speculators, and arbitrageurs for the hedgers of agricultural commodities in India, for re-drafting their hedging decision keeping in view the outcome of the study.

Scope for Further Studies

The study covered only castor seed futures prices in the *NCDEX* and that of in the *NMCE* for the study period. The study is based on secondary data; therefore the quality of the study depends purely upon the accuracy, reliability and quality of the secondary data source. The findings of the study might differ if done considering the data from other commodity exchanges in India or elsewhere or across countries. Hence, studies considering commodities other than castor seed futures prices from other commodity exchanges can also be done by focusing on macro-economic factors. Other spread opportunities in India for different periods considering different commodities from other commodity exchanges in India can also be taken for further study.

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Stress vs Academic Performance

Anamika Sinha

Abstract

Management education imparts cognitive, metacognitive and affective learning. Many MBA schools fail to achieve this three pronged outcome. An optimum level of stress encourages academic performance, but excess or little of it, reduces performance. In the student sample of a B-School a primary level enquiry using the SALS instrument suggested no relationship between the stress and academic performance. However, the mean for stress experienced was high. A secondary qualitative enquiry gave the insight that self limiting goal setting acts as a mediator to this relationship. The study discusses limitation of group goal setting processes and therefore proposes an integrated learning and evaluation process, along with active mentoring process.

Key Words : Management Education, Stress, Academic Performance, Self limiting Goal setting, Inverted U of Performance, Process of Group Goal setting.



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Management education in India can be traced back to ancient times when writings of Chanakya and Gita were used to impart skills relevant for an administrator or manager or leader. A formal System of Indian Management education however was established under the guidance and leadership of the erstwhile visionaries like Dr. Vikram Sarabhai when the first IIMs were established at Ahmedabad and Calcutta. In less than a century, there are more than 3900 colleges imparting management education in India today (Chhaphia, 2012). With this upsurge, most B schools are fighting within themselves for students and faculty. Placement is yet another issue. Diluting the academic rigor and extreme focus on placement marks the current trends (Nair, 2013). According to a recent study by C Fore¹ today's business schools have become glorified placement agents.

Schumpeters (2014) in his article mentioned reports of Carnegie and Ford Foundation reports (1959) which mention that B schools are just a little better than any trade school

and that they should be a little more academic. With increased competition, there is a B school at Hyderabad and Shanghai as well as Boston and London and all are equally or more competent to attract students. In such a situation, to remain sustainable and manage barriers to entry, managing disruptive innovation at their own end will be a major demand. B schools will have to balance academic rigor with market orientation to attract best students. Herd mentality, delink of research and industry, cost effectiveness and innovation are some of the important pointers that highlight for sustainability of B schools.

It was argued by Gopal (2012) that to remain sustainable and to be able to continue in this volatile market, B schools will have to be innovative to design a basic resource conducive for student placement.

This debate was further strengthened by leading academicians who stated that while industrial demand for qualified managers is the main focus of an MBA school, the schools must also generate knowledge through highly specialized program for niche sectors.²

The present paper explores whether or not this proliferation of colleges is reaching out for the purpose for which management education has started. Whether management colleges are just a placement shop; or are an academic hub imparting learning on cognitive, metacognitive and affective components. In an attempt to do the same, we study impact of stress on academic performance and find sources of stress. Thereby we link it to the amount of effort and priority that students ascribe to different activities.

A brief literature review suggested that the antecedents to academic performance are self- efficacy (Malmivouri, 2008; Missildin, 2004; Yates, 2002; Byrnes, 2008) of the student, teacher's charisma and knowledge (Akinsolu 2010; Akiri and Ukborkbo 2009), parental support (Cutrona et al. 1994), motivation and stress. Several other parameters have also been studied as antecedents to good academic performance.

For the purpose of this study we limit our enquiry to stress as an antecedent to academic performance.

Stress and Academic Performance

Stress and its effect on human being have been reported differently by different researchers. Many studies identify Stress as a "nonspecific response (different physical and chemical responses) of the body to any demand put upon it. The demand itself is called stressor" (Situations that trigger stress are called as stressor). Others introduce stress as "the reaction or mobilization of the body's resources in response to a stimulus (stressor). Stress response would interrupt physiological and psychological homeostasis. It requires acting many efforts to reach equilibrium between the person and the surrounding environment." While some level of stress improves awareness and alertness, continual stress interferes with the normal functioning of the body by lowering the immune system and eventually makes the body succumb to disease (Aldwin and Greenberger, 1987; Rawson, Bloomer and Kendall, 1994).

Stress has been known to follow a curvilinear relationship with performance (Westman and Eden, 2007; Keeley et al. 2008). It is argued thus that an optimal level of stress can enhance learning ability. Some researchers have counter argued the existence of curvilinearity. Some studies have also indicated that students' academic performance is dependent on their perception of stress (Chambel and Curral, 2005; Cassady and Johnson, 2002).

Initial researches have suggested stress as a negative element and have found it to be the cause for physical and mental health problems. However, recent studies highlight that perception of stress shall either cause an improved performance or health hazards.

A most common understanding on this debate is that in student group, stress may be beneficial to students by increasing their motivation and productivity. But when academic stress is perceived negatively or becomes excessive, it may hurt academic performance and mental and physical health of the student.

Management education is an important medium that facilitates improvement of leadership qualities and develops students into excellent future managers. The purpose of management education is beyond other education systems as it demands that cognitive, metacognitive as well as affective learning be brought out from the course. The subjects studied are multidisciplinary and involve integration of several concepts. Thus it exposes students

1 C Fore is a multidisciplinary research organization specializing in performance appraisal of educational institutions.

2 http://nmims.edu/wp-content/uploads/pdf/rajan_saxena%20.pdf#page=1&zoom=auto,0,848.

to multiple challenges that they may have never faced before. The pressure to earn good grades and to earn a degree is very high (Hirsch and Ellis, 1996). Besides, in residential programs, staying away from home, interpersonal relations, group dynamics etc. also act as stressors. Time management and its effect on perceived stress and academic performance was reported by Nonis (1997).

Ong and Cheong (2009) listed academic performance related stressors, interpersonal issues, intrapersonal issues, and environmental variables as stressors in the same order of hierarchy in students of professional courses. In academic performance related stressors, workload, lecturer characteristics, CGPA, frequent tests and difficulty of tests were the top few stressors reported.

According to Kohn and Frazer (1986) excessive pre-reads and homework, unclear assignments, and uncomfortable classrooms added to academic stress.

Sgan- Cohen and Lowental (1988) have suggested that relations with faculty members and time pressures can also cause stress.

Pandya, Deshpande and Karini (2012) suggested that curriculum and instruction, team work related issues, assessment, and placement concern act as stressors, and affects academic performance.

Nandamuri and Gowthami(2011) suggested that academic stress due to heavy load of curricula, followed by working in teams, instruction and assessment scheme and finally placement pressures contributes to the stress in management students.

Sinha and Sharma (2009) reported that academic load, interpersonal issues, environmental concerns, intrapersonal issues, placement pressure, and financial issues add to stress in management students of India. They found that academic assignments, difficulty in understanding different subjects of diverse nature due to differences in background education; change in sleeping habit due to poor time management; in placement salary package, and job profile of choice were top most stressors.

Research Methodology

The study is descriptive conducted at two stages. In the first stage quantitative data was collected using a structured questionnaire. The data collected was analyzed using SPSS 15. A preliminary analysis suggested that in our sample

studied, stress did not fall as a curvilinear variable in relation to academic performance as has been suggested in literature. Thus, the second stage used qualitative approach to understand the deviations. In depth interviews gave insights on the reason for these variations. An open ended interview asking two specific questions as to how do they perceive stress and what explains the absence of relation between stress and performance in our sample was asked. The answers received were explored on themes to arrive at theoretical anchor using post coding.

Measures for second phase

Stress- An adaptation of Stress in Academic Life Scale (SALS) questionnaire was used. It had 24 items measuring stress on the dimensions of social support related stress, achievement-motivation related stress, curriculum and teaching mode related stress, academic ambition related stress, self-confidence related stress, and performance anxiety related stress. To make the questions pertinent to management graduates, some questions were added. Items on achievement motivation were converted into focused query on placement. In the items relating to curriculum and teaching, two items on time management were added, academic ambition was modified into self- adjusted requirement of learning of subject irrespective of exam focus.

Academic Performance - The overall CGPA grades representing two years of their academic course of the MBA students have been used.

Reliability and Validation of the instrument Used:

SALS is a reasonably well validated and accepted tool. A test for reliability of the instrument was done and a Cronbach alpha score of 0.76 was obtained which was well within the range of acceptance. Therefore further tests for relationship check was done.

Sample

70 students of second year MBA program were asked to fill the questionnaire during one of the classroom sessions. Thus a response rate of 100 % was achieved.

Result

Analysis of Quantitative Data:

To test the relation between academic performances and stress, a scatter plot was prepared and then regression analysis was done.

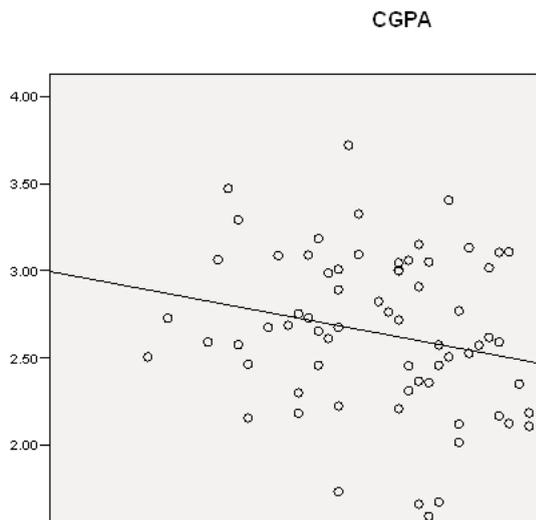


Fig. 1 Scatter Plot between stress and academic grade

From the scatter plot it can be made that the data follows an absolutely heterogenous distribution. Further to test for non linear relation power, exponential and logistic regressions were also run.

Table. 1. Model Summary and Parameter Estimates

Dependent Variable: CGPA

Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Linear	.049	3.475	1	68	.067	3.399	-.011
Power	.048	3.395	1	68	.070	8.971	-.292
Exponential	.051	3.646	1	68	.060	3.559	-.004
Logistic	.051	3.646	1	68	.060	.281	1.005

The independent variable is SALS.

From the above table it can be made out that the data is absolutely heterogeneous. That is to say, that stress in no way defines academic performance of the students.

Further the mean is relatively high at 78 on a score of 0-100 on SALS Scale, which suggests that students suffer stress but it does not lead to academic performance? Amongst the sources of stress studied, it was found that students suffered most from academic ambition and placement pressure, followed by time management and curriculum and teaching load.

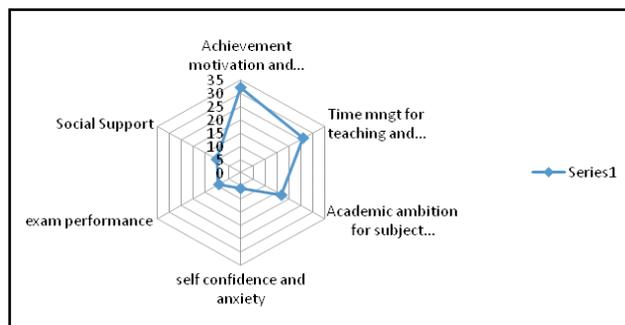


Fig.2 Radar Chart for stressors in students

Table 2 Analysis of qualitative data

Which explains the statistical finding that stress does not lead to academic performance

Themes	Theory anchor
There are only a few specific companies that come for placement	GOAL ORIENTATION
I need an overall development and not just academics	GOAL ORIENTATION
Many topics are not linked with what companies demand	GOAL ORIENTATION
There is a perceived difference between what can be applied in industry to what is taught	GOAL ORIENTATION
Most colleges use case which is more application based, but evaluate on conceptual understanding	GRADING SYSTEM
Relative grading makes it easier to score	RELATIVE GRADING
There is pressure from underperforming students to perform at a lower level	SELF LIMITING GOAL SETTING BECAUSE OF RELATIVE GRADING
I fear that I will be excluded at hostel if I don't join the group and overperform	SELF LIMITING GOAL SETTING BECAUSE OF RELATIVE GRADING

Discussion

It was found that self-limiting goal setting amongst students was one of the common reasons for the stress and academic achievement to be non-relating. Deci and Ryan (1985) had studied the effect of self-determined motivation and

academic performance, but in our sample we found that the grading pattern which followed the Composite Grade Point Average where students were forced ranked on a bell curve played a strong role in the students choosing lower achievement goals. It was found that academically well performing students were forced by other classmates to underperform as it reduces the class average and allows weaker students to gain better grades. Mulvey and Klein (1998) had studied role of influence of social perception, social loafing, collective efficacy and cohesion on group goal processes and eventually group performance. It was found by them that the variables of perceived social loafing, collective efficacy and cohesion influences group performance though not mediated by group goal processes.

The problem of grading system and choice of bell curve as a performance measurement has well been reported to motivate just a handful of candidates. It is known that it tends to be demotivating for the bottom left and bottom right. Only the ones which are on marginal left and right of the curve are triggered into performance. Most B schools have followed just the herd mentality and used CGPA as their evaluation system without creating the ecosystem for group coordinated activities where with the help of teacher group focuses on larger goals which they individually would not be able to accomplish. This may not happen when the student intake is at an average or above average level.

Many students felt that ultimate goal for a management qualification was to get the job, so they sometimes did not deliberately perform in exams but rather focused on an overall personality growth. They got more active with other co curricular activities etc. Also Goal orientation in these students actually deviates them from academic rigor.

To manage this outcome, Taing et al. (2013) work can be used as a framework for student mentoring which can include academic as well as industry guide. Taing et al. examined the relationship of learning goal orientation with goal setting and performance over time. In their study, at first time they assessed levels of learning goal orientation as a trait. After the first step, the students were asked to set performance goals. A continuous feedback was given to the students on their current grade course and encouraged to improve/ revise their goals. They found that learning goal orientation was associated with both setting higher goals and maintaining higher performance over time. Moreover, the relationship of learning goal orientation and performance was found to be mediated by goal setting. This builds a case for an active

mentoring program as many of these students work on perceptual premise that their work life would have some demands. This may be very different from what they may face otherwise. An equal focus on academic learning can also be useful. This work almost comes across as an antithesis to our finding. Complimented with these few theoretical anchors the phenomenon observed was well explained. Based on the findings of this study, an important managerial application can be that in order to remain sustainable, B schools must innovatively design the course content, pedagogy and evaluation criteria. Following a norm or a best practice applied at another institute may not help in creating managers that are fit for the society and contribute. There are different capability levels in a student at an input level and similarly different firms choose different capabilities. Some firms demand for a low capability and some for medium and some for high. In a rat race to be No.20 or no.15, just emulating processes and practice only lead to a stressed out candidate who uses unfair ways to limit rather than excel.

Limitation

It remains to be seen how these students perform, supported by their mentors. Also this could be a phenomenon very specific to the students of a particular institute and a particular batch. This finding can not be generalized as the sample was also very small. At best this paper explains the statistically found data in the sample studied.

Future Research

The most important limitation of this study is the small sample and sample collected from one college and one batch. The future research could experiment with larger sample, sample collected from different colleges and longitudinally from different batches. Due to small sample size, the validation of tools also could not be done, so while this data is indicative, it is not generalizable. The same study with larger sample could look at validation of the scale and use statistical tools to measure goal alignment and self limiting goals as mediating variables. This study could be The relation between stress and academic performance of students can be further tested using validated instrument designed for goal orientation and self limiting goals as mediating variables.

Also, an action report with mentoring as a process can be looked at. The same can be experimented with grading pattern being changed and using the absolute grades rather than

comparative grade points. To explain the generalizability of this study, future researchers could focus on different levels of colleges in terms of top 25, next 50, compare and contrast performance and relationship in government colleges and private institutes.

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Performance Linked Reward and Job Satisfaction: Banking Sector

Nitu Chomal and Papori Baruah

A b s t r a c t

Performance linked rewards act as motivators for employees in enhancing the performance. Performance linked reward may differ in the same organization based on different categories of employees. The study tries to visualize the availability of performance linked reward and job satisfaction level of employees across the managers and clerical staff of banking sector. High amount of dissatisfaction persists in the clerical category owing to the present performance linked awards. As clerical employees contribute their efforts in accomplishment of organizational goals, there job satisfaction level shall be well taken care of.

Key Words : Job satisfaction, Performance Linked Reward, Banking Sector, Managers, Clerical Staff.



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Today's emphasis on quality-improvement teams and commitment - building programs, is creating a renaissance for financial incentive of pay-for-performance plans. Organizations adopt alternative reward systems to increase domestic and international competition in order to make their employees more productive. The competitive reasons for the growing emphasis on performance-based compensation are companies cutting costs, restructuring, and boosting performance. To ensure the reward system is effective and motivates the desired behaviors, it is essential to consider carefully the rewards and strategies utilized and ensure the rewards are linked to or based on performance. To be effective, any performance measurement system must be tied to compensation or some sort of reward. Rewarding performance should be an ongoing managerial activity, not just an annual pay-linked ritual.

Employees are motivated by both intrinsic and extrinsic rewards. To be effective, the Reward System must recognize both sources of motivation. All reward systems are based on the assumptions of attracting, retaining and motivating

people. Performance linked reward are rewards given for performance, usually based on a normative value. Performance linked rewards are an important component of the reward system, whether these can be extrinsic or intrinsic in nature that motivate employees and influence the level of performance and job satisfaction of employees. Performance linked rewards are different from the general rewarding system because those are given to the employees on the basis of their extra efforts and outstanding performance. *Rewards should be given to employees when they earn them—that is the principle of performance linked rewards*, which mean employees should be rewarded on the basis of their performance instead of age and tenure.

Job satisfaction is a complex and multifaceted concept, which can mean different things to different people. Job satisfaction is usually linked with motivation, but the nature of this relationship is not clear. Satisfaction is not the same as motivation. “Job satisfaction is more an attitude, an internal state. It could, for example, be associated with a personal feeling of achievement, either quantitative or qualitative.” Job satisfaction has been found to be associated with organizational trust (Rich, 1997) and helps increase employee performance (Arnett et al., 2002). Spector (1997) describes job satisfaction as simply how people feel about their jobs and different aspects of their jobs. According to Lawler (1990), job satisfaction refers to people’s feeling about the rewards they have received on the job. Thus satisfaction is consequences of past events. Beer M. (1964), defines job satisfaction as the attitude of workers toward the company, their job, their fellow workers, and other psychological objects in the work environment.

Job Satisfaction is the extent to which the individual experiences a pleasurable emotional state as a result of fulfilling important job values. Job satisfaction is based on several fundamental factors, among which are the extent that personal job values are compatible with the values and goals of the organization, whether the reward is perceived of as fair compensation for performance, and whether or not rewards are perceived of as being applicable or dependent on performance (Gibbs M.E. 1980). Turner H.J. and Brown G. (2004) said that the importance of job satisfaction lies not in its relationship with performance but with its stabilizing effects (reducing tardiness, absenteeism, and turnover) and through its effects on cohesion (increasing organizational citizenship behaviors and organizational commitment). Job satisfaction appears to mediate the effects of in-role

performance, role conflict, and job-induced tension on intent to leave and extra-role performance. Thus job satisfaction is a feeling of pleasure which comes through rewarding the performance of employee by giving recognition to his/her efforts.

James Worthy (1950), examines the relationship between job satisfaction and organizational variables by measuring employee attitudes toward the company in general, the local organization, local management, immediate supervision, fellow employees, and working conditions. Morse and Reimer (1956) conducted a study to test the hypothesis that an increased role in decision-making processes for rank and file groups increases job satisfaction and productivity. Katzell, Barrett, and Parker (1961) have shown that job satisfaction is related to “small town culture” rather than an “urban culture” and found that job satisfaction tended to be lower in the company divisions characterized by large work groups, unionization, a large proportion of male workers, high wages and a large city location. Campbell (1952) found that there is a relationship between size of the work group and the level of employee satisfaction with the group incentive plan and stated that knowledge about the relation of their individual effort to incentive pay (knowledge of results) was responsible for the degree of employee satisfaction with the plan. Beer M. (1964), states that organizational size is inversely related to job satisfaction. The author stated some intervening variables of organization like organizational structure, leadership and workers needs and expectations in order to measure the relationship between organizational size and job satisfaction. Talacchi (1960) has demonstrated an inverse relationship between organizational size and job satisfaction by measuring several factors including satisfaction with job rewards, attitude toward management effectiveness, adequacy of immediate supervision, regard for fellow employees and general job satisfaction. Deci (1971, 1972) found that reward contingency may act to diminish intrinsic motivation; because the provision of incentives is necessarily extrinsic to the work itself, the relationship of each dimension to the other study variables may add to the understanding of the role incentives play. Klein S.M. (1973) examines the relationship between the independent salary variables of expectancy, equity, and reinforcement and the dependent variable of overall satisfaction.

Greene (1973) found that both performance and merit pay caused satisfaction, but satisfaction did not cause

subsequent performance, suggesting that the reward rather than performance caused satisfaction. Orpen (1974) found that contingent reward systems were related to improved production quality and positive performance-satisfaction relationships for assembly line workers.

Kesselman, Wood, and Hagen (1974) found that satisfaction and performance were significantly related both for individuals whose pay was contingent on performance and for those whose pay were contingent on seniority. Hunt, J.W. and Soul, P. N. (1975) studied the relationship of age, tenure, and job satisfaction in men and women employees and tried to find out age and tenure had positive, linear relationships to overall job satisfaction and age had a stronger relationship with satisfaction in male employees than tenure; the reverse held for female employees. Fossum, J.A.(1979), studied the effects of positively and negatively contingent rewards and individual differences on performance, satisfaction, and expectation. Greene, C. N. and Podsakoff, P. M. (1981) conducted a field experiment to investigate effects of removal of a performance-contingent reward on subordinates' perceptions of their supervisors' sources of influence. Elsa, M. and Lopez, A. (1982) said that specific dimensions of self-esteem interacted with job satisfaction factors in different ways for male and female employees and self-esteem moderates the job performance-job satisfaction relationship. Savery L.K.(1996) studied the congruence between the importance of job satisfaction and perceived level of achievement of employees in hospitals and said that the intrinsic motivators are most important items influencing a person's job satisfaction and dissatisfaction than money. Allen R.S. and Kilmann R.H. (1999) examined the impact of reward practices on the relationship between an organizational strategy based on the principles of total quality management and perception of firm performance and said that the use of extrinsic reward practices-including profit sharing, gain sharing, employment security and comp time- exhibited a significantly positive moderating effect on the relationship between TQM and perceived firm performance while intrinsic reward practices did not reveal a significant moderating relationship. His study underscores the importance of reward system for implementing TQM-based strategies, especially putting the extrinsic reward system behind the use of TQM practices on the job.

Lok, P. and Crawford J. (1999) carried out their study in hospitals and said that job satisfaction grouped into higher and lower order needs (level of control, the amount of

interaction and level of professionalism) exerted the greatest influence on organizational commitment.

Turner H.J. and Brown G. (2004) had developed an improved job dimension scale to measure intrinsic and extrinsic job satisfaction in sales representatives. Chuang N.K. and Jenkins M. D.(2009) studied the intrinsic and extrinsic factors impacting the job satisfaction of Casino Hotel chefs, and whether chefs' background characteristics were associated with their overall and specific facets of job satisfaction. Goris J.R.(2007) had studied the moderating influence of communication satisfaction on the association between individual-job congruence and both job performance and job satisfaction of the employees of MNC. He had used Job descriptive index (JDI) for measuring the job satisfaction (Smith et al., 1969). He said that either as a moderator or a predictor, or both, communication satisfaction had significant influence on job performance and job satisfaction. Chen J.C. and Silverthorne C. (2008) examined the relationships between locus of control and the work-related behavioural measures of job stress, job satisfaction and job performance in Taiwan on professional Accountant and found that individuals with a higher internal locus of control are more likely to have lower levels of job stress and higher levels of job performance and job satisfaction. Lange, T. (2009) studied the impact of values, beliefs, important job attributes and autonomous building on employees' job satisfaction which was important in communist industrial relations as well as economic and social transition. The study also covered the influence of trust and confidence in autonomous institution building on workers' job satisfaction, especially in the context of reformed trade unions, education and social security. Liu B. et al. (2008) examined the relationship between public service motivation and job satisfaction and said that PSM is positively linked to important work-related attitudes and behaviors such as Job Satisfaction, Organizational Commitment, and Organization Performance. The level of PSM is higher in public employees than in their counterparts in the private sector, and public employees with higher PSM scores are more satisfied with their jobs, more committed to their organization, and more productive. Petrescu A.L. and Simmons R.(2008) drew out relationship between HRM practices and worker's overall job satisfaction and said that several HRM practices like work organization, supervision, employee involvement, recruitment and selection, training and learning and pay practices, including seniority-based pay and performance-related pay could raise worker's overall job satisfaction.

Statement of the Problem

Extrinsic Rewards are not the best option for enhancing performance and bringing job satisfaction among employees (Hezberg 1966, Deci, 1975; Anderson, Manoogian, and Rezinik, 1976; Kruglanski, Friedman, and Zeevi, 1971). Extrinsic factors are much more important than intrinsic factors to motivate the employees and in determining lodging employees' job satisfaction (Simons and Enz, 1995 cited in Larn et al., 2001 and Smith et al., 1996). There are performance linked extrinsic rewards in the company policy of every bank for motivating their employees which are aimed at achieving their job satisfaction. The study will try to explore the score of performance linked rewards and job satisfaction received by employees across managers and clerical staff of banks. It was observed during the pilot survey of the study that performance linked rewards offered by the banks are not very strong for clerical category. Hence an effort is made to find out the difference of availability of performance linked rewards and job satisfaction level of employees across different categories of bank employees.

Objectives

The following objectives are proposed to be achieved during this study:

- i. To find out the level of performance linked reward, and
- ii. To find out the impact of PLR on job satisfaction.

Hypothesis

The following hypotheses were formed to test the results between -

H_{01} : There is no significant difference in performance linked reward received by the employees across managers and clerical staff.

H_{02} : There is no significant impact of PLR on job satisfaction of the employees across managers and clerical staff.

Research Methodology:

Sixteen banks were selected in the study by examining their business performance. Among sixteen banks, ten banks are from public sector, five banks are from private sector, and one bank from regional rural was selected for the study. Survey was conducted in total 273 branches along with the zonal offices and regional offices of banks. The respondents

were selected randomly in the ratio 3:1. Four employees from each branch were selected randomly in the ratio of 3:1. Three employees from managerial category and one employee from clerical category were selected. In order to cover more managerial category employees, the 273 branches were visited, because the results of pilot survey shows that performance linked rewards are very much pronounced for managerial category. Total 1117 employees were interacted including Circle Officers, HR Managers, Assistant General Managers, Branch Managers, Cashiers, Accountants, Senior and Junior Assistants.

The study revealed that there are total eleven different types of reward under extrinsic category and seven different kinds of reward under intrinsic category. The study tries to explore the relationship of performance linked reward practices with the job satisfaction level of employees in banking sector. For this purpose dichotomous questions were framed in the questionnaire where value one is assigned if the employee has received the reward and zero if the employee did not receive the reward. The score of performance linked reward received by the employees are calculated by adding the value of all reward practices as received by them. The study is comparing performance linked reward received by the employees with the job satisfaction level of employees. To keep the variable into same scale the scores of performance linked reward are converted into the range of 1 to 5 by using the formula as given below.

Value of performance linked reward=

$$\frac{\text{Score of performance linked reward}}{\text{Total reward practices}} \times 5$$

Confirmatory factors analysis is used with varimax rotation on 42 items of job satisfaction variable. Questions asked in five point likert scale ranging from 1- Highly dissatisfied to 5-Highly satisfied. Total 6 factors were considered viz. job satisfaction from pay for performance, job satisfaction from promotion, job satisfaction from benefits, job satisfaction from work itself, job satisfaction from co-workers behaviour, and job satisfaction from recognition and appreciation.

Results and Discussions

Population Distribution: The study covers mainly the branch level employees. Employees are categorized into two sections : Assistant general managers, branch managers, assistant managers, circle officers coming under the

category of managers and cashiers, accountants, senior assistant, junior assistant, co-executives, teller, etc. coming under clerical category.

Table 1: Sample size of managers and clerks

Category of employees	Number	Percentage
Managers	713	65.3%
Clerks	379	34.7%
Total	1092	100%

*Source: Field survey

Table 1 shows the population distribution among the categories of managers and clerical staff. Here 65.3% of employees come under manager category and 34.7% of employees come under clerical category. It was found during the survey that performance linked rewards are stronger for managerial category in comparison to the clerical category which results in low level of employee job satisfaction. A comparative analysis of both the category of employees is shown below under the following heading:

Table 3: Independent sample t-test – Category of employees and score of reward

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Score of performance linked reward	Equal variances assumed	29.906	.000	23.155	1089	.000
	Equal variances not assumed			24.981	943.812	.000

*Source: Field survey

The independent sample t-test in Table 3 indicates that there is significant difference between the means of scores of performance linked reward across different categories of employees (p -value = 0.000). Hence we reject the null hypothesis H_{01} and accept the alternate hypothesis that there is a significant difference of performance linked reward received by managers and clerical staffs. The clerical category gets less chance for getting performance linked reward because this category does not deal with the financial performance indicators like managers. Their appraisal is held on the basis of non-financial performance indicators. Especially in case of pay for performance and other benefits,

Performance Linked Reward across Employee Category:

It was found during survey that organizational reward policy for clerical category of employees is very weak in comparison to managerial category. To see the difference of performance linked reward under this two categories of employees, the following hypothesis is formed.

Hypothesis H_{01} : There is no significant difference of performance linked reward across managers and clericals.

Table 2: Mean of score of reward across category of employees

Category of employees	Number	Mean
1 Managers	713	2.27
2 Clerical	378	0.66

From Table 2 it is evident that the mean of the score in performance linked reward is highest across managers in banking sector.

clerical category of employees are lacking behind the managerial category.

Table 4: Percentage of employees received performance linked reward

Categories of reward	Managers	Clerical staff
Pay for performance	71.4%	7.1%
Promotion	78.8%	35.9%
Other benefits	67.6%	25.1%
Work itself	90.5%	39.1%
Co-workers' behaviour	56.1%	16.1%
Recognition and appreciation	76.2%	30.1%

*Source: Field survey

Table 4 indicates that only 7.1% of employees of clerical category receive pay for performance rewards which is substantially very low among all reward practices, whereas 71.4% of managers receive pay for performance rewards like variable pay, cash award, yearly increment, and profit sharing scheme. Under extrinsic category maximum number of employees from managerial (78.8%) and clerical (35.9%) category have received promotion. Under intrinsic category maximum number of employees from managerial (90.5%) and clerical category (39.1%) have received more work in terms of increased duties, responsibilities, and targets. 76.2% managers have received recognition and appreciation and in case of employees of clerical category only 30.1% of employees have received it.

Job satisfaction across employee category: From the above analysis the study found out that clerical category is less rewarded in comparison to managers. So, if the employees across different category vary in terms of getting performance linked reward, there may arise a difference on the job satisfaction level of employees across managers and clericals because performance linked reward positively affects the job satisfaction level of employees. To find out the difference of job satisfaction level of employees across managers and clericals the following hypothesis is formed.

Hypothesis H_{02} : There is no significant impact of job satisfaction level of employees across managers and clerical staff.

Table 5: Independent sample t-test for job satisfaction across different categories of employees

Job satisfaction dimensions		Managers	Clericals	T-test p -value
Job satisfaction from pay for performance	N	713	379	0.000
	Mean	3.47	2.77	
Job satisfaction from promotion	N	712	377	0.000
	Mean	4.08	3.75	
Job satisfaction from other benefits	N	709	379	0.000
	Mean	3.22	2.46	
Job satisfaction form work	N	712	379	0.000
	Mean	4.03	3.66	
Job satisfaction from co-workers	N	712	379	0.000
	Mean	3.49	3.29	
Job satisfaction from recognition and appreciation	N	713	379	0.000
	Mean	4.21	3.73	
Overall job satisfaction	N	707	379	0.000
	Mean	4.02	3.68	

*Source: Field survey

Table 5 explains the results of independent sample t-test. Data reveals that there is a significant difference of job satisfaction across managers and clerical staff at 1% level of significance. Thus we reject the null hypothesis H_{02} and accept the alternate hypothesis that there is a significant impact of PLR on job satisfaction across managers and clerical staff. The factor scores of job satisfaction from pay for performance and other benefits show low satisfaction among clerical staff. Among all, factor score of job satisfaction from promotion is highly rated by the clerical staff. Job satisfaction from recognition and appreciation is highly rated by managers.

Finding and Conclusions:

Results reveal that there is significant difference across managers and clerical staff in getting performance linked reward and they are significantly impacting job satisfaction among employees. The performances of managers are evaluated mostly on quantitative performance standards. Managers generally deal with the business performance of branch so they get more privilege in getting performance linked reward in comparison to clerical staff. Performance linked rewards act as motivators for employees in enhancing their job performance. This increases the level of job

satisfaction among employees. Results indicate that less rewarded employees are deriving less amount of job satisfaction.

Banks should take some initiative to attract and retain good talent in their clerical division by offering some attractive extrinsic performance linked rewards. As clerical employees are also contributing their efforts in accomplishment of organizational goals, their job satisfaction level should be duly cared by banks. Banks should handle both extrinsic and intrinsic reward more delicately and make a balanced reward strategy. Employees must be cared for and counseled in order to increase their satisfaction level in the organization. Banks being the financial backbone of the country will be ruined only by such meager percentage of less satisfied people. If less job satisfaction is not cared for then it would automatically lead to job dissatisfaction and therefore it would lead to negligent behavior and turnover of employees.

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Employee Engagement: Key to Organizational Success

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Abstract

Employee Engagement is a well-researched concept which lacks a general acceptable definition and a definite conceptual understanding. Despite its predictive role in attaining Organizational Success, there is a need for exploring core content of the concept. The present study aims at describing Engagement concept, its distinctiveness from relative concepts and its diminishing nature which are very essential but associated with certain ambiguity. In addition to this, the current paper accumulated findings of various studies to explain the positive behaviours associated with an engaged employee thereby suggesting implications to enhance and maintain Engagement levels of workforce.

Key Words : Employee engagement, Performance, Well-being, Self-Management, Review.



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Organizations are striving for competitive advantage to sustain in the dynamic world of Market fluctuations, technological advancements and changing economy. For sustainable business success, organizations are trying to adapt to the changes and focusing on intellectual capital instead of materialistic capital. Organizations are tending to invest on skills, abilities and innovative behaviours to reciprocate external inconstancy. Organizations' success in this regard would directly proportionate to Return on Investment. Effective utilization of potential employees and retaining such employees is the biggest challenge that confronted the organizations. Employee engagement is one of the emerging concepts that will address multiple challenges organizations are facing such as attrition, customer loyalty, customer satisfaction, profitability, and business productivity (Gallup 2013, Macey et al., 2009, Aon Hewitt 2012) and employee related variables like absenteeism, individual performance, resilience (Gallup 2013, Towers Watson 2012). The growing interest in practitioners is significant (Saks, 2006; Bakker and Schaufeli

2008). But the rate of disengaged employees is overwhelmingly around three times more than engaged employee rate (Gallup 2013). Academic and professional research is being carried out intensively in the area employee engagement to identify the factors affecting and enhancing Engagement levels. One interesting thing here is organizations could benefit with positive business outcomes by facilitating employee to be engaged with the work activities.

Conceptual Emergence

Employee Engagement emerged as a concept of individual integration with role activities (Kahn 1990). The study initialized the concept of Employee Engagement in the process of identifying why an individual integrate with a role at different levels at work. Kahn (1990) chose qualitative approach to study individual role fit and suggested two ways of integration i.e. employee integration with the work assigned (Self-employment) and engaging with a conversation, communicating thoughts or opinions or ideas (Self-expression). Kahn proposed that individual level of integration with the role varies since individual will have a choice to present his/her preferred self while performing such activities. The study conceptualized Engagement in terms of personal engagement (*'person's self-integration with role'*) and personal disengagement (*'withdrawal of self from such role'*). The study threw light on psychological conditions that influence individual to be differed with the engagement levels at work. May et al. (2004) empirically tested Kahn's notion on psychological conditions to seek the relationship between Engagement and psychological meaningfulness, safety and availability and found that three psychological conditions are significantly related to Employee Engagement. Kahn's personal engagement concept was adopted by many authors later; further studies focused on factors influencing Engagement. Maslach et al. (2001) brought out Employee Engagement concept from the literature of burnout. The study considered six areas of worklife such as workload, control, reward, fairness, community and values. If a mismatch occurs in any of such or all the areas of worklife for quite a long time, the engagement levels of employee would gradually fall and result in burnout. Again the study supports the notion of person- role fit examined by Kahn(1990) by suggesting the factors of worklife that influence employee's willingness to integrate with role (varied engagement levels). Supportingly

Corporate Leadership Council (2004) stated that employees who are highly engaged with the work activities are less likely to experience cynicism and exhaustion. Bakker and Schaufeli intensively researched the concept in terms of Work Engagement. Recent studies on JD-R theory throw light on identifying work environment factors that influence burnout and Work engagement. Studies show that Job demands predict burnout and Job resources enhance employee engagement with work (Bakker, Demerouti, Boer, Schaufeli 2003b; Bakker, Demerouti, Taris, Schaufeli, Schreurs 2003c; Bakker, Demerouti, Verbeke 2004; Bakker, Demerouti; Euwema 2005; Bakker, Hakanen, Demerouti, 2007). This approach intends to find the factors that predict burnout and work engagement, since burnout affects Engagement levels of employee in a greater extent. Majority of studies focused on either way of researching Employee Engagement: 1) Factors affecting and enabling Employee Engagement and. 2) Individual level and organizational level outcomes associated with Employee Engagement.

Definitions of Employee Engagement

Since 1990 extensive research carried out in the particular area is of growing interest. Even though Engagement is a well-researched construct, it lacks a universal acceptable definition that distinguishes Employee Engagement with other relative constructs. Several studies in the process of measuring engagement defined the concept to provide a precise description of it. But the studies were not completely successful in defining it. This may be due to its intangible nature and the process of engagement happens without significant conscious attempt of an individual. Defining such a concept made researchers to propose engagement in terms of a "Positive attitudes," "Behaviour," and a "Psychological state," and accordingly. The table given below consists of a set of definitions by various authors. From the table it is apparent that researchers defined the concept in the view of individual perspective or organizational perspective in concern to the purpose of their study. When the approach is to find core aspects of employee engagement, the definitions derived, based on the actual process that happens when an individual engages with task, activate (Individual perspective). When the approach is to identify the advantages associated with engagement with concern to organization, the definitions derived accordingly are represented in table.

Tables and Diagrams

Table: Definitions of Employee Engagement

Authors	Definition	Perspective
Kahn (1990)	The harnessing of organisation members selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances.	The study unearthed the Engagement concept from individual perspective. Very initially, identified that the engagement levels in an individual varies and proposed three psychological conditions essential for an employee to be engaged: Meaningfulness, safety and Availability.
Mone and London (2010)	An engaged employee is someone who feels involved, committed, passionate, and empowered and demonstrates those feelings in work behaviour	Organizational perspective. The book enlightens the importance of employee engagement in getting higher performance.
Kerstin Alfes et al. CIPD (2010)	Being positively present during the performance of work by willingly contributing intellectual effort, experiencing positive emotions and meaningful connections to other.	Organizational perspective, The report emphasised on identifying engagement levels in different settings to suggest organizations to develop strategies for engaged workforce.
Harter, Schmidt and Hayes (2002)	Individual's involvement and satisfaction with as well as enthusiasm for work	Organizational perspective, the study reviewed business outcomes associated with employee engagement meta analytically and identified that higher level of engagement is positively associated with business outcomes.
DDI (2005)	The extent to which people value, enjoy, and believe in what they do	Individual perspective, the report extensively worked on identifying various factors that result in to higher levels of engagement. The study focused on conceptual understanding and conditions favourable for employee to be engaged.
Schaufeli and Salanova (2002)	A positive fulfilling, work related state of mind that is characterized by vigour, dedication and absorption	Individual perspective, the definition speaks about employee engagement with work activities. The study brought out the concept from burnout literature. Focused on core aspects of engagement
Truss et al. (2006)	Passion for work	Organizational perspective. Broadened the scope of Kahn's (1990) study. The report undertaken a study to identify factors that raise the level of motivation and thereby engagement levels of employees in UK.

Corporate Leadership Council, (2004)	The extent to which employees commit to something or someone in their organisation, how hard they work and how long they stay as a result of that commitment	Organizational Perspective, the report focused on key business outcomes associated with employee engagement
Robinson(2004)	A positive attitude held by the employee towards the organisation and its values. An engaged employee is aware of business context and works with colleagues to improve performance within the job for the benefit of the organisation. The organisation must work to develop and nurture engagement which requires a two-way relationship between employer and employee.	The study even though emphasized on aspects of engagement. The focus is to exhibit the advantages associated with engaged employee in an organization
Wellins and Concelman (2004)	Illusive force that motivates employees to higher levels of performance	Organizational perspective, The focus of the study is to identify the contribution of engagement in achieving higher performance.
Janson and Janson cited in (Catteeuw F, Flynn E, Vonderhorst J 2007)	The degrees to which employees are satisfied with their jobs, feel valued, and experience collaboration and trust. Engaged employees will stay with the company longer and continually find smarter, more effective ways to add value to the organisation. The end result is a high performing company where people are flourishing and productivity is increased and sustained.	Organizational perspective.
William H. Macey, Benjamin Schneider, Karen M Barbera and Scott A. Young (2009)	Individual's sense of purpose and focused energy, evident to others in the display of personal initiative, adaptability, effort, and persistence directed toward organizational goals.	Individual perspective, the study addressed the problem of conceptual ambiguity by providing definition of engagement. Engagement was described in terms of energy an employee experience and exhibit to others in the process of accomplishing tasks.

BlessingWhite (2008)	Engagement as pertaining to Maximum Job satisfaction and Maximum Contribution.	Organizational perspective, The institute contributed an engagement model that gives a picture of different engagement levels an individual according to his/her level of satisfaction and willingness to contribute for accomplishing tasks. The survey aims at identifying engagement levels worldwide and its impact on organization
Kenexa work trends Report 2012	The extent to which employees are motivated to contribute to organizational success and are willing to apply discretionary effort to accomplishing tasks important to the achievement of organizational goals.	Organizational Perspective. this report provides the five year trend of engagement levels there by stating the role of employee engagement in predicating organizational outcomes.

Various definitions furnished in the table gives us a common notion. i.e. engagement is a degree, which exists to certain extent. During the process of engagement, employee gets motivated either of self-motivation or by external motivation which drives employee to be energised to perform a task. The employee engagement is said to be so called “energy” utilized in accomplishing purpose. For example, Macey et al. (2009) defines Engagement as “*Individual’s sense of purpose and focused energy, evident to others in the display of personal initiative, adaptability, effort, and persistence directed toward organizational goals.*” The study described Engagement in terms of psychic energy (what people personally experience) and behavioural energy (what is visible to others) that an individual invest in the process of accomplishing a purpose. Employees personally experience, totally absorbed, intensively focused, being energised with feeling of enthusiasm, stated by authors as a psychic kick of sense and feeling of Engagement. Behavioural energy, apparent to others in the process of employee engagement in the form of taking personal initiative, adaptable to the changes, persistent in difficult situations, put maximum effort to achieve goals. Kahn (1990) based on his qualitative study proposed personal engagement in terms of individual’s expression and Employment. We may be able to identify the similarity in both the approaches such as: self-employment in terms of being completely absorbed, intensively focused, enthusiastic and highly energised (State Engagement); and self-expression in the form of proactivity, effort, adaptability and persistence (behavioural engagement). Approach of

work engagement (Schafeli et al.) constituted with three dimensions vigour, dedication and absorption. Again this approach is similar to the notion of Macey’s (2009). According to Schaufeli et al. (2002), vigour is characterised by intense effort, mental resilience, persistence in difficulties, high levels of energy. This expresses the dimension of behavioural engagement. Absorption and dedication are what employee sense and feel in the process of engagement with the task (state engagement). Thus Engagement may be explained within a two dimensional approach. For measuring employees engagement in organizations these two dimensions are essential.

Employee Engagement - A distinct or similar construct

Three different notions arise in the process of identifying Employee Engagement (EE) as a specific construct. There is an argument from some researchers that EE is similar to relative constructs such as Job Satisfaction, Organizational Commitment and Organizational Citizenship Behaviour. Some researchers argue that employee engagement is a specific construct and it is distinct from other constructs like Organizational Commitment (OC), Job Involvement (JI), and Organizational Citizenship Behaviour (OCB) (Macey and Schneider 2008, Salanova et al., 2005, Maslach et al., 2001, Sandeep Kular et al., 2008, Saks 2006, Robinson et al., 2004. Louise Parkes 2011) described EE as a complex construct by proposing EE incorporated with constructs such as job satisfaction, organizational commitment and intention to stay and emerging constructs such as proactivity, flow and

adaptively. The studies also provided reasoning for determining engagement.

Robinson et al. (2004) stated that OC and OCB both have elements similar to those of Engagement. But none of the two constructs is equivalent to Engagement in nature. Saks (2006) walked in the path of Robinson et al. (2004) by proposing engagement as a distinct construct with an emphasis on core concerns. Engagement is not an attitude like organizational commitment in the degree to which individual is absorbed with role performances. While OCB involves voluntary and informal behaviours that can help co-workers and the organization, the core focus of Engagement is one's formal role performance rather than extra-role and voluntary behaviour.

Macey and Schneider (2008) addressed the difficulty in concern with finding Engagement as a specific construct by developing a model of Engagement with knowledge of past studies. The study suggested three forms of Engagement (Trait, State and Behavioural) that would explain the multifaceted nature of Engagement, in which Engagement is considered to be NOT just a psychological state or behaviour or attitude but a combination that results a complex construct. As a supporting study, Salanova et al. (2005) stated that EE is a broader concept that shows attributes of Job Involvement but JI is not equivalent to Engagement concept. Maslach et al. (2001) in their study characterized engagement by energy, involvement and efficacy, which shows involvement would part Engagement and may not explain the entire concept. The studies support the notion of Employee Engagement as a multifaceted construct incorporated with similar psychological and behavioural concepts.

Macey et al. (2009) in their study well stated that engagement incorporates behaviours such as adaptability, persistence, proactivity and effort, but not behavioural concepts like organizational commitment and organizational citizenship behaviour. Thus the study shows how engagement is distinct from OC & OCB. The study emphasises on energy set Engagement to be distinct from other popularised concepts such as Employee satisfaction. "*Employee satisfaction implies satiation and contentment with what has been obtained whereas engagement implies going after, seeking, and striving.*" Thus studies form a decade of extensive research in the area to fill the gap of finding employee engagement as a definite concept.

Engagement Levels of Employees

Employees would not always be more enthusiastic, highly energetic, focused on the task (Macey et al. 2009). Organizations need to manage individuals with different personalities, interests, preferences and abilities. As Robinson (2004) stated that personnel, job, organizational factors and employee past experiences may influence employee engagement levels. Maslach et al. (2001) provided six areas which affects employee engagement levels eventually leads to burnout, where energy turns into exhaustion, efficacy turns into inefficacy, involvement to cynicism. Macey et al. (2009) stated that employees with high levels of engagement are fully absorbed, intensively focused on the task. Such a state is referred as being "in the zone" or "in the flow" (highly engaged) and stated that bringing such a state is relatively uncommon. Here researchers emphasised on employee engagement levels that makes a difference in employees' contribution in organizational success. Let us see what various levels of engagement proposed by authors are and how it categorises employees into such levels. BlessingWhite Organization developed a model for Employee Engagement by classifying the concept into five levels with reference to the level of individual contribution towards organizational achievement and satisfaction receive from the job.

- **The Engaged** - Highly productive and happiest employees characterized with discretionary effort and commitment.
- **Almost Engaged** - Reasonably productive and relatively contented with job they hold. Engagement levels could be enhanced with the effort from organization side.
- **Honeymooners and Hamsters**- Highly satisfied with designation holding, organization they work for and compensation they receive, but low level of contribution for organizational success. The period may be temporary. The engagement levels could be enhanced with the effort from the side of organization.
- **Crash Burners**- Employees who are highly productive, contribute maximum for the success of organization, but not happier with their personal success. They may turn into disengaged employees due to lack of self-contentment.

- **DisEngaged-** Employees with high levels of discontentment and negative opinion on organizational approach.

Similarly Gallup Institute described three types of employees with concern to engagement levels in terms of Engaged, Not engaged and Disengaged. There is a common notion in both BlessingWhite and Gallup (2014) model of engagement levels even though their approach is little different, “Engaged” employees are most desirable ones in accomplishing organizational requirements and “Disengaged” employees are highly unsupportive and tries to diminish organizational fame by injecting negativism to the co-workers. “Not engaged” employees are not disengaged, they simply shows a little passion and put less energy, spend time without any accomplishment. Surprisingly highly engaged employees may gradually turn into Disengaged. And employees with low levels of engagement, if supported by organization by facilitating employees with appropriate resources would result in enhanced engagement levels. Both BlessingWhite and Gallup Institutes are contributing much in the area of Employee Engagement globally. The models developed by the institutes are widely followed by many academicians and practitioners.

Global Engagement Levels

Kenexa Work Trends Report (2011) on five major economies, with in a time period of 2007 to 2012 reported that engagement levels gradually increased and retained stable till 2010. In the year 2011, engagement levels were dropped significantly may be due to recession. India remarkably showed the highest engagement levels (65 percent) during the entire time period. According to Gallup Meta-Analysis (2012) on 73,752 employees across 141 countries, only 13 percent employees are actively engaged which means only one in eight employees is engaged worldwide. Actively disengaged employees outnumbered engaged employees two to one. It was stated in the report that disengaged employees drain the nation’s economy as organizations spending on disengaged ones with no return on investment. China is the country with least percentage (six per cent) of Engaged Employees whereas Middle East and North Africa have higher disengaged employees of 55 per cent. Recession played a key role in declined engagement levels (Gallup 2013, Aon Hewitt 2013). Post-recession, organizations are strengthening by gradual increase in engagement levels of employees. Even though there is an improvement in

engagement levels worldwide, the percentage of highly engaged are still annoyingly very low. There is urgency for dramatic improvement in engagement levels for a full-fledged engaged workforce.

Need for Engagement behaviour in organizations

Watson Wyatt Survey (2008) studied the attitudes of engaged and disengaged employees in day to day work environment. The main emphasis was to keep engagement levels up that create a continuous engagement culture for building highly productive workforce. Survey shows that 60 per cent of highly engaged employees exceed the expected level of performance, more resilient towards organizational change and identifies themselves more attached with organization. Gallup Meta-analysis (2012) found that engaged employees’ performance is remarkable even in tough economic times of changes in business practices and teams. Engaged employees exhibit a positive attitude towards peers, customers, and organization. Engaged employees exhibit an intense desire to stay with organization, strive for quality output and continuous improvement to better accomplish the tasks (Aon Hewitt 2012). Thus engagement accompanied with several desirable attitudes. It is worthwhile to put effort to enhance engagement levels of workforce. So that organizations should implement strategies at various levels for bringing a highly performing workforce.

Managing Engagement in organizations

1. Through Managing Stress

Literature provides a clear picture depicting that stress factors diminish employee engagement as already discussed in the conceptual emergence part. Once again Towers Watson Workforce Survey (2014) found that factors of work environment influences engagement levels of employee. The study suggests that management would be able to maintain engagement and control the stress levels by taking simple steps such as prioritising the task to control work load burden, recognising their every quality, constant monitoring and giving employees’ opportunity to manage their work.

2. Promoting employee Well Being

Gallup worldwide poll (2013) reported that 63 per cent of employees are “Not engaged” due to lack of motivation. Tony Schwartz, chief executive of

the Energy Project (2013) by referring with global surveys stated that organizations need to genuinely look into employee need fulfilment instead of paying them just for the time they work for. Physical, emotional, mental and spiritual need fulfilment energises employees for delivering higher performance and gives them a feel of safety, trust and wellbeing. Such wellbeing promotes higher levels of engagement ultimately ensures sustainable superior performance of workforce (Towers Watson 2012).

3. Through facilitating Self-Management

Kenneth Thomas (2009) in his book intrinsic motivation at work, stated that Employee gets emotionally energised (intrinsically rewarded) when he/she gets positive judgement over meaningfulness of task activities, clarity on purpose of the task, ability to achieve the purpose, and opportunities for better performance, which keeps employee to be engaged continuously. The study added essence to the employee engagement concept, by stating that engagement itself rewards employee again those rewards will drive sustainable engagement through employee self-management. By facilitating employee with clear objectives, a broad picture of how their contribution meets with organizational requirements (C.Swarnalatha 2012), autonomy in task handling may enable employee self-management that ultimately drives employee engagement.

Outcomes associated with Employee Engagement

Employee engagement significantly associated with organizational desirable outcomes at individual level and organizational level. BlessingWhite (2013) surveyed 7,000 employees around world and reported that there is a strong correlation exists between Employee Engagement and Intension stay. Macey et al. (2009) by surveying 65 companies across industries found that organizations with highly engaged employees show positive financial outcomes such as Return on Assets, Profitability, and Shareholder value. With reference to positive correlation between engagement and shareholder value it may be concluded that engaged employees bring sustainable growth and competitive advantage. Gallup meta-analysis (2012) in 49 industries across 34 countries found that employee engagement predicts key performance outcomes such as profitability, turnover, absenteeism and productivity. Harter et al. (2002) meta-analysis on employee satisfaction and Employee engagement and their relationship with business outcomes, suggested that employee engagement positively associated with customer satisfaction, business profits and productivity. Interestingly Employee Engagement is negatively associated with high turnover and accidents. Kenexa Work Trends report (2011) found that Engagement is positively correlated with net income and shareholder return that drives competitive advantage even during the times of recession. Management strategies for enhancing engagement levels yield higher productivity

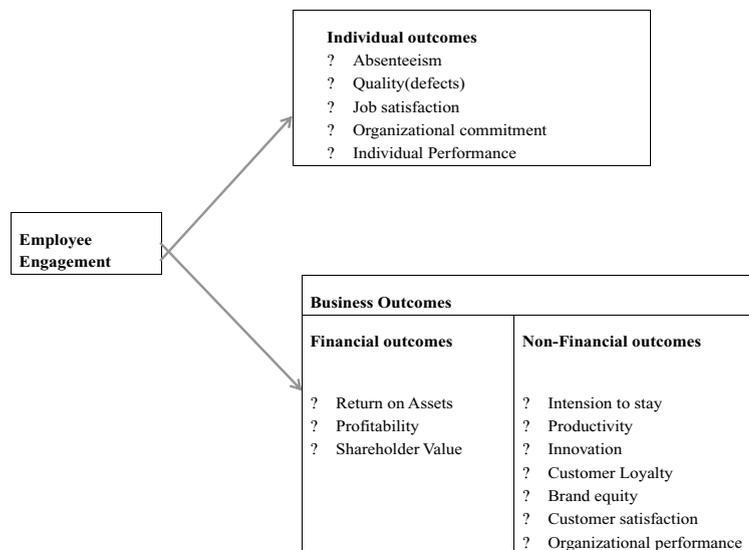


Diagram: Outcomes associated with Employee Engagement

Directions for future research

Despite considerable research on Employee Engagement, there is a necessity of enhanced engagement in employees working with various industries. The existing research throws light on drivers of engagement such as meaningful and challenging work, autonomy in decision making, career opportunities, organizational concern for employee wellbeing, and sense of feeling valued and involved (Robinson et al. 2004, Saks 2006, Towers Perrin Talent Report 2003, Kompaso and Sridevi 2010) which shows that the individual need satisfaction drives engagement. Further research needs to focus on factors that are integrated organization such as HRM practices instead of focusing on personal need satisfaction. As individual need may differ with each other in an organization and implementation of such practices may not enhance engagement levels of entire workforce. Metaphoric studies are necessary to study the effect of a specific construct on engagement. In recent studies, talent management strategies and performance management are found to be positively related to employee engagement. Similar studies would help managers in developing strategies such as employee retention strategies and career development strategies for enhanced engagement levels. Studies from UK and US contributed much to the body of knowledge. There is a need for studies from developing countries to unearth employee engagement levels. The studies till date were focused more on predictors, job factors and stress factors to identify extent of influence on engagement levels of employee, the further research should emphasise on indirect influencers such as organization culture even though it may not impact work engagement directly but unsupportive culture may results in reduced engagement levels gradually. Motivation plays a key role in driving engagement, however past studies were focused more on certain intrinsic and extrinsic motivators such as autonomy, empowerment, opportunities for personal growth, recognition and compensational benefits. Further studies may work on superior's leadership role in motivating employee. Transformational leadership is one leadership style that incorporates with inspirational motivational qualities.

Conclusion

The Literature of the concept shows the importance of employee engagement in fulfilling organizational requirements at the individual level and organizational level.

The present study attempted to provide a comprehensive understanding of the concept and the conceptual emergence through decades. As the literature shows that percentage of highly engaged employees are very low. To maintain engaged workforce, organizations need to implement strategies such as building a positive and supportive healthy work environment, facilitating employees with appropriate resources, continuous monitoring to keep out of ambiguity in workplace which may bring happier come productive workforce which in turn leads to sustainable organizational success.

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Municipal Solid Waste Management: Current Practices and Futuristic Approach

Raji Pillai and Rinal Shah

Abstract

Increase in population and industrialization has evoked great concerns for environment. The major one is related to Solid Waste Management (SWM). Major reasons of solid waste generation are rapid urbanization, increase in personal income and personal consumption and industrialization. Reasons for laxity in municipal solid waste management (MSWM) are lack of awareness among citizens, lack of infrastructural and technological support, lack of financial support, lukewarm approach towards privatization by government bodies for efficient MSWM. The paper addresses these issues and studies the strategies adopted by different bodies spread across the globe. An effort has been made to propose a strategic alliance of current practices for MSWM with futuristic approach: strategies on technological enhancement for conversion of waste to energy, encouragement programme for active participation of citizens, focus on 4R- Refuse, Reduce, Recycle, and Reuse strategy, conversion of informal to formal sector, focus on research and development in MSWM, upliftment of MSWM on virtual platform, and development of infrastructural setup.

Key Words : Solid Waste Management, 4R, urbanization, industrialization, privatization



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India has 18% of world's human population, which is 1.21 billion, and thus it is second largest nation in the world (Census, 2011). As the economy develops, more number of people are migrating from the rural to the urban.

One positive aspect of economic development is that individuals have gained access to better standard of living; whereby one gains opportunity to earn better and enjoy comforts. The same aspect reflects certain concerns too. Rapid urbanization and rapid growth of the industry have led to a serious issue of waste management. The rapid economic growth that occurred through most of the 1980s and 1990s throughout the Asian countries had caused a great increase of personal income and personal consumption. Consequently, there has been more disposition of material, while as people can afford to buy replacements there is less incentive to recover, repair or reuse items discarded after use.

On one side urban population is increasing in India, while on the other no better service and resources for the solid waste management are given. Indian urban population is growing at a

rate of 3.35% annually. The population proportion living in urban areas has increased from 17.35% in 1951 to 31.2% in 2011 (Census, 2011). In India, per capita rate of waste generation has increased from 0.44 kg/day (2001) to 0.5 kg/day (2011) because of increased purchase power and changing lifestyle of urban population. It has resulted in 50% increase in last decade in waste generated by cities of India (Department of Economic Affairs, 2009). The current solid waste management systems are incurring heavy expenditure with inefficiency, a potential threat to environmental quality and public health (Biswas et al. 2010).

The role of local municipality becomes very important in this scenario as the body needs to manage this huge quantum of solid waste and also to educate the citizens for better waste management. Also, as the task needs financial as well as technological support, the local government needs partners who can help in carrying out integrated solid waste management.

Solid Waste Management

Any material which is of no use and does not have any economic value for its owner is called waste, where the owner is waste generator (Maria et al. 2011). Considering the physical state, the waste can be categorized into solid, liquid and gaseous. Further solid waste can be categorized in municipal, medical, hazardous and radioactive wastes.

Municipal solid waste is any waste generated by household, commercial or institutional activities which is not hazardous (Maria et al. 2011). Residential or household waste arises from domestic areas from individual houses. Commercial/ Institutional waste arises from individually large sources such as hotels, office building, schools, etc. Municipal service waste arises from areas like streets, parks, etc.

In general, there are eight major classifications of solid waste generators: residential, industrial, commercial, institutional, construction and demolition, municipal services, process, and agricultural. Often only residential waste is referred to as MSW, and in high income countries, only 25 percent to 35 percent of the overall waste stream is from residential sources. It is important to define the composition of the municipal waste stream in a clear and consistent fashion (Hoornweg et al. 1999).

In Indian scenario, there are two aspects of waste generation; one being through rapid urbanization and other being rural waste which is largely agricultural in nature and is dispersed over half-a-million habitations making them 'manageable.' However, rural areas do suffer as 'pollution sinks' for the encroaching urban sprawl.

Steps of SWM

SWM can be defined as the systematic administration of activities that provide source separation, storage, collection, transportation, transfer, processing, treatment, and disposal of solid waste. The objective of SWM is basically the efficient use of resources in the process of managing waste materials.

Solid Waste Management (SWM) has three basic components: collection, transportation and disposal. The objective of SWM is to reduce the quantity of solid waste disposed off on land by recovery of materials and energy from solid waste in a cost effective and environment friendly manner.

Proper solid waste management will have separate collection of different types of waste which is called source separated waste collection. This concept is common in high income countries of the world where the transportation infrastructure for separate waste exists.

India has mixed form of collection because informally paper is collected separately.

In developing countries, people's migration to urban places for jobs has accelerated urbanization (Henderson, 2002). The rapidity of migration will exceed the employment growth with provision of low cost housing, incomes above poverty line and social and environmental infrastructures and other services provided by urban municipalities (El-Shakhs, 1992).

Urban areas in Asia produced about 760,000 ton of municipal solid waste per day in 1998 and this is estimated to rise to 1.8 million ton per day in 2025. Local governments in Asia spent about US\$25 billion per year for managing this waste in 1998, and this is expected to be doubled in 2025 (Bartone, 2000).

In many parts of developing countries, public or private systems of waste management are inadequately able to collect only 30-50% of solid waste and they dispose it harming environment (Hoornweg and Thomas, 1999). According to Singhal and Pandey (2001), waste generation growth is outpacing urban population growth in the Indian cities. This is resulting in inadequate management of the municipal solid waste in developing countries like India due to lack of planning and good governance, technical know-how, limited resources and scarcity of studies (Buenrostro et al. 2001).

About 70-90% municipal solid wastes (MSW) is collected in big cities whereas less than 50% MSW is collected in small cities and towns. 91% or more MSW is collected formally and land filled on open lands and dumps (Kumar, 2010). About 10% of collected

waste is burnt openly or is caught in fires in landfill. Around 2% of uncollected waste is openly burnt on the streets (CPCB, 2010).

Solid waste management is the responsibility of local government and they allocate 20-50% of municipal budget for the system in developing countries (van Beukering *et al.* 1999). Most of the financial resources are used for collection and transportation. Smaller portions are used for waste disposal methods, such as composting, landfill and (in fewer cases) incinerating methods (UNEP/IETC, 1996). Studies on solid waste management depicts that very minimal financial resources is spent for reducing waste and/or for increasing the level of material recovery.

Purpose of the Study

The study takes up the study of the current SWM (Solid Waste Management) focusing on basic components like collection, transportation, processing and disposition. It undertakes to learn the strategies adopted by private and public bodies from different countries addressing efficient waste management. It propose an ideal set of strategies for efficient and effective Municipal Solid Waste Management.

Why Waste Management is needed

The typical municipal solid waste stream (MSWS) will contain general wastes (organics and recyclables), special wastes (household hazardous, medical, and industrial waste), and construction and demolition debris. Most adverse environmental impacts of solid waste management are rooted in inadequate or incomplete collection, or in inappropriate disposition, design, operation, or maintenance of dumps or landfills. Improper SWM can lead to many set of problems like increase in disease transmission or threaten public health, contaminate ground and surface water, improper organic waste disposition and burning the waste at residents' level may lead to emission of greenhouse gas and create air pollution and on the whole can create serious damages to ecosystem.

Over 160,000 Metric Tons (MT) of municipal solid waste is generated daily in the country. Per capita waste generation in cities varies from 0.2 kg to 0.6 kg per day depending upon the size of population. This is estimated to increase at 1.33% annually. The total waste quantity generated by the year 2047 is estimated to be about 260 million tons per year. It is estimated that if the waste is not disposed off in a more systematic manner, more than 1,400 km² of land, which is equivalent to the size of city of Delhi, would be required in the country by the year 2047 for its disposal. About 60% of these wastes, i.e., 4.8 million tons/year is estimated to be recyclable and the remaining 3.2 million tons/ year is non-recyclable (C. Visvanathan, 2004).

Mostly solid waste management is the responsibility of local authorities. Thus they are responsible for collection, sweeping, storage, transfer, and disposal of waste. Municipalities can delegate specific tasks to others including NGOs, CBOs, private sector, and informal sector.

Solid waste Institutions and Functions

Solid Waste Management is a state function however Central government makes laws and rules through Ministry of Environment and Forests, frame policies, provide financial support for solid waste management. They prepare guidelines, manuals, and technical assistance and also monitor the implementation of rules and laws for SWM. It is being accomplished through Ministry of Urban Development and Poverty Alleviation.

The state urban development department plays a decisive role in directing municipal authorities and state municipalities in implementing rules and giving technical and financial support.

State government makes state-level laws and rules, frame policies, provide financial support; they prepare guidelines, manuals, and technical assistance and monitor implementation. It monitors the implementation through urban development department and State Pollution Control Board (PCBs). These PCBs monitor the implementation of Municipal Solid Waste Rules 2000 and take action against defaulters. Municipal authorities and state government plans for solid waste management treatment facility and coordinate the activities like collection, transportation, treatment and disposal of waste. Municipal authorities with the approval of state government, can frame bylaws and they levy and collect the fees. All the authorities and government together finance the solid waste management system. In medium or large cities, the municipality will be divided into zones or wards by delegating some decision making powers. In case of delegating functions to private or nongovernment sectors, the municipal government must monitor and encourage for good service provision.

There is an increasing presence of the private sector in the SWM particularly for door-to-door collection of solid waste, street sweeping in a limited way, secondary storage and transportation and for treatment and disposal of waste. Cities which have pioneered in public private partnerships (PPPs) in SWM include Bangalore, Chennai, Hyderabad, Ahmedabad, Surat, Guwahati, Mumbai, Jaipur and more.

However, the present capacity of municipalities in India to manage the privatization process is quite limited. There is need for developing in-house financial and managerial capability to award contracts to private sector and monitoring services provided by

the private operator since the onus of ensuring proper service delivery and compliance of standards lies with the local bodies.

Private Sector Partnership for Solid Waste Management (SECO,2005)

Opportunity

Private company can easily hire qualified and skilled personnel and can pay salaries. Salaries and bonuses can be based on staff performance along with incentives for efficient and good work. Unsatisfactory performers can be easily terminated. Effective administration will take place with fewer bureaucratic delays. Responsibilities will be clearly defined with no overlaps in many departments. Faster decision making process can be implemented. New equipments and spare parts can be easily acquired. They have ready access to expertise and technology. Maintenance of equipments is easily possible. Financial resources are easily available for new investments. Less political interference will take place. Incentives based on performance can be offered through competition.

Threats

Threats to PSP comprise: Delay in construction, Cost overrun, Quality and performance, Failures, Increasing operation cost, Change of tariffs, Delayed or cancelled payment, Fluctuation of foreign exchange rate, Fluctuation of interest rate, Breach of contract, and No profit refunds.

Successful Strategies Adopted to Overcome the Hindrances

1. Financing

Most of the governments all over world, where waste management services are successfully implemented, subsidize upto 60% budget for solid waste management. Before privatization of solid waste management services, Japan government was giving 80% subsidy to SWM. In Sweden, the government gives 70% subsidy; eventhough residents pay an equivalent of kshs 800 per month for solid waste management services. Residents of Accra in Ghana, pay up to kshs 700 per month for SWM services (Rio de Janeiro, 1992). In UK, waste management is financed through council tax raised by local authorities to provide services such as police and security, support for the elderly and the vulnerable, park maintenance, street cleaning and collection and disposal of waste. The tax amount is based on property value to cover the budgeted expenses for a year (Becker 2007). In Switzerland, 70% of Swiss population paid for collection and disposal services of waste following the Polluter-pays principle in 2003. The tariffs were decided using many different models: Unit-based pricing for each

bag, Unit-based pricing for each bag with flat fee, and Weight-based system in combination with bag-based system (Becker 2007).

In West Bengal, the North Dum Dum and New Barrackpore municipalities have introduced private sanitation worker for door-to-door collection.

In North Dum Dum, waste collector or supervisor charge 10 rupees monthly with 95% efficiency rate for fee collection. Out of Rs 10, Rs 8 is paid to worker, Rs 1 to supervisor and Rs 1 to municipality towards maintenance and repair of tricycle provided by municipality for waste collection. In New Barrackpore, Rs 5 is charged monthly per house which directly goes to waste collector.

2. Community Participation

An effective public awareness campaign, which includes public meetings, student rallies, motivates citizens to store waste in two separate bins at places such as Vejalpur in Gujarat, Suryapet in Andhra Pradesh, & North Dumdum and New Barrackpore in West Bengal (Zhu et al., 2008). The staff members at Suryapet in Andhra Pradesh are given incentives to make initiative work, which makes it successful with the help of community participation. Household is provided with two dustbins; all roads and drains are cleaned on daily basis (Zhu et al., 2008). Ahmedabad Municipal Corporation initiated a pilot project at Law Garden on 29 September 2011 under which the garden, hotel kitchen and other green waste is converted into organic manure with the help of Organic Waste Converter Machine on PPP mode. The project registers citizens who give their green waste at this site and earn credit points. Also the members receive organic manure into the tune of 30% of the green waste given, free of cost.

3. Technology

Two waste-to-energy plants were set up in Andhra Pradesh in 2003, each producing 6.5 megawatts power using agricultural waste. (Asnani, 2006). Few small biomethanation plants are successfully working in Andhra Pradesh and Maharashtra where kitchen waste and green waste is converted to methane energy (Asnani, 2006).

4. Public Private Partnership (PPP)

Ahmedabad municipality signed MoU with RWAs and NGOs for door-to-door collection. They were offered one tricycle and Rs. 2000 per month per 200 households changing it every three years (Zhu et al., 2008). The government took bold step in 1994 in Dar es Salaam in Tanzania to privatize the waste collection and transportation aspects. Here the city was divided in zones and different private companies were given areas to operate while the

collection charges for waste management were approved by various municipalities. The city officials only manage the disposal site of waste but even there also they have partnered with strategic investor from Germany to develop a sanitary landfill site. The private companies collect the charges for waste management from citizens at the rate approved by council. The city has a solid waste disposal department which forms policies and rules to govern private companies. They do supervision and management of disposal site (Rio de Janeiro, 1992). The Government decided to invite international bidders in Cairo, Egypt in 2002, for the SWM services when the council failed to provide the services and the residents were not ready to pay for services. The Giza region in Cairo, with 6.5 million populations, was divided in 3 zones and contracted to 3 different companies (Rio de Janeiro, 1992). The private contractor ONYX in Chennai provides SWM services to city dividing it in 3 zones. It has employed 2000 people and caters to approx 20 million populations using 130 auto rickshaws for door-to-door collection in narrow lanes (Zhu et al. 2008).

The municipal corporation of Hyderabad decided to give street-sweeping contracts by introducing fair and transparent system and giving small fixed cost contract. It divided the city roads in small units for sweeping (Zhu et al., 2008).

Future Path

Waste to Energy:

Ahmedabad Municipal Corporation (AMC) has entered in an agreement with a Delhi based company UPL Djai Power Ltd and Creative Co Ltd which is based in Japan (MoU in 2009, Enhanced MoU in 2011) for processing of 250 tons and 800 tons of MSW respectively into RDF (Refuse-derived fuel), pellets & fluff in 2007. RDF which consists largely of combustible components of municipal waste such as plastics and biodegradable waste can be used as fuel in boiler as a substitute for wood, lignite, coal and furnace oil in the industries (UNDP, 2008). For the project to be effective, the processing unit should be near the dump site, which is Gyaspur village on the Narol-Sarkhej bypass. Under the contract, AMC has provided the land for tenure of 25 years and 30 years respectively.

Benefits:

Benefits are: It encourages the adoption of energy from waste pattern. It reduces MSW Streams, landfill workload, landfill capacity requirement, and total cost of MSW.

Encouraging Citizens towards SWM

The involvement of citizens needs to be encouraged, for which the local bodies need to take up the initiation. The concept of 'Adopt-

a-street' has been implemented by many cities across the world which has been found to be very successful. The local bodies can join hands with NGOs who can invite individuals and groups to register as members who can adopt a street. Registered volunteers will take care of the street and ensure cleanliness, create awareness among residents of that street about sanitation, facilitate the municipality body for various schemes for sustainable solid waste management system in that area & community (AMC, 2011).

Effective Utilization of Garden / Green Waste

AMC initiated a pilot project at Law Garden on 29 September 2011 under which the garden, hotel kitchen and other green waste is converted into organic manure with the help of Organic Waste Converter Machine on PPP mode. The project registers citizens who give their green waste at this site and earn credit points. Also the members receive organic manure into the tune of 30% of the green waste given, free of cost (AMC, 2011).

Focus on 4R: Refuse, Reduce, Reuse, and Recycle

Waste management can be effective if the focus is laid on 4R i.e. Refuse, Reuse, Recover, and Recycle of waste. Introducing Refuse strategy, the basic idea is to 'say no' to certain elements which contributes to solid waste management, mainly plastic and non-degradable waste. Recycling involves separation and collection of waste materials for reuse, reprocessing, and remanufacture. Reducing the overall generation of solid waste is not just saving landfill space but also benefited our environment (WHO, 1999). To implement 4R, few costs are associated with the process like cost of separating the material, maintaining the purity, and total quantity of each segregated material. Other associated costs are of storage and transportation. In many low-income countries where the portion of waste material is very high and the work is done in a labor-intensive way, for very low incomes, the entire programme can be a very good employment creation programme.

Conversion of Informal Sector to Formal Sector

Collection, separation and segregation of MSW are very important part of SWM. Elements/groups associated with collection, separation and segregation need to be uplifted and studied. Households, rag pickers, laborers who are given daily wages for separation and segregation are the important elements, which are quick informally placed (WHO, 1999). A formal structure needs to be developed for each by defining the role played by them. The need is to incorporate them into the structure. Households is the one from where the waste generation begins; thus segregation and separation can be introduced at this level. Rag pickers play the role of collecting unattended garbage waste and thus need to be

active at frequent intervals. Laborers involved in separation and segregation of MSW at dumping site needs to be paid reasonably and should be provided with required protection arrangements.

Encouraging Research for MSWM

As the issue of SWM is becoming larger in proportion, an efficient mechanism needs to be developed with the aim managing the quantum of MSW and also to develop a system of waste-to-energy (WTE). The government and private partnership needs to be encouraged to come up and develop a cell for the research of WTE. The focus of the cell should be conducting workshops on SWM, developing WTE plans with the involvement of major stakeholders (PCBs, NGOs, Municipal Corporation and Private Companies). For the continuous research work, internships should be given for graduate students on research projects. As the issue is a global concern, global collaborations and tie-ups for better waste management needs to be done (EBTC 2011).

Creating Virtual Platform of SWM and its Concern:

Information about all aspects of waste management should be provided to the citizens to educate them about SWM. The depth of the issue can be measured only when information is shared, lack of which can create misunderstanding, which can interrupt the collective movement towards the goal. The easiest way to inform and educate the general public about the SWM can be through a simple internet search. Among world cities, majority of the searches (in English) on "Solid Waste Management" were from Indian cities (Source: Google Trends). This represents a growing interest about SWM and the increasing role of internet in India.

Corporate Social Responsibility

The muscle power for the project can be gathered from the corporate bodies, whereby the corporate can take interest in SWM by investing in any of the process like collection, transportation, processing, recycling, investment in technology, extending help for research and development. A reward or award programme can be initiated by the government to bring focus on the activities undertaken by the corporate under their Corporate Social Responsibility, Corporate Environmental Responsibility activities; all to work out a Public Private Partnership (PPP) model (AMC, 2011).

Infrastructural Enhancement

Despite the degradation of valuable land resources and creation of long-term environmental and human health problems, uncontrolled open dumping is still prevalent in most developing countries (ISWA and UNEP, 2002). Moreover, in South and Southeast Asia, more

than 90% of all landfills are non-engineered disposal facilities. Infrastructure at collection stage needs to be improved. Collection vehicles should be well designed to enter all parts of the town. Adequate planning on waste transport system and vehicle/equipment should be focused upon for uninterrupted collection system. One more area of focus is the lack of technology and manpower for treatment facilities of solid waste before land-filling. Land-filled waste, with high moisture and organic content, contributes to the formation of leachate and landfill gas, which will create a long-term threat to the environment and public health. Few aspects that need to be addressed are appropriate engineering of landfills, engineering of site conditions, availability of materials locally, and uninterrupted availability of manpower. Other necessary infrastructural support system includes availability of weighbridge, administrative block, site roads, storage area, etc (Stegmann,2002).

The issue of solid waste needs immediate attention and solution. It is the moral responsibility of citizens, manufacturers, and marketers to support the initiatives undertaken by the government. The magnitude of the issue is so enormous that only collective and responsible efforts are needed to address the issue.

The focus should be on adequate and complete collection, appropriate disposition, proper logistics design, operational efficiency, and maintenance of dumps or landfills. For effective implementation of SWM, the focus areas are financial support, encouraging community participation, use of technology, and emphasis on Public Private Partnership (PPP).

Solid Waste Management is taken up as a serious concern by many countries across the globe. Adopting a futuristic approach, few strategies for SWM can be focusing on waste to energy technology, encouraging citizens to contribute towards SWM, effective utilization of green waste to generate energy, focusing on 4R: Refuse, Reduce, Reuse, and Recycle, conversion of informal sectors working towards SWM into formal sector, encouraging research for Municipal SWM, creating virtual platform of SWM to encourage sharing of information among masses, focusing on corporate social responsibility, and working on infrastructural enhancement.

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Public Policy Making: Media Trends in India

Neetu Sharma

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Public policy-making in India has frequently been characterized by a failure to anticipate needs, impacts, or reactions which could have reasonably been foreseen, thus impeding economic development. Policies have been reversed or changed more frequently than warranted by exogenous changes or new information. This paper is concerned with why India's policymaking structures have so much difficulty in formulating the "right" policy and then sticking to it. It goes on to ask, and make a modest beginning in answering the question of what can be done to improve the structures and systems involved in the making of public policy in India.

Key Words : Public Policy, Media Marketing, Economic Development, Policymaking



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Public Administration is an instrument of action as a profession and academic discipline (Teaching and Research). Public Administration in theory and practice aims at all round development and improvement of the quality of life of the Indian masses but without tearing the socio-cultural fabric or socio-economic order. This has been the crucial contradiction of Public Administration in India. Contradiction between its intent and content, the content and the text, the distinction between the constitutional goals and operational goals, is paradoxical.

An attempt to analyze the challenges of the paradoxical situation and to propose a future course of action to resolve the paradox has been made. The translation of the constitutional welfare goals into practice has in fact remained a mere constitutional obligation and has been far off even after six decades of independence within the existing socio-politico-economic power structure based on the capitalist model of modernization/market economy framework which the democratic and constitutional state of India has adopted. It has widened, sharpened disparities,

frustration, estrangement, deprivation, exploitation, poverty, insecurity, oppression, unemployment, starvation, corruption and injustices of all sorts, affecting adversely the social, political and economic conditions of the disadvantaged, vulnerable, weaker sections and the poor women of the Indian society. The weaker/deprived sections are not only deprived of the development programmes in most cases, they are kept out of development process, because poverty question is a power question. It is rooted in the model of development, the country has adopted and the socio-economic power-structure that obtains in the country.

Nature, scope and importance / significance of Public Administration in India is determined today by the external factors playing dominant role. The discipline of Public Administration, the very education, which has been imparted all these years in Indian Universities, is an American Product (1887). It has developed along with the growth of capitalism in the USA along with many countries. Briefly, American Public Administration is rooted in American political culture which is widely acknowledged as advanced capitalism blended with pluralism. The nature of the state in American Public Administration is never questioned. So the essential thrust of American Public Administration towards enhancing the capacity of public organizations without disturbing the basic character of the capitalist state. Even the New Public Administration Movement did not raise the fundamental issue of changing the basic character of the capitalist state in America. India could not also escape the Americanization of Public Administration.

This education of Public Administration has nothing to do with the native, social, cultural, political and economic factors. In its practice, the institutions were / are built, the issues are dealt for the requirements of their directors (west interests). But it appears, the entire policies and programmes were/are designed not to touch the socio-cultural fabric of the Indian society. Thus public administration in India has been an instrument of the Government and a creation of political philosophy whereas public administration as an academic discipline has been 'non-political' but in matters of governance. It by and large is committed to ruling political elite. The ruling elite in India with the willing cooperation of the bureaucracy has maintained colonial structure paving the way for the development of a capitalist order but not without sermonizing the socialist rhetoric, marring the very spirit goals of the Constitution of India.

Keeping in view the above and the adoption of the New Economic Policy (liberalization, privatization and globalization) the liberalization policy is to foster privatization and globalization of the Indian economy. Privatization and liberalization also advocate: rolling back of the state from the sphere of production and productive investment and significant curtailment of the level of social expenditure. Hence the most important change in public administration in India has been its reduced scope and significance. It has been also asked to change itself in the nature of dealing with certain public. The manpower of public administration in India, who manages public institutions, and who regulate activities (Directorates, Commissionaires, Collectorate, Inspectorates etc.) was/is neither highly trained by an efficient and well organized system of Public Administration Education/Training, nor skilled enough to understand the socio-economic fabric. However, the public managers (officials) with the co-operation (not direction) of the non-officials (politicians) could/can maintain the traditional interests at the cost of good governance. The result is the emergence of a National Human Rights Commission. The recent widespread changes, which have altered the International Economic order, also demand the public administration in India to further reduce its significance to respond and adjust to the market economy. With a view to meeting the requirements of this external demand, public administration in India needs to make certain changes in its structure, policy context, and programme intent and implementation style. The emerging trends of this new context are as under:

1. Market friendly economy – Liberalization, privatization, globalization, denationalization, disinvestment in public sector, (market friendly government, intervention, private group and the state work together for common objectives),
2. New social policy – more percentage of reservations, facilities to scheduled castes, scheduled tribes, other backward classes, women and minorities in less expensive educational institutions and restricted public employment (less expenditure on social development),
3. New political policy - Decentralization of political power – constitutional status to local government – reservations of seats to women SCs, STs, OBCs, (Deconcentration of political power may give more power to local elite but not to the local population),

4. Cooperative relations between Central and State Governments in maintaining the law and order and development,
5. Coalitional Politics – Consequently weak/ineffective political leadership, demoralization, criminalization of politics and mobilization of underworld /criminals/ mafias,
6. Institutional restructuring / administrative decay deregulation, delicensing, debureaucratisation, less civil rule, more use of para military forces, encounters with organized extremists/underground groups,
7. Proliferation / participation of non-governmental / voluntary organization leading / voicing public demands,
8. Man-power development – Science, technology, computers, professional and management education through private (International minority and business) institutions leaving the poor, and the unfortunate to distance education / open learning,
9. New labour Policy – golden shake hand, Exit Policy (VRS), and
10. Globalization deepening communal / caste consciousness spreads religiosity, superstition and obscurantism – secularism at stake, the state public administration to be neutral.

The neutrality of the civil service and the neutrality of the state whittled down the power of the state. The poor, the weak and the minorities have been expecting to utilize the state power for their uplift. Socio-economic transformation and the socio-economic justice to the masses, no longer remains the objectives of the governance. Concept of rule of law, democracy equality is now threatened. The public interests are dictated by private interests. The human rights, the civil liberties, the judicial independence and review are at stake. There is less public representation, no bureaucratic accountability and more inefficient administration. The labour cooperation, workers participation will not be sought. New Economic Policy through Structural Adjustment Programme (SAP) tends to further marginalize women leading to reduction of their employment opportunities, wages, exclusion in the productive process and actualization. The gravest crisis of Indian political, economic and social order is its mounting unemployment. The NEP promotes capital intensive technologies and as a result, employment opportunities have further declined. Unemployment is an

economic malady and a social curse. It degrades man, generates hatred, depresses social activity and economic prosperity, and constitutes a great liability to social stability. The dominant sections of the society wield more power of domination over the unorganized weak and minorities. The welfare state is waning a way and giving place to the police state and regulatory government. The emerging trends may not be in tune with the objectives of the Constitution of India. The Supremacy of the legislature, the rule of law, the judicial independence and the principle of equity are sidelined. These trends further lead to friction between the constitutional stipulation – ideals of a socialist, secular state and the public policies of economic liberalization.

The discipline of public administration in India has to undertake research on the newer changing aspects of public administration. The impact of the emerging trends of the concepts, theories of public administration in the 21st century and the probable consequences on the existing theories must be analyzed. Briefly, a problem oriented approach which conceives of public administration as an ameliorative science is to be pursued. Public Administrators and Public Administrationists in India need to think and act as an instrument of social change. In this context, the focus of public administration should be on the entire area of public policy and its analysis. To evaluate the public programmes, public administration unlike other discipline is required to be an action oriented applied Social Science. Modern Public Administration in India has to be made unbiased and impartial and it has to be delinked from economic pressure groups and loyalties built around caste, religion and regional identities. Public Administration, both as a profession and discipline should understand the problems or rural misery and the inequalities policies and programmes to reduce inequalities and has to include food, housing, health, education, poverty, unemployment, credit programmes for the welfare of other backward classes, scheduled castes, scheduled tribes and weaker sections are included in the above list. As is experienced, the university departments of Public Administration have neither engaged in prioritization nor the monetization of Public Administration. So the gaps have to be filled up and it is urgent to gear the discipline of Public Administration towards the study of the masses in the society. So it may be further added that in the Indian setting in contemporary perspective, the Public Administration scholars, teachers and students must reassess the role of Public Administration and also consider alternatives. But the study of exploring alternatives requires courage, conviction, and concern.



Figure 1: The Public Policy Process

Stages of Public Policy

Their diagram illustrates the cyclical and iterative nature of the American public policy process. While applicable to whole range of types of policy, we will be focusing in on this specifically for energy and climate policy.

Problem identification is really the starting point in this process, and will set the tone for the remainder of the cycle. In order to achieve successful public policy, the problem must be clearly defined and understood at an appropriate scale.

In many ways, what is described in this diagram as **policy formulation** could really be its own cyclical diagram, representing an evolution of an idea and solution that addresses the problem and does so in a way that is socially acceptable and politically palatable? Rest assured, that's more than one step!

The **adoption of the policy** is an important formality, representing a governing entity's commitment to enforcing the policy's tenets. Much like policy formulation, policy implementation is also an iterative process and may involve many stakeholders across agencies and governing bodies.

Successful **implementation** of a policy will be dependent not just on the actors who are responsible for enforcing it, but also on how well it was crafted during the problem identification and policy formulation stages.

Policy evaluation is an important perspective building exercise to assess successes and failures of the policy that will inform the development of subsequent policies. Evaluation can be either quantitative or qualitative in nature, addressing progress toward tangible goals as well as intended and unintended social, economic, and environmental outcomes as a result of the policy's implementation.

Public Policy on Broadcasting and other Media

The Indian mass media today comprises over 300 TV channels (reaching 112 million households), 50,000 newspapers and magazines (with a readership of over 250 million), around 300 radio stations, a thousand feature films in 18 languages made every year, and a plethora of print, electronic, digital and telecommunications media. According to the latest FICCI-Price-Waterhouse Cooper Report (2007), the Indian media and entertainment industry is worth over two hundred billion dollars and is projected to grow at the rate of 18-20% per annum.

State policy on broadcasting has been witness to major changes over the last two decades. Doordarshan, the national television network with 22 channels, and All India Radio, the national radio broadcaster, are now managed by an autonomous corporation known as Prasar Bharati (Broadcasting Trust). This means that it is an independent public service broadcasting service, less subject to state

interference but still funded by the national exchequer. However, the Prasar Bharati rarely asserts its autonomous status and continues to function as a unit of the Ministry of Information and Broadcasting.

The mushrooming of private cable and satellite channels in English and the Indian languages since the 1990s has taken the whole entertainment industry by surprise. This unprecedented growth has been given a new impetus with the state authorities offering uplink facilities to both domestic and foreign networks, and even permitting domestic networks to have their own earth-stations. But most importantly, the impetus has come from digital compression and the dramatic crash of satellite costs, in the opening up of the sector to foreign direct investment (FDI) and the new opportunity of media companies to go to the public for raising capital.

The Cable Television Networks Rules (1994) and the Cable Television Networks (Regulation) Act (1995) were amended to Cable Television Networks (Amendment) Rules 2000. The new rules have made it mandatory for all cable operators – over 30,000 of them in the entire country – to re-transmit at least two Doordarshan channels (the national and metro channels) and one regional language channel in the prime band. Most cable operators gave little attention to these channels since they were free-to-air and did not fetch any revenue as the private satellite channels did. Further, cable operators were to be held responsible for programmes that were offensive as well as for any advertisements of tobacco and alcoholic beverages. Clause vii (2) of the new Rules prohibits all advertisements which promote ‘directly or indirectly, production, sale or consumption of cigarettes, tobacco products, wine, alcohol, liquor or other intoxicants.’ Also banned are infant milk substitutes, feeding bottles or infant foods. But cable operators ask how it is possible for them to stop overseas channels which carry such advertisements. The amendment regulates or prohibits the transmission of any programme or channel if it is necessary to do in the interest of the ‘sovereignty or integrity of India or security of India or friendly relations of Indian with any foreign state or public order, decency or morality.’ Central and state government authorities can seize equipment or prohibit any programme or channel if it is not in conformity with prescribed programme and advertising codes. The draft Broadcasting Bill (2007) revisits these codes.

The Bill proposes the setting up of a Broadcast Regulatory Authority of India (BRAI). However, the actual regulation

of programme content has been left to the broadcasters themselves. Each broadcaster is required to categorize content on the basis of theme, subject matter, treatment, language and audiovisual presentation. Content will be categorized into U (Unrestricted), U/A and A (Adult) – as is the case with content in cinema. Adult content will be scheduled only after 11.00 pm, and U/A content (for those above age 12) only after 8.00 p.m. The BRAI will oversee the work of content auditors appointed by each channel/network. The official bans on AXN and FTV, however, are nothing in comparison with the unofficial attempts by fundamentalist groups (Hindu, Muslim and Christian) across the country to enforce their beliefs and cultural values through sheer muscle power. Such groups threaten to disrupt law and order if their demands are not met. So, rightist groups of Gujarat threaten theatre owners when they screen ‘Parzania,’ an anti-genocide feature film set against the backdrop of communal riots in February-March 2002, or when art students of the Baroda University (in mid-2007) are rounded up and put behind bars for experimenting with religious themes in their art work.

The user-generated content of these web portals is worrying the Indian government, intelligence services, nationalists and also civil rights groups. Separatist groups of North-East India use these portals to disseminate anti-Indian propaganda, while other groups disseminate hate-material on respected national leaders like Mahatma Gandhi. Leaders of the religious right have also been targeted. In recent weeks, Shiv Sena activists have attacked cyber-cafes in a Bombay suburb and owners have been asked to stop accessing such portals, and the authorities have been urged to put a halt to these portals. The Indian Computer Emergency Response Team which has the authority to block offensive sites has been approached by the Bombay police. Complaints have also been lodged with Google, the company that operates the portal, but Google’s stock response is: “Orkut works on a hosted platform which allows users to create content. Google does not proactively monitor the content, unless it is flagged. Once flagged, we will review the content against the terms and conditions mentioned on the website. We will pull out the content if it violates these.” Media Education teachers in India have had to grapple with such issues.

Social media presents a growing body of evidence that can inform social and economic policy.

Social media offers exciting data resources for researchers. But if this body of complex data and its subsequent analysis

are going to positively impact public policy and services, governments may have to take a leading role in managing access and determining *boundaries*. Jason Leavey *presents the findings of a new report investigating how feasible and useful evidence from social media could be at shaping public policy*. Can social media data – that is, the vast amounts of publicly available data generated by people – improve the timeliness and quality of the evidence base that informs public policy? And if so, how? It's a complex question involving a number of variables that have an uncertain trajectory: a growing cultural acceptance of digital technology and maturing social media techniques, technological advances, public responses to privacy violations by governments and corporations, the level of access to the data, advances in 'big data' tools, to name a few.

Evidence is already drawn from social media across the public sector on an ad hoc basis - a health body trying to develop a better understanding of a mental illness, a local councilor absorbing reaction on social media to a planning decision, a law enforcement agency getting an instant picture of a suspected criminal's life, an executive agency understanding public perceptions to inform its communication strategy, a government minister picking up the conclusions of an academic study through Twitter and so on. A more sophisticated and overarching approach that uses social media data as a source of primary evidence requires tools that are not yet available. Making sense of social media data in a robust fashion will require a range of different skills and disciplines to come together. This is a process already taking shape in the research community, but it could be hastened by government.

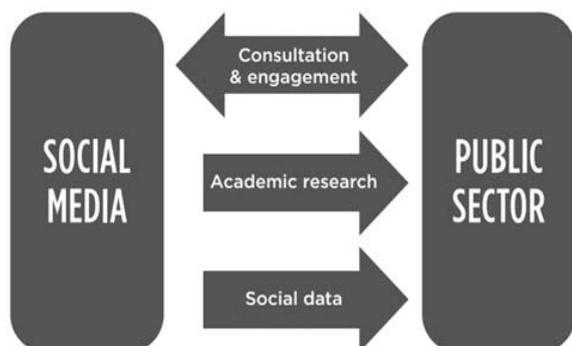


Figure 2: Evidence from Social Media

Source: Jason Leavy (2013), *Social Media and Public Policy: What is the Evidence?*

Understanding the provenance of social media data is challenging, this makes it correspondingly hard to correctly weigh the data drawn from it. But academics and researchers are steadily making inroads into these and other methodological challenges. A significant level of capital funding is going into 'big data' and social media research this year. These efforts will soon produce rich datasets that have the potential to inform policy and enhance public service delivery. A significant challenge will then lie in understanding how the public sector could adopt such data driven insights.

The Alliance for Useful Evidence, a publicly funded network that champions the use of evidence in social policy and practice, has published a report *Social Media and Public Policy, what is the evidence?* That looks at the opportunity, challenge, and risk involved in going down this road. When robust insights from social media data are used in tandem with traditional research methods and other data sources, they open the door to robust, detailed, up-to date and possibly real-time socio-economic indicators. Broadly speaking, this type of approach is already practised by the UN through its global pulse initiative. It takes a range of data sources: – social media, public news sources, blogs, web forums, public e-commerce sites, anonymised financial transactions, anonymised mobile phone usage records and records of web searches. It combines these and applies the judgement of experts with a good understanding of the local context to produce indicators that track and anticipate the impact of socio-economic crises.

Media Education: The Early Years

Media Education had its beginnings in India in the early 1980s. The pioneers, most of whom were part of media institutes established by the Catholic Church, were largely influenced by the efforts in Media Education in Australia and the U.K. The work of Canavan, Horsfield and Masterman was most influential. Much of the active support came from UNDA, the international association of Catholic communicators (now called SIGNIS), with headquarters in Brussels. The association is affiliated to UNESCO. So, in a way, UNESCO provided the inspiration and the support for most efforts in Media Education, especially in the developing world. (Interestingly, UNESCO has now begun talking about the need for 'media and information literacy' rather than Media Education). The MacBride Report which argued for the establishment of a new world information and communication order (NWICO) was of course a powerful influence.

But there were also 'nationalist' reasons for advocating media education during the early years of growth. In Scotland, it was the resistance to the media imperialism of England which helped a critical approach to find favour among government and school authorities. Media Education quickly became a school subject in the education system of Scotland, and teachers themselves led the movement. This was also the case in Canada. The national resistance to the media from the United States found expression in the media education movement. Montreal and Toronto, of course, developed their own different approaches but what was common was their resistance to the media from the South. Latin American educators too had little love for the United States media. In India, it was not surprising to see that the States of the South pioneered the Indian movement in media education. What they resisted primarily was the domination of the North Indian language, Hindi, and the North Indian culture centered in Delhi and Mumbai. This anti-imperialistic stance was also in some way responsible for the origins and growth of media education in Australia, the Philippines and South Africa. It appears that subject peoples and subject nations have been converted to the movement much earlier than those parts of the world that dominated the media. So, it should come as no surprise that the United States was one of the last countries to join the media education bandwagon, though it must be admitted that pioneers of media education like Edgar Dale (1940) were from the United States.

The mass media during those pioneering efforts in Media Education in India were dominated by cinema and the press, with television beaming only one channel, the government-run Doordarsahan. The media were not seen as a political or moral threat; also, they could easily be controlled as exemplified by the Censor Board for films, the AIR Code for radio and television, and the Press Council of India, the regulatory body for the press. The satellite invasion of Indian television in the early 1990s challenged the government control of the media. It led to cross-border television and to multiple channels beamed from Hong Kong, Russia, London and elsewhere. Soon, Rupert Murdoch (Star Network), Ted Turner and Time-Warner (CNN, CNBC) the BBC, MTV, NBC and a host of international players firmly established their footprint across the sub-continent. ABC-Asia Pacific (from Australia), DW-TV (from Germany), TV5 and FTV (from France), CCTV (from China), and numerous American channels for kids, music, movies, travel, nature, history and lifestyle bombarded the Indian viewer. National business

groups launched satellite television channels in different Indian languages across every region and state.

Political parties too followed suit, launching their own channels to propagate their own ideologies. By mid-2007, most major political parties in North and South India could boast of their own TV channels. Thus, the fundamentalist Hindu party, the BJP, the Marxists of Kerala, the DMK and AIADMK of Tamilnadu, the Congress Party, and even the Catholic Church had their own TV channels. Meanwhile, the dramatic growth of the economy, the rapid rise in literacy especially in rural areas, and the improvements in transport and other infrastructure, has given rise to what Robin Jeffrey (2000), an Australian political scientist, calls 'India's Newspaper Revolution,' as also the phenomenal growth in mobile telephony (at the rate of 6.5 million cell phones sold every month), access to the internet through a network of cybercafés and 'e-choupals' and the expansion of private commercial FM radio channels, are witness to the 'communication revolution' in India (Singhal and Rogers: 2001).

Media Education in School and Out-of-School

It is only in the southern states of Kerala, Tamilnadu, and Karnataka that Media Education has become a part of the school curriculum; in states like Andhra Pradesh and Maharashtra it is taught outside school hours; in most other efforts in Media Education, NGOs, Social Action Groups, some women's groups, some members of SIGNIS, have taken the lead.

Media Education kits have been put together for teachers in these states (Cf. Gonsalves: 1996; Scrampical and Joseph: 2000; Joshva and Kurian: 2005). It is unlikely that schools from other states of India will introduce courses in Media Education in the near future. At the college and university levels, there is little Media Education; the priority in most courses is to train professionals for the various media, especially television, cinema, the press and the internet. Over 60 universities and a hundred private media institutes offer professional courses in advertising, public relations, and media production to meet the needs of the phenomenal growth in television, FM radio, the press and cinema. Critical education in the media finds no place whatsoever in such professional education.

As Julian McDougall notes in his recent book *The Media Teacher's Book* (London: Hodder Arnold, 2006, pp. vii-viii), 'the media learner twenty years on (after Len Masterman's

Teaching the Media (1985)) operates within a different set of cultural and technological discourses, and equally the media teacher resides in a very different educational paradigm.' McDougall suggests that 'audience should be the starting point for Media Learning, and audience theory now includes attempts to conceptualize such notions as interactivity and new conceptions of audiences in computer gaming, for example (in which the audience member is also an active participant).' In India, computer gaming has only now taken off as a media industry, though interactivity has spread rapidly in other media such as television and FM radio.

So, what kind of Media Education is relevant in the context of the current media scenario in India? Though there have been ample developments and growth in the 'new media' (such as the internet, mobile telephony, cable and satellite TV), the traditional media (like television, the cinema and the press) continue to dominate the Indian media sphere. The unabashed commercialization and politicization of the various media suggest that there is urgent need for a critical evaluation of the media sphere at all levels of public education. The effort of Verghese, who was a member of the MacBride Commission, is only a beginning. Voluntary groups and some committed individuals as well as organizations like SIGNIS have also made other attempts at conducting courses in Media Education outside school hours. Few schools include such courses as part of the formal school curriculum. However, a national movement in Media Education (except perhaps among Christian communities) continues to be a distant reality.

Some newspaper publishers, under the pretext of doing 'media education' have entered schools to market their products. Such is the attempt of *The Times of India*, one of the foremost national dailies, (with a circulation of over a million copies every day), to market the paper in the schools of New Delhi, Mumbai, Pune and Bengaluru. The experiment is termed 'Newspapers in Education' (NIE), and is taught during regular school hours, not by school teachers but by young men and women carefully recruited by the Response Department (read 'Advertising Department') of the publishing house. The newspaper is used to instruct children about history, geography, science and current affairs. Children are required to buy copies of the paper in school; copies of other papers are not available in school nor are they referred to in any way by the 'visiting' teachers. In the city of Pune, parents have protested against their children

being asked to buy copies of the paper in schools but to little effect; rival city dailies have got into the act too. They have offered to publish supplements with drawings and articles by school children, each issue of the supplement devoted to different schools. Another *Times of India* innovation in marketing is 'Medianet,' the practice of selling editorial space in newspapers (especially in the city supplements) to Public Relations agencies.

Decline in International Interest

At the international level there has been a definite decline in interest in Media Education. As the President/Chair of the Media Education Research Section of the International Association of Media and Communication Research (IAMCR) from 1997 to 2006 I have sensed this decline, not only in the number of abstracts submitted to the Section over those eight years, but also in the topics and themes taken up for research by the participants. The majority of submissions continue to be from the developing world, particularly from South America and Asia. There has been a mere sprinkling of submissions from North America and Europe. The submissions – around 18 each year – have shifted their focus (and this should surprise no one) from old to new media, but more significantly, from Media Education to professional education in computing, multimedia and the internet.

At the World Summit on Media Education held in May 2000 in Toronto, over 1300 delegates participated, but it was evident even then that the numbers could not make up for the decline in the political fervour of the pioneers. One Australian pioneer frankly admitted that they had reached a point of exhaustion. The Media Education Section of the IAMCR continues to receive around 18 papers every year for its annual conference, though one must quickly admit that not all those deal directly with media education. At recent IAMCR conferences in Taiwan (2005) and Cairo (2006), for instance, most of the papers read were on the professional teaching of information technology rather than on media education.

Community-Centered Media Education

At the Toulouse Colloquy in 1990 I pleaded for an alternative definition of Media Education, stressing the need for a community-oriented approach vis a vis an individual-oriented approach. I argued that developing countries needed to develop their own approach to critical media

education, in terms of their information needs, media experiences and cultural experiences. The community's local needs and available facilities had to be taken into account (Cf. Kumar: 2002).

Much of the focus in media education in India, however, continues to be on the mass media (the 'old media'). The 'new' interactive media such as satellite radio and television, computing, computer games, the internet, mobile telephony and other digital devices are rarely touched on. In Indian courses in media education, for instance, the focus so far has been on the local press, the mainstream Indian cinema, and advertising. The transnational media and the transnational elements in indigenous media are not usually discussed. The vital role of advertising and public relations in media programming also does not get any attention. Media economics is completely overlooked. Further, the stress has been largely on the 'deconstruction' of texts in the press, the cinema and television, with very little attention paid to music, telecommunications, computing and the internet. The focus will now need to shift to national and multinational media conglomerates that are shaping the form and substance of practices and texts of the multifarious media industries.

Further, in earlier experiments a primary concern was government ownership and control over broadcasting, and the kind of effect this had on programming and policy. With the privatization of television, radio, telecommunications and computer technologies in many Asian countries, the focus will need to be shifted to the media moghuls who have taken over international broadcasting, film production and distribution, telecommunication services, computer networks, and information databases. The convergence of the various media in recent years as well as their 'globalization' (read, multinational hegemony of a handful of media moghuls) has changed the very dynamic of each medium; this new dynamic has yet to enter media education classes. The 'new' media education in Asia will have to take these changes into serious account.

The whole approach to the teaching of media education in India needs a new radical re-thinking. New strategies need to be evolved so that a critical interpretation of the old and the new media both as technologies and as sources of information and media content become an integral part of education at all levels – school, college and university. Discrete courses in media can be taught at higher levels of education, but up to the secondary school an integrated

approach works more efficiently. More importantly, such an approach at the school level is more likely to be accepted by educational authorities as part of the training in literacy. For this, media education will have to be introduced in the schools of education where courses in educational technology are mandatory. Until then short media education courses outside school hours should be continued.

As in other countries where media education has become a national movement, the objective of the pioneers and promoters in India too has been to launch courses in as many schools and cities as possible. Further, there is little concern with the theory and research in the subject. This has meant that we have taken our cue from theorists and researchers from the developed countries. Even in countries where media education is mandatory in schools, teachers have not been too concerned about theorizing or doing research. Manuals, textbooks, workbooks and media kits have proved to be a greater priority. One does not see much concern for education for citizenship and democracy. Nor is there any attempt to connect media education to 'national development.'

Conclusion

We have certainly come a long way from Grunewald. The UNESCO Declaration on Media Education, by representatives of 19 nations meeting at Grunewald in 1982, exaggerated the 'undoubted power of the media' and the role they could play in the process of development, and as 'instruments for the citizen's active participation in society.' It called for 'political and educational systems to recognize their obligations to promote in their citizens a critical understanding of the phenomena of communications.' The reasons for doing Media Education today largely remain unchanged though there has of course been a huge scale change, particularly where the proliferation of media and the globalization of media content are concerned. Convergence of the various media technologies has made content available on a host of platforms; this has led to the further commercialization and politicization of the media. Control and regulation, especially of the 'new' media has become problematic because of the global scale of access and reach. National governments would like to control and regulate them but there are few international laws that assist them. The technology for blocking content on both the old and the new media is easily available, and search engines like Google can be pressurized to toe a given line (witness the case of Google bending to the demands of the Chinese

government). However, few democracies like India would like to be seen restricting the freedom of speech and expression of their citizens, even where the threat to national security and to law and order exists, as in the case of separatist movements in Kashmir and the North-East. But religious and political fundamentalist groups offer far greater threats to human rights and the freedom of the media. What role Media Education can play in this new media environment where there is the constant fear of coming under attack from these fundamentalists, is extremely limited. How to maintain this balance between the democratic freedoms and the threat to them from such pressure groups and lobbies, who unabashedly take the law into their own hands, is the vital challenge of the media educators of tomorrow. Thus the community, especially the minority and oppressed community, remains at the heart of any media education programme. For, it is the community (even the electronic community) that is the target of attack of these new terrorists. There is, therefore, the imperative need to go beyond Media Education, to mobilize forces to build up a media users' movement at the local, national and international levels to re-appropriate the media so that they serve the public interest. Media activism has thus to become an integral part of Media Education; a political project rather than just an academic or vocational course where the primary goal is the creation of 'critically autonomous' individuals.

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DMM Model in Celebrity: Brand Advertisements

Aakash Ashok Kamble

Abstract

This research tests the Dual Mediation Hypothesis (DMM) Model for the brands endorsed by celebrities. Sometimes consumers like an ad so much that they transfer their positive feelings from the ad to the brand. This invariably leads to formation of a positive attitude towards the brand and purchase intention of the same. But the same concept in ads featuring celebrities, the DMM model seemed applicable, but in products and services requiring high capital investment it did not seem applicable in Purchase Intention (PI). The consumers formed affective attitude towards the celebrity more than the brand in question.

Key Words : Dual Mediation Hypothesis, Affective Attitude, Consumer Behavior, Ad Cognitions, Celebrity Endorsements



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Companies are struggling to maintain their market share due to the increase in competition. This has resulted in reduction in market share of companies and depletion of profits. The companies spend on the following heads: promotion of the products and services being a major overhead from their perspective. This calls for creating promotion strategies which are measurable and which earn the company good returns for their investments. The measurement of advertisement effectiveness itself is a complicated process and various techniques are used to do the same.

The research focuses on the applicability of Dual Mediation Hypothesis (DMM) Model for the brands which are endorsed by celebrities. For this research a Cricket player was chosen and the product endorsed by him was a Home Inverter and UPS. The brand name of that product carries a very high recall amongst the consumers which will be further justified in the findings. The advertisement of this brand features the cricket player and the length of the

advertisement is 35 seconds which is telecast on various national channels in India. The player is an icon in cricketing world and carries a huge fan following in India and abroad.

In this research we study the applicability of DMM model for advertisements featuring celebrities who are brand endorsers / ambassadors of the company. The DMM model postulates that the affective attitudes towards the brand lead to purchase intention (PI) when the effort is low from consumer. We test whether the DMM model is applicable in the above mentioned situation. In our approach we considered the samples who were exposed to the advertisement used for the research and also familiar with the celebrity in that advertisement. Based on the responses from the sample we further try to ascertain the effectiveness of the ad and the number of purchases triggered by it. This is an ongoing research and further surveys are yet to be done. The findings from this study are mentioned in the paper.

In summary the goal of this research is to test the model which triggers affective behavior of the consumer and result in purchase intention (PI). To substantiate this we surveyed 227 samples from within a specified area and their responses were analyzed to justify this claim. To fulfill this goal, the structure of this paper is as follows. Existing literature on DMM model is reviewed with the past research on it. Based on this revision, hypotheses are formulated and the applicability of DMM model is tested. Next, the research methodology is summarized. Finally, results are reported and implications discussed.

Marketing communications are defined as a management process through which an organization seeks to engage with its various audiences, in order to (re)position the organization and its offerings in the minds of particular audiences, and in doing so encourage the development of relationships that are of mutual value (Fill 2006). The amount of resources dedicated to communication initiatives has meant that companies and managers worry about how to assess whether outcomes coincide with results. Several attempts, based on the relevance of communication effectiveness, have been made to describe how such communication activities work, leading to different frameworks (Vakratsas and Ambler 1999) such as cognitive information models (Bharadwaj et al. 1993), pure affect models (Aaker et al. 1986) and the Elaboration Likelihood Model (Petty and Cacioppo 1981).

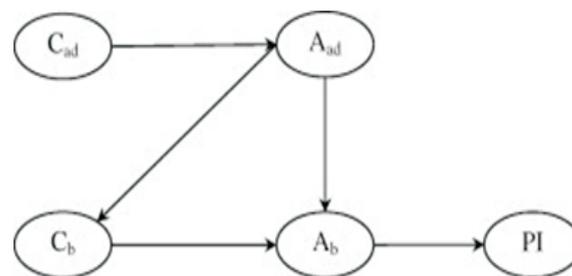


Figure 1: The Dual Mediation Hypothesis Model of Ad Processing

Where,

- C_{ad} - Advertising cognition
- A_{ad} - Attitude towards advertising
- C_b - Brand cognition
- A_b - Attitude towards brand
- PI - Purchase intention

In line with this, MacKenzie et al. (1986) published a seminal paper wherein they explained and tested four alternative models of communication effectiveness. Their aim was to find out how attitude towards the ad (A_{ad}) mediates attitude towards the brand (A_b) and purchase intention (PI), with these three variables representing communication effectiveness. The four models were: the Affect Transfer Hypothesis, the Reciprocal Mediation Hypothesis, the Independent Influences Hypothesis and the Dual Mediation Hypothesis. All the competing explanations share three common paths, namely, ad cognitions $\rightarrow A_{ad}$, brand cognitions $\rightarrow A_b$, and $A_b \rightarrow PI$. Cognitions are any thought that comes out during the elaboration of the information, measured using a written protocol known as thought elicitation (Meyers-Levy and Malaviya, 1990 and Sicilia et al. 2005). The Affect Transfer Hypothesis (ATH) proposes a path from A_{ad} to A_b , which represents the peripheral route to persuasion in the Elaboration Likelihood Model (Petty and Cacioppo 1981). The positive affect generated by the ad is transferred to the evaluation of the product/brand itself without further scrutiny of the information provided (Mitchell and Olson 1981). The Reciprocal Mediation Hypothesis (RMH) assumes a reciprocal causal relationship between A_{ad} and A_b . The idea that people attempt to maintain “balanced” cognitive relationships backs up this point of view (Heider 1946). The Independent Influences Hypothesis (IIH) posits that A_{ad} and A_b exert an independent influence on PI. Finally, the Dual Mediation Hypothesis (DMM) specifies an indirect flow of causation

from A_{ad} to A_b through brand cognitions (C_b), in addition to the direct influence that links both types of attitude. Compared with the other three alternative models, the DMM (Fig. 1) turned out to be the one that best explained ad effectiveness. This implies that A_{ad} positively influences A_b , which lends further support to the idea that A_{ad} is an important mediator of brand attitude formation (Park and Young 1984). Additionally, A_{ad} exerts a positive influence on brand cognitions, which means that not only the peripheral route plays a role in communication models but so does the central route of persuasion through its effect on cognitions (Petty and Cacioppo 1981). The DMM is still considered one of the most widely accepted models of communication effects to date. Later research supported this perspective and confirmed the appropriateness of the DMM in analyzing communication effectiveness (Brown and Stayman, 1992 and Lord et al. 1995).

The objectives for this research are enlisted below:

1. To study the role of affective behavior towards a brand advertisement endorsed by celebrity.
2. To ascertain whether such advertisements lead to Purchase Intention (PI), and the rate of actual purchases for the brand having high investments.

Based on these objectives, the following hypothesis was formulated and tested based on the responses by the respondents.

Traditionally, most studies have treated product/brand attitude as a one-dimensional construct. Nonetheless, attitudes are complex and multidimensional and this assertion has led some marketing scholars to try to integrate an experiential view of consumption with more traditional functional approaches (Mano and Oliver, 1993). One of the earliest endeavors to measure the multiple dimensions of product/brand attitudes was that of Batra and Ahtola (1990), who state that “consumers purchase goods and services and perform consumption behaviors for two basic reasons: (1) consummatory affective gratification (from sensory attributes) and (2) instrumental, utilitarian reasons.” In short, consumption “involves experiential as well as instrumental outcomes” (Babin et al. 1994, p. 644). The first dimension is a *hedonic* dimension resulting from *sensations* derived from the experience of using products, and the second is a *utilitarian* dimension derived from *functions* performed by products (Voss et al. 2003). The domains, which evidence a fundamental presence across consumption literature, are

meant to be neither exhaustive nor mutually exclusive (Babin et al., 1994). Capturing both dimensions with a reliable and valid scale turns out to be a difficult task. Recently, Voss et al. (2003) have developed a valid, reliable, and generalizable scale to measure the hedonic and utilitarian dimensions of consumers’ attitude. They tested the scale for the central route of persuasion, using involvement as a proxy for cognitive elaboration. In our research, we test a global model in which we use emotions and cognitions as antecedents of the hedonic and utilitarian dimensions of attitude towards the product/ brand, i.e., by testing the Dual Mediation Hypothesis model.

Therefore, we incorporate in the same model the cognitive and emotional components that have traditionally been considered fundamental in communication effectiveness (Sicilia et al. 2005; Kempf and Smith, 1998; Burke and Edell, 1989).

H0 – *Cognitions and affections generated by the ad will lead to purchase intention of the product*

This is the null hypothesis which is presumed to be true. As the product is endorsed by their favorite celebrity, the consumers tend to purchase it. Rational thinking which is required before making the purchase like, technical specifications, price comparisons with competitors, after sales service are neglected by them due to the presence of their favorite celebrity.

H1 – *Cognitions and affections generated by the ad will not result into purchase intention due to investment required*

Cognitions and affections will be generated towards the celebrity and the brand. But owing to the high investment in the product/ brand there will not be any purchase intention generated by the consumers.

H2 – *No affection generated towards the brand*

The last hypothesis proposed is that there will not be any affection generated towards the product/ brand. The presence of celebrity in the ad will have positive attitude towards the celebrity, but there will not be any affection between the brand and the consumers.

Regardless of the Dual Mediation Hypothesis, the debate about whether cognition precedes emotion or the other way round is still open and unsolved (Lin, 2004). In this paper,

we follow Coulter's (1998) findings about the influence of processing and affect generated by a TV program on attitude towards that program. The theoretical background that lies behind this assertion is that when an individual devotes a relative large amount of cognitive resources to the processing of specific stimulus, the TV program in this case, (s)he is likely to realize the arousal of feelings (Petty and Cacioppo, 1986). Subsequently, (s)he is likely to attribute those feelings to factors associated with the stimulus. The act of attributing affect leads to thought elicitation, in order

to identify the factors that originate the feelings. Thus, Coulter (1998) found a direct link from feelings to cognitions. A non probabilistic purposive sample was used for the research. The sample consisted of individual who had seen the advertisement and also knew about the celebrity endorsing the brand. We took individual from a pre-defined area as samples for the survey. Based upon the purpose of the study a total of 227 samples were found eligible and the research was conducted based on responses from them. Firstly, they answered questions related to their demographics which are tabulated below in Table: 1.

Table1: Demographic classification of the respondents
(N = 227)

Demographic Variable	Number of Respondents	Percentage (%)
Age Group		
18 – 25	59	25.99
25 – 40	76	33.48
40 – 60	54	23.78
60 & above	38	16.74
Income per annum (in Rs.)		
1,00,000 – 3,00,000	32	14.09
3,00,001 – 5,00,000	64	28.19
5,00,001 – 10,00,000	78	34.36
10,00,000 & above	53	23.34
Educational Qualification		
Undergraduate	9	0.03
Graduate	103	45.37
Post-Graduate	89	39.20
Doctorate	26	11.45

After the demographic details the respondents were asked questions related to product involvement (Zaichkowsky, 1990), and product knowledge (Smith and Park, 1992). Although, there were no previous hypotheses regarding these variables, we decided to include them to control for possible external influences on the analysis. Then, subjects were requested to carefully fill the questionnaires provided to them. The questionnaire consisted of demographic information, followed by close ended questions related to affections towards the celebrity and purchase intentions and finally questions based on Likert Scale. A 5-point Likert Scale was used for this purpose. The questions related to product involvement and product knowledge were followed by the affections generated towards the brand and celebrity.

The image of brand and celebrity's image were then taken into consideration. The last set of questions was related to the Purchase Intention (PI) and the actual purchase of the product. The responses given by the samples were then analyzed and the following interpretations were made from the same.

Hypothesis Testing

One Sample t-test: Based on the analysis we compute that the null hypothesis H_0 isn't true. This is further validated by the t- test carried out on the data. The null hypothesis was based on two variables 1) Affections towards the celebrity and 2) Purchase intention based on affections.

Table 2: One- Sample t-test Statistics

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Affections towards Celebrity	227	3.6211	1.15869	.07690
Purchase Intention based on affections	227	3.9956	1.17307	.07786

Table 3: One-Sample t-test

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Affections towards Celebrity	8.077	226	.000	.62115	.4696	.7727
Purchase Intention based on affections	12.787	226	.000	.99559	.8422	1.1490

Here the test value was taken as 2, and from the One-sample Test we calculated the Significance (2-tailed) = 0.000. There is no method to calculate 1-tailed significance. Critical value tables were used to calculate 1-tailed significance for $df = 226$. From the results we can deduce that the Significance (1-tailed) is also less than test value. Hence we reject the null Hypothesis H_0 .

1. Affections towards celebrity

A t test failed to reveal a statistically reliable difference between the mean number of affections towards celebrity that $N = 227$ has ($M = 3.6211$, $s = 3.6211$) and 1, $t(226) = 8.077$, $p < 0.05$, $\alpha = 0.05$.

2. Purchase intention based on affections

A t test failed to reveal a statistically reliable difference between the mean number of Purchase Intention that $N = 227$ has ($M = 3.9956$, $s = 3.9956$) and 1, $t(226) = 12.787$, $p < 0.05$, $\alpha = 0.05$.

Hence, based upon the above results the significance < 0.05 in both the cases. Hence the null hypothesis is discarded.

Bivariate Analysis: The correlation matrix is symmetrical around the diagonal, so the correlations above the diagonal are the same as the correlations below it. The relationship of a variable to itself is perfect, $r = 1$ (on the diagonal).

A large correlation emerged for Affections towards celebrity and Purchase intention based on affections, $r = .572$. The p value is quite low, in fact it is too small to print ($p = .000$) so it must be $.0005$ or smaller. 227 subjects were used in the analysis. Given this outcome, we can reject the null hypothesis that the correlation is zero and say that it is "statistically significant." As affection towards celebrity increases, the purchase intention decreases. In writing: A positive relationship was found between both, $r(225) = 1.00$, $p < .05$.

Table 4: Correlations using Bivariate Analysis

Correlations			
		Affections towards Celebrity	Purchase Intention based of affections
Affections towards Celebrity	Pearson Correlation	1	.572**
	Sig. (2-tailed)		.000
	N	227	227
Purchase Intention based on affections	Pearson Correlation	.572**	1
	Sig. (2-tailed)	.000	
	N	227	227
** . Correlation is significant at the 0.01 level (2-tailed).			

The product/ brand generated positive attitude towards itself which is evident from the findings that 51.97% of the respondents “strongly agree” and “agree” for the same. This proves that the affections generated by the ad had a positive influence towards the advertisement.

66.51 % of the respondents did not agree with the notion that the product/ brand will be reliable and credible irrespective of the presence of the celebrity in the ad. The respondents demanded more concrete proofs for the reliability of the product/ brand which can be an outcome of the high investment required in the product.

Against the popular belief that featuring a celebrity in the advertisement will lead to increased cognitions and affections towards the product/ brand, 76.65% of the respondents were unsure about the claims made by the celebrity. The celebrity is hampering his own credibility in this case was the common response given by the individuals. This can be an effect about the technicality required in judging the product/ brand and the investment needed.

Another popular belief is that if a product/ brand are endorsed by a celebrity will lead to increase in sales volume and purchases. But this notion is not seen applied in this case as 74.44% of the respondents disagree that they will purchase the product as it features their favorite celebrity. This can be on account of the high investment required in the purchase of the product.

55.06% of the respondents disagree with the statement that the image and stature of the celebrity is sufficient for them to purchase the product/ brand. Against this, 29.95% respondents agree to this statement.

As the product/ brand requires considerable amount of investment, 55.05% of the respondents disagree the statement that comparison of the product/ brand with competitor offerings is not necessary. This shows that endorsing the product by a celebrity does not result into purchase intention by the consumers.

Despite generation of affections towards the ad and the brand 79.29% of the respondents do not agree to the statement that the investment required for the brand is insignificant.

The awareness about the product/ brand of inverter is very high i.e. 68.71%. The ad recall was found to be also very high in case of the samples.

As the product/ brand requires high investment the specifications and the technical details of it is of prime importance. This is evident by the fact that 63.42% of the respondents agreeing to this statement.

The decision of purchase of the product/ brand requires consent of various other members, viz., family members, relatives, friends and colleagues. The decision cannot be taken based on the affections and cognitions generated by

the ad and/or influenced by the celebrity. 67.39% of the respondents disagree with the statement that the decision is taken on an individual basis.

The limitations of the research are that it was carried out on samples which cannot be representation of the whole population. Some discrepancies are bound to be present as the sample responses might have been influenced by the celebrity status quo and the brand / product used in the research. The respondents were restricted to only one city and hence the responses might be influenced due to cultural values and ethnicity.

Future studies on this topic can be done on the areas of products and/or services which are priced lower and rational thinking process is not required for Purchase Intention (PI). The product / brand used for this research required high investment and the decision was not taken by an individual. Further research can be done in the areas where the product / brand value is less, for example, the fast moving consumer goods (FMCG). These products are of lower value and for immediate consumption. So the celebrity endorsements would lead to high sales volumes and increase in the market share. The effectiveness of such advertisements can be researched and the applicability of Dual Mediation Hypothesis model tested for the same.

This study was designed to ascertain the applicability of Dual Mediation Hypothesis Model by applying it to the product/ brand advertisements featuring a celebrity. These developments included the notions that the ad cognitions and attitude towards the ad do not result into purchase intention (PI) for the products/ brands which require high investment. In the research it was found that affections towards the celebrity overshadowed the product/ brand in question. These affections resulted in image building of the celebrity but did not convert this into increase in sales volume for the product. The study also examined the purchase intentions of the respondents towards the product/ brand. From all the above analysis it was found out that DMM model has limited applicability in advertisements featuring celebrity.

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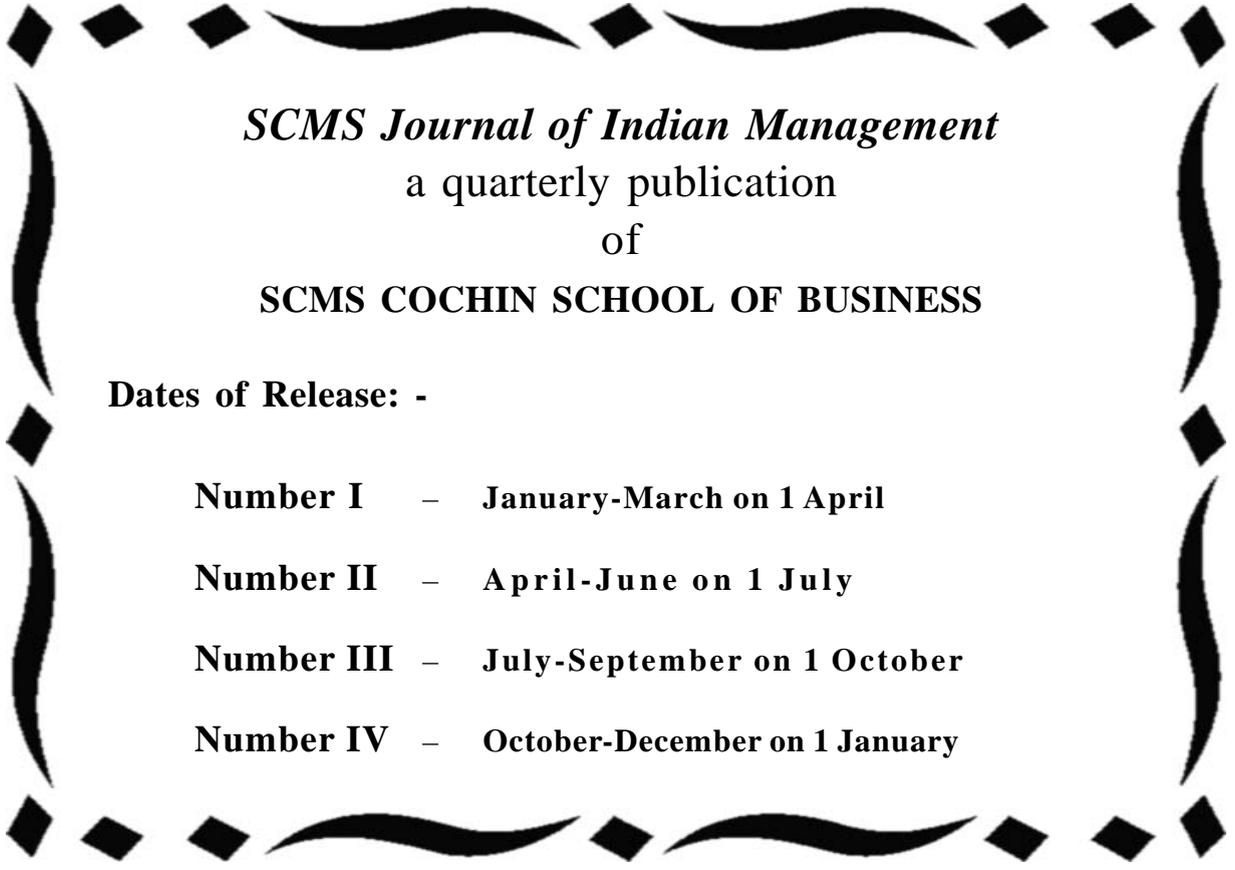
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**ACBSP (US)
ACCREDITED
B. SCHOOL**

**SCMS COCHIN
SCHOOL OF BUSINESS**
-The first
accredited, AIU
recognized and
ISO certified
business school in
Southern India

- ◆ Recognized as equivalent to MBA by the Association of Indian Universities (AIU).
- ◆ Centrally air-conditioned world-class campus, an excellent team of 56 full time faculty, well-stocked library, full-fledged computer centre, superior teaching aids etc.
- ◆ Academic tie-ups with Foreign Universities to give the programme global focus and innovation. Nine faculty members from the universities of USA, Australia & Switzerland teach full course at SCMS. Cochin School of Business
- ◆ Dewang Mehta National Award for excellence in leadership training systems.
- ◆ Impact Marketing National Award for integration of exceptional communication skill development system.
- ◆ The only recipient of a grant for track record in performance from AICTE.
- ◆ Ranking within the first 25 B.Schools in the A++ category.
- ◆ Only B.School which has a University approved Research Centre for PhD in Management.
- ◆ Only B.School in India to establish a Chair for Climate Change.
- ◆ SCMS-Cochin School of Business is, now, one of the seven ACBSP (US) accredited B-Schools in India.

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