DETERMINANTS OF MARKET PRICES OF SHARES IN A DEVELOPING ECONOMY: AN EVIDENCE FROM INDIA

Ashish Kumar*

The present study is an attempt to measure the impact of select explanatory variables on the market price of the shares in Indian capital market. The securities chosen for the study form the part of the benchmark index (Nifty) of India's leading stock exchange i.e. National Stock Exchange (NSE). The time series data has been extracted from the prowess database of CMIE for the time period from 2005-2015. For the want of data only 33 companies (not 50 as in Nifty) have formed part of the study. The study employs pooled regression, fixed effect model and random effect model on the panel data. The empirical results of the study reveals that book value per share, dividend per share, earning per share, size of the company (measured by natural log of market capitalisation) and ROE have statistically significant and positive effect on the market prices of the chosen securities. The effect of dividend yield ratio on market price is observed to be negative and this too is statistically significant. The effect of P/E ratio is positive but it is not significant. The explained variation coefficient (R-square) is significant in all the models applied. The results are uniform in all the three models applied which adds to the reliability of the results. To measure which model amongst fixed effect and random effect is more effective the study has employed Hausman test. The results of Hausman test indicates that the fixed effect model is more effective in predicting the prices of the securities. The results of Wald test further clarify that fixed effect model results are more reliable than pooled regression model as well. The results of present study are in harmony with most of other studies in the area (Sharma, 2011; Srinivasan 2012).

INTRODUCTION

Determining the right price of a share is a very difficult task. The reason for this can be attributed to the fact that there are large numbers of variables which affect the price of a security in the capital market. The news with regard to these variables keep flowing from every directions which makes it very difficult for an investor to distinguish between a real news and noise and predict its impact on the price of the security. The factors which have a bearing on the price of the security can be conveniently categorized into company specific or internal and those related with the broader economy or market related variables. The prominent factors which are internal to a company are earnings, dividend, price earnings ratio, size of the firm, return on capital employed, dividend yield ratio, leverage, market capitalisation, management composition etc. The external variables include changes in the macroeconomic policies, movement of the broader market index, business cycles, government regulations, investors' attitude, natural calamities and strikes, lockouts, overseas market conditions etc. Besides these variables to predict the right price of a share it is equally necessary to identify the trend of the market as well. Nevertheless, these variables are helpful in predicting the fair price of the share. Since every investor by nature is risk aversive therefore he/she would like to know the determinants of share prices so as to make a right investment decision. Investors are also advised by the experts about the importance of 'value investing strategy' technique as proposed by Graham and Dodd (1951). These determinants help an investor identifying the fair price of a share and if the price of the share is different from this fair price it is said that the share is either overvalued or undervalued. Sharma (2011) too in his study mentioned that there are two approaches viz. fundamental approach and technical approach to forecast the price of a share. Given the volatility and complexity of the stock market it is always advisable for an investor to be familiar with the factors having a bearing on the price of a share.

The present study is an attempt to assess the effect of select independent variables on the market price of shares of the companies listed at National Stock Exchange (NSE) and forming part of the benchmark index nifty for the study period ranging from 2005 to 2015.

REVIEW OF LITERATURE

The initial study exploring the factors affecting the prices of shares in US market is by Collins (1957). In his study Collins reported that dividend, net profit, operating earnings and book value are the important

* Assistant Professor, University School of Management Studies, GGS Indraprastha University, Dwarka, New Delhi.

drivers of prices of shares in US market. After that large number of studies have been conducted in US and other developing nations exploring the causes of variations in the market prices of listed securities.

Black and Scholes (1974), in their study came out with similar kind of results. In their study they reported that dividend policy of a company is an important factor in determining the return from a security.

Zahir and Khanna (1982) carried out a study on 101 industries in India for the years 1976-77 and 1977-78 to explore the factors affecting the prices of chosen companies. Their study too reported that dividend, book value per share and dividend yield have statistically significant effect on the market prices of shares. However the effect of price earnings ratio was not reported significant.

Tsoukalas and Sil (1999) in their study in UK stock market examined the impact of dividend to price ratio and growth rate of dividend on the market price of shares. Their study reported that dividend to price ratio is helpful in predicting the price of securities.

Malhotra and Prakash (2001) conducted a study on Category and Category B shares in Indian stock market for the period from 1989 to 1999. The study reported that prices of B group shares are more reactive to the variables such as book value, earning per share, price to earnings ratio and dividend per share.

Irfan and Nishat (2002) in their study in Pakistan for the study period from 1981 to 2000 explored the effect of six variables namely; dividend payout ratio, size of the company, dividend yield ratio, leverage, earning volatility and growth rate of asset on the prices of shares. The study concluded that dividend payout ratio, leverage, dividend yield and size of the company were the important variables which had a significant effect on the share prices.

Sen and Ray (2003) explored the impact of important variables on the prices of the shares in Indian capital market for a period from 1988 to 2000. The study reported that dividend payout ratio had a significant effect on the stock prices. However, the effect of earning per share was not found to be significant.

Docking and Koch (2005) examined the impact of dividend announcement on the behaviour of equity prices. The study found that there was a direct relationship between the announcement of the dividend and prices of shares.

Sharma and Singh (2006) in their study in Indian capital market between 2001 and 2005 on 160 companies found that dividend per share, earning per

share, dividend payout ratio, book value, size of the firm, price to earnings ratio are the key determinants affecting the prices of securities in India.

Das and Pattanayak (2009) in their study on 30 shares of sensex (benchmark index of Bombay stock exchange in India) reported that higher levels of profits, expected growth in profits, return on investment and favourable valuation had a positive effect on the prices whereas higher level of risk and volatility brought down the prices.

Sharma (2011) assessed the impact of various company specific variables viz. dividend, earnings, price to earnings ratio, dividend yield, dividend payout ratio, size (measured by sales) and net worth on the prices of shares of companies from different industries. The study reported that earnings, dividend, book value had a statistically significant effect on the market prices of securities.

Nirmala, Sanju and Ramachandran (2011) studied the effect of various factors on the prices of shares from three different sectors viz. auto, healthcare and public sector undertakings. The results of their study disclosed that dividend, price to earnings ratio and leverage are the major causes of share price variation in India.

Khan et al. (2011) analyzed the impact of dividend policy on Stock prices in Malaysian stock market with the help of fixed and random effects models on the cross sectional time series data of 55 companies listed at KSE-100 for the study period from 2001-2010. The empirical results of the study reported that dividend yield ratio, earnings per share, profit after tax and return on equity affected the prices positively whereas retention ratio had a negative effect on the prices of shares of chosen companies.

Sharif et al (2015) in their study in Bahrain stock exchange on 41 companies for a period from 2006 to 2010 came out with a conclusion that investors should weigh their investment decisions on fundamentals variables viz. return on equity, dividend per share, earning per share, dividend yield ratio, leverage ratio, size of the company and price to earnings ratio etc. as these are significant contributors to the market price of shares in Bahrain.

An overview of the studies as mentioned above clearly suggests that dividend policy, earning per share, leverage position, price earnings ratio, size of the company, dividend payout ratio and retention ratio etc. are the key company specific variables affecting the market price of the securities in the stock market. The effect of macroeconomic variables such as GDP growth rate, inflation, monetary policies etc. have also been ascertained in the studies carried out in the past.

The empirical studies provide the evidence that investors give more valuation to the companies which pay dividend regularly and have a consistent dividend policy. Investors also like the companies which have higher price to earnings ratio as it increases their chances of getting higher return in future. Return to equity is yet another factor which has a positive effect on the prices of shares. Besides this earning per share, size of the company measure by sales or market capitalisation also cause the prices of shares up. The impact of debt equity ratio or leverage is viewed negatively by the stakeholders' and it brings down the prices of stocks. Even though, the literature on the topic is rich and variety of studies have been conducted in the area, across the world there is no consensus with regard to the positive or negative effect of some of the variables on the securities prices. The studies have produced contradictory results in different regions and in different time periods. It has also been observed that most of the studies pertaining to the topic has been executed in developed economies only and in India we have not come across a study which have chosen all the companies included in the benchmark index (Nifty) of India's largest stock exchange i.e. National Stock Exchange (NSE). The review of the previous studies further reveal that most of the past studies have applied linear regression models such as pooled regression, fixed effect and random effect models to forecast the price of a share. Not all the models are equally effective in estimating the market price in all the situations. Pooled regression is not useful in estimating the firm specific effect but fixed effect model overcomes this problem. But fixed effect model does not consider the time effect and is useful in the absent of time varying factors only. Random effect model on the other hand takes into consideration firm specific effect as well as

time effect if the sample is drawn randomly from a large population (Baltagi, 2003). On the basis of all these observations it is apt to apply both fixed effect as well as random effect model in addition to the pooled regression model to provide useful results. The independent variables in the study are book value per share, dividend per share, earning per share, price earnings ratio and size measured by log of market capitalisation. It is our firm belief that the present study will be immensely useful for investors in determining the fair price of a share.

In the light of these facts the present study is a holistic effort to bridge the gap and contribute to the literature by choosing the companies included in the Nifty index of NSE for a period from 2005 to 2015.

DATA COLLECTION AND METHODOLOGY
Data

The present study is related with examining the prices of the shares listed at National Stock Exchange (NSE) and are part of its benchmark index Nifty. The period of the study is from 2005 to 2015. The benchmark index Nifty included 50 shares in it (Appendix I) but the study includes the data of 33 companies only because of non-availability of the data for an eleven year period of the study for the remaining companies. The data for selected variables has been extracted from the Prowess database of CMIE.

Formulation of Research Hypotheses

The empirical studies conducted in the past, pertaining to the topic have been immensely useful in identifying the variables explaining the behaviour of market price of a security. The variables along with their possible effect on the market price of a share are explained in Table 1 given below.

Table 1 : Variables and Their Effect on the Market Price of Share

Variable	Definition	Symbol	Expected Sign of Regression Coefficient
Independent Variables			
Dividend Per Share	Total Dividend/ No. Of Outstanding Equity Shares	DPS	+ve
Earning Per Share	Net Income/ No. of Outstanding Equity Shares	EPS	+ve
Dividend Yield Ratio	Dividend Per Share/ Market Price Per Share	DYR	-ve
Log of Market Capitalisation	Log of Market Price Per Share *	LMCAP	+ve
Price to Earnings Ratio	Market Price Per Share/ Earnings Per Share	PERATIO	+ve
Return on Equity	Net Profit/Net Worth	ROE	+ve
Book Value Per Share	Shareholders' Equity/ No. of Outstanding Equity Shares	BV	+ve
Dependent Variable			
Market Price Per Share	Closing Price of the Share in the Stock Market	MPS	

Source: Authors' Compilation

METHODOLOGY

Panel Data

The present study is based on cross sectional time series data also known as panel data. Panel data is a type of longitudinal data analysis in which regression is pooled with time series analysis. Panel is defined as a group of entities which are observed over a given period of time. The panel data is better than conventional cross sectional and time series data in many ways. It helps in controlling the effect of heterogeneity, is more informative, reduces the collinearity amongst the independent variables thus helps in increasing the reliability of results (Baltagi, 2003; Hsiao, 2003).

Empirical Model

The empirical studies reveal that market price of a share is affected by various factors which are internal to the company such as earning per share, dividend per share, book value of the share, market capitalisation, total assets, price to earnings ratio and return on equity etc. Therefore to measure the effect of select variables on the market price of the share following regression model has been employed in the study:

$MPS = \beta_0 + \beta_1 * BV + \beta_2 * DPS + \beta_3 * DYR + \beta_4 * EPS + \beta_5 * LMCAP + \beta_6 * PERATIO + \beta_7 * ROE + [_{it}$

Where i stands for the company and t refers to the time period.

The regression results have been obtained using the statistical package Eviews 9. To begin with descriptive statistics of all the variables have been studied to examine the nature of the data. Coefficient of correlation has also been computed amongst the pairs of independent variables to determine multicollinearity, if any amongst the independent variables.

To analyse the regression equations three different models namely; pooled regression, fixed effect model and random effect model have been applied. Pooled regression method assumes that regression coefficient is independent of cross section entity and time period both. Fixed effect model examines differences amongst the cross section entities with the help of intercepts and assumes the same slopes and constant variance across the entities. This model further assumes that error terms are correlated with the explanatory variables. On the other hand RE model assumes that the differences across the companies are random and error term is uncorrelated with the independent variables.

The Hausman specification test is employed to compare fixed effect and random effect models. If the null hypothesis that the individual effects are uncorrelated with the other repressors' in the model is not rejected, a random effect model is better than its fixed counterpart (Park, 2009). The Hausman specification test compares the FE and RE and the test assumes that the FE and RE estimates should not differ systematically (Al-Malkawi & Abdullah, 2011). If the null hypothesis is not rejected the RE estimator is more appropriate otherwise the FE estimator (Verbeek, 2000; Greene, 2003). Further, to choose the effective model amongst fixed effect and pooled regression, Wald test has been employed. It is imperative to note that if results of Wald test are significant, fixed effect model is preferred over pooled regression and vice-versa.

ANALYSIS AND INTERPRETATION

From table 2 it may be observed that there is a wide gap between the min and max values of price earnings ratio (min = 3.09 and max = 2954.58) which means companies which are having sound financial base are rewarded with better price to earnings ratio. Wide variations have been seen in the max and min values of other variables as well which indicates that not all the companies are of same size and have different financial parameters. The mean value of EPS is Rs. 29.04 whereas that of DPS is only Rs. 7.47 which means the companies are retaining major portion of their profits in the business to meet any future requirement. Further the mean and median values of DPS are far less in comparison to max value which again reflects that most of the companies are either not paying dividend or the amount of dividend per share is very less. It is further confirmed by less value of dividend yield ratio as well. These results clearly show that major chunk of return to investors from stock market is coming from price appreciation of stock rather than dividend income.

Table 2 : Descriptive Statistics

	BV	DPS	DYR	EPS	LOG(MCAP)	PERATIO	ROE
Mean	167.5118	7.471267	1.551406	29.04967	10.59211	30.37810	20.74342
Median	105.8700	4.000000	1.369453	17.49000	10.55193	19.34000	18.22247
Maximum	1217.390	110.0000	11.29283	239.0300	13.12014	2954.580	65.21857
Minimum	5.970000	0.000000	0.000000	0.120000	7.705235	3.090000	0.267071
Std. Dev.	195.0189	11.82276	1.183269	32.33778	1.072457	154.7133	11.00591
Skewness	2.611440	5.061023	2.573211	2.575981	-0.018907	18.67989	1.200241
Kurtosis	10.95069	36.66277	17.56356	12.73053	2.418758	353.5174	4.906216
Jarque-Bera	1368.690	18689.02	3608.566	1833.543	5.131497	1879405.	142.1141
Probability	0.000000	0.000000	0.000000	0.000000	0.076862	0.000000	0.000000

Source: Author's calculation

To discover multicollinearity amongst the independent variables, coefficient of correlation has been computed between the possible pairs of independent variables. The results of correlation amongst the independent variables are shown in Table 3 given below:

Table 3 : Correlation Results

	BV	DPS	DYR	EPS	LOG(MCAP)	PERATIO	ROE
BV	1.000000						
DPS	0.365810	1.000000					
DYR	-0.086761	0.410417	1.000000				
EPS	0.786730	0.611323	0.024196	1.000000			
LOG(MCAP)	0.119138	0.214239	0.146852	0.125200	1.000000		
PERATIO	-0.032367	-0.039905	-0.110480	-0.066149	-0.108525	1.000000	
ROE	-0.212684	0.403267	0.184589	0.160051	0.010323	-0.108889	1.000000

Source: Author's calculation

Kennedy (2008) documents that if the multicollinearity among two variables is 80percent and above, then it is a case of concern. In the present study, we cannot find any severe cases of multicollinearity. Therefore, the results of the paper are reliable.

Table 4 : Regression Results

Independent Variables	POLS Coefficient (p value)	FIXED EFFECT MODEL Coefficient (p value)	RANDOM EFFECT MODEL Coefficient (p value)
BV	1.5991 (0.0000)*	1.7076 (0.0000)*	1.7754 (0.0000)*
DPS	22.5674 (0.0000)*	16.5532 (0.0000)*	19.6111 (0.0000)*
DYR	-166.5990 (0.0000)	-84.4966 (0.0000)	-126.0903 (0.0000)*
EPS	3.1472 (0.0033)*	2.0246 (0.0452)**	2.7017 (0.0000)*
LMCAP	62.7496 (0.0000)*	172.9906 (0.0000)*	102.2121 (0.0000)*
PERATIO	0.1062 (0.2498)	0.0583 (0.4879)	0.07471 (0.3572)
ROE	5.4139 (0.0017)*	5.3534 (0.0130)**	5.5043 (0.0031)*
Constant	-1730.152 (0.0000)*	-1730.152 (0.0000)*	-973.4441 (0.0000)*
R-Square	0.8362	0.8965	0.7640
F-Statistic	258.8311 (0.0000)	71.7047 (0.0000)*	164.2024 (0.0000)*
Durbin-Watson stat	0.8703	1.1875	1.0615
Hausman Test			35.56 (0.0000)*
Wald Test **F-Statistic**		7.2615 (0.0000)*	
Chi-Square		181.5375 (0.0000)*	

Source: Author's calculation

The results of various models of regression along with Hausman test and Wald test have been produced in the Table 5. The result of pooled regression shows that the independent variables significantly explained the variation in the dependent variable. The value of R^2 as per the model is 0.8 which means 80 percent of the variation in the market prices of the chosen securities is because of the underlying independent variables. The p-value of F-test is significant at 1 percent level of significance. The regression coefficients of all the independent variables except price earnings ratio are significant. The results further reveal that dividend per share has a positive effect on market price (significant at 1 percent level). The regression of other variables viz. ROE, BV, LMCAP are also significant and positive. The effect of price earnings ratio on market price of the share is also positive but it is not significant. Dividend yield ratio affects the market price of the share negatively and it is significant at 1 percent level. The results of our study are consistent with most of the previous studies (see Sharma, 2011; Srinivasan, 2012; and Khan et al, 2011). In the light of these results it is justified to assess the values of these independent variables so as to predict the fair price of a share in the market.

The regression analysis has further been extended by applying fixed and random effect models on the available data. The results of fixed and random effect models are in line with the results of pooled regression. The direction of the impact of all the variables is observed to be same as in pooled regression. The value of R^2 is near to 90 percent in fixed effect model and it stands at 76 percent in random effect model. The F- coefficient of both the regression models is significant at 1 percent level. The consistency of results in all the regression models indicate that the results are robust and reliable. Further, to choose between fixed and random effect modelsthe study employs Hausman test. The results of Hausman test are in favour of fixed effect model as the results are significant at 1 percent level indicating that results of random effect model can be biased. If the results of the Hausman test are accepting the fixed effect model there is a need to apply Wald test to choose between pooled regression and fixed effect model. This test has a null hypothesis that coefficients of cross section entities in least square regression with dummies of entities i.e. fixed effect model are not significantly different from zero. If this test produces significant results in that case fixed effect model has better results than pooled regression. In our study the values of Chi-square and F statistic are significant for Wald test therefore the results of fixed effect model can be assumed to be more reliable and consistent in comparison to pooled regression.

CONCLUSION

The present study has been pursued with the objective of exploring the factor affecting the market price of shares of companies listed at National Stock Exchange (NSE) and forming part of its benchmark index Nifty. The study uses a panel data of 33 companies for a period of 11 years from 2005 to 2015 comprising of 363 observations. For analysing the effect of independent variables on the dependent variable pooled regression, fixed effect and random effect models of panel data regression have been applied. The results of all regression models i.e. pooled, fixed effect and random effect model suggest that all independent variables included in the study with the exception of P/E ratio exert a significant effect on the dependent variable – market price of the share. The empirical results of the study further disclose that the variables viz. BV, DPS, EPS, LMCAP and ROE are having a significant positive effect on the market price of shares. But, the effect of dividend yield ratio on market price of shares is observed to be negative and it is significant too. The regression results of all the three models are significant. The results of Hausman test employed to determine the effectiveness of Fixed and Random effect reports that coefficient of chi-square statistic is significant at 1percent level of significance which indicates that the results of random effect can be biased and regression coefficient of independent variables may not be true and results of fixed effect model are better than random effect model. Further, the results of Wald test suggest that fixed effect model is more reliable and informative in comparison to pooled regression model. Therefore the results of fixed effect should be given preference over random effect and pooled regression model.

The results of our study are very important for investors in making investment decisions as well as for government in forming policies in this regard. Our study suggest that independent variables included in the study provide a significant explanation of the market price of the share (89percent in fixed effect model). Therefore, the levels of these independent variables, namely; DPS, EPS, LMCAP, ROE and BV must be considered carefully in determining the fair price of the share listed at NSE. Nevertheless, the study is not void

of limitations as it includes only company specific variables into it and other macroeconomic variables namely; GDP, inflation, interest rates etc. have been kept out of the purview of the study. The relationship of market price with these variables cannot be ruled out. Therefore, in future new researchers may conduct a study including these variables as well.

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Appendix

Following 33 companies have been included in the study

List of the Companies Forming Part of the Study

S.No.	Name of the Company
1	Asian Paints
2	Cipla
3	Grasim Industries
4	H D F C
5	Hero Motocorp
6	Hindalco Industries.
7	ITC
8	Larsen & Toubro
9	M & M
10	Reliance Industries
11	Vedanta
12	Tata Power Co.
13	Tata Steel
14	Wipro
15	Dr. Reddy's Labs
16	SBI
17	B P C L
18	B H E L
19	Kotak Mahindra. Bank
20	Infosys
21	Lupin
22	Zee Entertainment
23	HDFC Bank
24	TCS
25	ICICI Bank
26	Bank of Baroda
27	Maruti Suzuki
28	Axis Bank
29	ONGC
30	Punjab National Bank
31	NTPC
32	GAIL (India)
33	UltraTech Cement

MEASURING RETAIL SERVICE QUALITY GAPS IN ORGANIZED RETAIL SECTOR : A COMPARATIVE STUDY

Rajiv Kumar* and Manoj Kumar**

The Indian retail sector is changing very rapidly. Consumers' choice is also changing and the retailers need to take care of this and prepare new strategies or policies to handle the situation. The objective of this research paper is to study the consumers' expectation and their perception of service quality offered in terms of retail service quality dimensions. Respondents were selected by using convenient sampling method. Twenty eight statements explaining the expectation and perception of consumer's towards retail service quality was formulated. The statements were based on the RSQ scale developed by Dabholkar et al (1996). The questionnaire was scaled on 5 point rating. A sample of 400 customers has been selected from Haryana. The data was collected from the consumers representing varied demographic profiles. Statistical tools like mean, standard deviation factor analysis and t-test, were used for data analysis. Factor analysis was applied on statements which leads to the formation of following dimensions of Retail Service Quality namely Physical aspects, Reliability, Personal interaction, Problem solving and Policy. Results obtained in the study sheds light on service quality perception dimensions that are salient to local customers, and retailers. Results help in the development of customer relationship management strategies for customers and enhanced competitive options for retailers by helping them to serve customers with more effective service quality.

INTRODUCTION

Indian retailing is undergoing a process of transformation. Indian retail has been dominated by small retailers, and most Indians prefer to have their shopping from these outlets. The Indian retail sector can be divided into two sectors: organized and unorganized. The Organized retailing includes supermarkets, hyper-markets, and malls. These are professionally managed and provide variety of products and services under one roof. These retail stores are operating on self-service model (Sengupta, 2008; Ramkrishnan, 2010). Organized retailing refers to trading activities undertaken by licensed retailers, that is, those who are registered for sales tax, income tax, etc. These include the corporate-backed hypermarkets and retail chains, and also the privately owned large retail businesses.

Unorganized retailing on the other hand, refers to the traditional formats of low-cost retailing, for example, the local paan/beeri shops, owner manned general stores, convenience stores, hand cart and pavement vendors, etc. Unorganized retail dominates the market share of Indian retailing which includes the small family-owned stores (Halepete, Iyer and Park, 2008; Ramkrishnan; 2010).

Unorganized retailing in India has small family owned stores which are operate and managed by family members (Kalhan, 2007). The retail sector employs over 8 per cent of the countries workforce and it is highly fragmented with over 5 million outlets, around 96 per cent of them are very small (Aggarwal, 2000). Most of the retail outlets operating in the country are less than 500 square feet in size (Mishra, 2009; Ramkrishnan, 2010). Due to the small size, Indian retailers have very low bargaining power with producer and they use only few marketing channels as compare to the retailers in the developed countries (Sarma, 2000). Modernisation in retail formats happen fast in categories like electronics, Men's apparel, Books, fast food, and product of personal care (Fernandes, Gadi, Khanna, Mitra, Narayanaswamy, 2000).

Retailing has been defined as business activities involved in selling goods and services to consumers for their personal, family or household use (Berman and Evans, 2001).

The Indian retail sector is the second largest employer after agriculture (Sinha and Uniyal, 2007).

According to the Global Retail Development Index (2011), out of 30 developing countries, the Indian

* Assistant Professor, Haryana School of Business, G.J.U.S&T., Hisar, Haryana.

** Research Scholar, Haryana School of Business, G.J.U.S&T., Hisar, Haryana..

retail sector was ranked as the 5th most attractive retail market in the world. According to a survey conducted by business consultancy firm Technopak Advisors, the India's retail market is expected to reach 37 lakh crore by 2020 at a compounded annual growth rate (CAGR) of more than 25 per cent. Favourable demographics, easy availability of credit, good economic growth and large scale of real estate development help in the growth of the Indian retail market, and make India the destination for top retailers in the world. The Indian consumers are also changing rapidly, now they have a choice of wide range of products, quality, service, variety and prices.

LITERATURE REVIEW

The quality service or the things that are considered to satisfy customers today may be different tomorrow. The issue of service quality came due to the unique characteristics of services like intangibility, heterogeneity, perishability and inseparability (Ladhari, 2009). The quality experts and researchers have given many definitions of quality. Some of the prominent definition of quality include "conformance to requirements." (Crosby, 1979), conformance to specifications (Gilmore, 1974), zero defects (Crosby, 1979). The commonly used definition of service quality is the level to which a service fulfills the needs of customer; it also includes a comparison of customer expectations with their perceptions of actual service performance (Parasuraman et al., 1985, 1988; Lewis and Mitchell, 1990). Customers who are satisfied with service quality are remaining loyal (Wong and Sohal, 2003). Service quality helps in the retention of current customers (Yavas, Bilgin, and Shamwell, 1997). According to Parasuraman, Zeithaml & Berry (1988) service quality is the customer's overall evaluation of the excellence of the service or the difference between one's expectation and the actual service delivery. Human element plays an important role in making customers perception of service quality (Mouawad and Kleiner, 1996; Yavas et al. 1997). Mouawad and Kleiner, 1996 found that employees have an effect on customer service because they interact with customers during the service process. Berry (1986) states that providing service quality in retail was a basic strategy that leads to differential advantage over competitors. Service quality is a measure of how well the service level delivered justifies customer expectations. Delivering quality service means conforming to customer expectations on a regular basis (Lewis and Booms 1983). Customers perceive the superiority and the inferiority of services by evaluating a firm's actual performance with their expectations (Gronroos, 1982; Lehtinen and Lehtinen, 1982; Lewis and Booms, 1983; Bitner and Hubert, 1994; High quality services help lower staff turnover and less operating costs, and also improve employee's morale (Duncan and Elliot, 2002; Jamal and Naser, 2003). Quality service increases the customers repurchase intention (Perez, Abad, Carrillo and Fernandez 2007). Service organizations come to know that quality service delivery is very important to get success in the business. Service quality has received the attention of researchers because it influence to customer satisfaction which leads to the economic returns for the organizations (Buttle, 1996; McAdam, Mclean & Henderson, 2003; Seth. Edvardsson, 2005; Bontis & Booker, 2007). Service quality also influences the repeat purchase intention (Perez, Abad, Carrilo, & Fernandez, 2007; Chen, 2008).

Parasuraman et al (1985) developed the SERVQUAL model to measure Service Quality in terms of 5 dimensions namely Tangibility, Reliability, Responsiveness, Assurance and Empathy. Dabholkar et al., (1996) developed the Retail Service Quality Scale (RSQS) that had twenty eight items, seventeen of which are from the existing SERVQUAL scale and the remaining eleven items came from the extensive quantitative and qualitative research conducted by researchers.

OBJECTIVE

1. To measure the gap between customers expectation and their perception about service quality in organised retail stores.

2. To suggest strategies for the retailers in context of improvement of overall service quality.

Questionnaire Formulation

A pool of 28 simple understandable statements (Dabholkar, Thorpe and Rentz 1996) was taken. Dabholkar, Thorpe and Rentz (1996) developed the Retail Service Quality scale for measuring Retail Service Quality. Sensitive questions like income and demographics were kept in the second part of questionnaire.

RESULTS AND DISCUSSION

Table 1 : Demographic Profile of the Organized Retail Customers

Demographic Variable	Categories	Frequency	Percentage	Mean	S.D
Gender	Male	275	68.8	1.312	.464
	Female	125	31.2		
Age	up to 20	6	1.5		
	20 and 30	160	40.0		
	30 and 40	168	42		
	40 and 50	49	12.2	2.777	.839
	50 and 60	17	4.2		
	Above 60				
Education	up to 12	61	15.2		
	Graduation	247	61.8		
	Post-Graduation	92	23.0	2.077	.614
	Doctorate				
Occupation	Govt. service	77	19.2		
	Private service	170	42.5		
	Agriculture	18	4.5		
	Business	76	19.0	2.675	1.368
	Student and House wife	59	14.8		

Source: Primary Data

Out of the 400 organized retail respondents, there were 275 male respondents and 125 female respondents in the survey. The maximum respondents are in the age group of 30-40 (168) and minimum respondents are in the age group of up to 20 years (6). Age group 20-30 is 160, while 40-50 age group is 49 and age group 50-60 is 17.

Mostly respondents are graduates (247), up to 12th (61) and Post-graduation (92). As far as the occupation is concerned, the respondents who are employed in private service is (169), employed in Govt. service is (78) in business are (76), students and house wife are (59) while agriculturists are as low as (18).

Table 2.1 : Extraction of Retail Service Quality Scale

Factor	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings(a)
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.994	39.263	39.263	10.552	37.684	37.684	8.722
2	5.594	19.979	59.242	5.069	18.103	55.788	5.483
3	3.025	10.805	70.047	3.067	10.953	66.741	8.178
4	1.468	5.243	75.290	1.070	3.821	70.563	5.505
5	1.046	3.737	79.026	.799	2.852	73.415	5.263

Extraction Method: Maximum Likelihood. Rotation Method: Promax

a .When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.
b.   KMO value of sampling adequacy is. 929 and Bartlett's Test of Sphericity is 1.361

Source: Primary Data

The first part of the factor analysis explains about the dimensions which have been extracted after using 28 Retail Service Quality Scale through Promax rotation method. The measure of sampling adequacy Kaiser-Meyer-Olkin (KMO) was deployed in order to compare the magnitude of observed correlation co-efficient to the magnitudes of partial correlation coefficients. The five factors have been extracted by applying Maximum Likelihood Method as it is the appropriate technique. The Promax rotation has been applied for relevant extraction. In all, the five factor solution has been obtained.

Table 2.2 : Factor Structuring of Retail Service Quality Variables

Sr. No.	Factor 1- Physical Aspects	Factor Loading	Reliability
2	The physical facilities at excellent retail store will be visually appealing	.956	
3	Materials associated with this excellent store's service (such as shopping bags, catalogs or statements) are visually appealing	.956	
1	Excellent retail store will have modern-looking equipment and fixtures	.950	
5	The store layout at excellent retail store makes it easy for customers to find what they need	.879	**.857**
4	Excellent retail store will have clean, attractive and convenient public areas (restrooms, fitting rooms)	.876	
6	The store layout at excellent retail store makes it easy for customers to move around in the store	.828	
	Factor 2- Reliability		
11	Excellent retail store insists on error- free sales transactions and records	.891	
8	Excellent retail store provides its service at the time it promises to do so	.869	
9	Excellent retail store performs the service right the first time	.853	**.780**
7	When excellent store promises to do something by a certain time, it will do so		
10	The excellent retail store will have merchandise available when the customers want it	.780	
	Factor 3 – Personal Interaction		
17	Employees in excellent retail store will never be too busy to respond to customer's request	.935	
16	Employees in excellent retail store tell the customers exactly when services will be performed	923	
12	Employees in excellent retail store will have the knowledge to answer customer's question	.918	
13	The behavior of employees in excellent retail store instills confidence in customers	.905	**.809**
14	Customers feel safe in their transactions with excellent retail store	.826	
15	Employees in excellent retail store give prompt service to customers	.761	
18	Excellent retail store will give customers individual attention.	.717	
19	Employees in excellent retail store will be consistently courteous with customers	.638	
20	Employees in excellent retail store treat customers courteously on the telephone	.381	
	Factor 4 – Problem Solving		
23	Employees of excellent retail store will able to handle customer complaints directly and immediately	.794	
22	When a customer has a problem, excellent retail store will show a sincere interest in solving it	.687	**.690**
21	Excellent retail store willingly handles returns and exchanges	.547	
	Factor 5 - Policy		
25	Excellent retail store will provides plenty of convenient parking for customers	.920	
26	Excellent retail store will have operating hours convenient for all their customers	.906	
24	Excellent retail store will offer high quality merchandise	.901	**.748**
27	Excellent retail st ore will accepts most major credit cards.	.850	
28	Excellent retail store will offers its own credit cards	.641	

Source: Primary Data

Twenty eight Retail Service Quality variables reduced to five factors. The variables 1,2,3,4, 5 and 6 correlate with factor 1 after rotation is labeled as 'Physical aspects' along with reliability coefficient which is .857 and is highly satisfactory. Variables 7, 8, 9, 10 and 11 extracted as factor 2 and labeled as 'Reliability' along with reliability coefficient which is .780 and is highly satisfactory. The 'Personal Interaction' factor has been generated after rotation through the variables 12, 13, 14, 15, 16, 17, 18, and 19 with significant amount of alpha reliability coefficient which is .809. The variables 21, 22, and 23 extracted as the fourth factor as 'Problem solving' whose reliability coefficient is .690. Variables 24,25, 26, 27 and 28 extracted as factor 5 and labeled as 'Policy' whose reliability coefficient is .748. The nomenclature of all the variables is similar to that of original Retail Service Quality Scale.

Table 2.3 : (Results of Paired Sample t-test) Over all Service Quality Gap of Organized Retail Customers Paired Sample t-test

Dimensions		Expectation	Perception	Mean diff	t	Sig
Physical Aspects	Appearance	4.280	4.039	.241	7.867	.000
	Convenience	4.291	3.588	.702	15.320	.000
Reliability	Promises	4.307	3.287	1.02	23.455	.000
	Do it right	4.333	3.449	.884	23.453	.000
Personal Interaction	Inspiring Confidence	4.345	3.558	.787	20.525	.000
	Courteous/ Helpfulness	4.402	3.432	.969	27.317	.000
Problem Solving		4.390	3.080	1.309	32.402	.000
Policy		4.344	3.666	.677	22.846	.000

Source: Primary Data

The table 2.3 shows the mean difference for all the five dimensions. Gap in customer expectation and perception value was found out to be the maximum for problem solving dimension followed by reliability. This shows that customers were expecting the retail outlets to be more problem solving but contrary to their expectations, problem solving aspect of customer's in retail outlets was not matching their expectations. Gap in problem solving depicts that expectation was far more than what customers actually realised. Table depicts all the Gaps as positive value which shows that customers were expecting more from retail outlets' service quality than what they actually got. These dimensions were further put to paired t-test to examine the significant level and it can be very well observed that in all the cases, t- value indicates significant results at 5% confidence level.

Table 3.1 : Comparison of Gender with Various Dimensions (Organized Customers)

Dimensions		Gender	Organized		
			Expectation	Perception	Mean diff
Physical Aspects	Appearance	Male	4.300	4.009	**0.290**
		Female	4.238	4.106	**0.132**
	Convenience	Male	4.323	3.512	**0.810**
		Female	4.220	3.756	**0.464**
Reliability	Promises	Male	4.323	3.270	**1.052**
		Female	4.272	3.324	**0.948**
	Do it right	Male	4.352	3.454	**0.898**
		Female	4.290	3.437	**0.853**
Personal Interaction	Inspiring Confidence	Male	4.355	3.589	**0.766**
		Female	4.325	3.490	**0.834**
	Helpfulness	Male	4.390	3.437	**0.953**
		Female	4.426	3.424	**1.002**
Problem Solving		Male	4.414	3.080	**1.334**
		Female	4.336	3.082	**1.253**
Policy		Male	4.349	3.623	**0.725**
		Female	4.332	3.761	**0.571**

Source: Primary Data

Table 3.1 depicts that under category organized retail, customers' expectation level of female is the highest for personal interaction (4.4267) as compare to other dimensions and expectation level of female is the lowest for physical aspects (4.2200) as compare to other dimensions. In the same way organized retail customers' perception level of female is the highest for physical aspects (4.1060) as compare to other dimensions but perception level of male is the lowest for problem solving (3.0800) as compare to other dimensions.

Table 3.2 : Comparison of Age with Various Dimensions (Organized Customers)

Dimensions		Age	Organized			Unorganized		
			Expectation	Perception	Mean diff	Expectation	Perception	Mean diff
Physical Aspects	Appearance	Up to 20	4.291	3.666	0.625	4.223	3.473	0.75
		20 and 30	4.296	4.032	0.264	4.206	2.977	1.229
		30 and 40	4.251	3.998	0.253	4.304	2.742	1.561
		40 and 50	4.295	4.178	0.117	4.179	2.653	1.525
		50 and 60	4.367	4.235	0.132	4.200	2.350	1.85
		Above 60						
	Convenience	Up to 20	4.166	3.500	0.666	4.263	3.131	1.131
		20 and 30	4.281	3.665	0.615	4.224	2.374	1.849
		30 and 40	4.288	3.665	0.623	4.298	2.123	2.175
		40 and 50	4.306	3.826	0.479	4.179	2.410	1.769
		50 and 60	4.411	4.029	0.382	4.200	2.400	1.8
		Above 60						
Reliability	Promises	Up to 20	4.166	3.000	1.166	4.210	3.368	0.842
		20 and 30	4.293	3.309	0.984	4.236	3.150	1.086
		30 and 40	4.293	3.244	1.049	4.294	3.041	1.253
		40 and 50	4.346	3.357	0.989	4.192	3.141	1.051
		50 and 60	4.411	3.411	1	4.200	3.800	0.4
		Above 60						
	Do it right	Up to 20	4.222	3.333	0.888	4.210	3.368	0.842
		20 and 30	4.337	3.437	0.9	4.241	3.269	0.972
		30 and 40	4.313	3.430	0.882	4.308	3.343	0.965
		40 and 50	4.360	3.578	0.782	4.213	3.273	0.940
		50 and 60	4.451	3.411	1.039	4.200	3.333	0.866
		Above 60						
Personal Interaction	Inspiring Confidence	Up to 20	4.444	3.444	1	4.350	4.000	0.350
		20 and 30	4.354	3.618	0.735	4.261	3.729	0.532
		30 and 40	4.325	3.440	0.884	4.315	3.704	0.611
		40 and 50	4.333	3.673	0.659	4.256	3.812	0.444
		50 and 60	4.470	3.862	0.607	4.200	3.866	0.333
		Above 60						
	Helpfulness	Up to 20	4.416	3.444	0.972	4.105	3.263	0.842
		20 and 30	4.434	3.484	0.95	4.294	3.183	1.110
		30 and 40	4.351	3.384	0.966	4.429	3.021	1.408
		40 and 50	4.445	3.421	1.023	4.435	3.141	1.294
		50 and 60	4.470	3.451	1.019	4.366	3.133	1.233
		Above 60						
Problem Solving		Up to 20	4.333	3.222	1.111	4.175	3.771	0.403
		20 and 30	4.370	3.089	1.281	4.326	3.732	0.594
		30 and 40	4.351	2.984	1.367	4.460	3.808	0.651
		40 and 50	4.530	3.278	1.251	4.564	3.786	0.777
		50 and 60	4.568	3.333	1.235	4.400	3.800	0.6
		Above 60						
Policy		Up to 20	4.200	3.800	0.4	3.934	3.094	0.839
		20 and 30	4.306	3.670	0.636	4.278	2.675	1.602
		30 and 40	4.342	3.614	0.728	4.347	2.550	1.796
		40 and 50	4.416	3.804	0.612	4.487	2.512	1.974
		50 and 60	4.552	3.705	0.847	4.750	2.360	2.39
		Above 60						

Source: Primary Data

Table 3.2 shows that under category organized retail, customers' expectation level of age between 50 and 60 is the highest for problem solving (4.5686) as compare to other dimensions and expectation level of age up to 20 is the lowest for physical aspects (4.1667) as compare to other dimensions. In the same way organized retail customers' perception level of age between 50 and 60 is the highest for physical aspects (4.2353) as compare to other dimensions and perception level of age between 30 and 40 is the lowest for problem solving (2.9841) as compare to other dimensions.

Table 3.3 : Comparison of Education with Various Dimensions (Organized Customers)

Dimensions		Education	Organized Expectation	Perception	Mean diff
Physical Aspects	**Appearance**	up to 12	4.258	3.991	**0.266**
		Graduation	4.267	4.027	**0.239**
		Post-Graduation	4.331	4.103	**0.228**
		Doctorate			
	Convenience	Up to 12	4.278	3.541	**0.737**
		Graduation	4.275	3.548	**0.726**
		Post-Graduation	4.342	3.728	**0.614**
		Doctorate			
Reliability	**Promises**	Up to 12	4.254	3.508	**0.745**
		Graduation	4.309	3.218	**1.091**
		Post-Graduation	4.337	3.326	**1.010**
		Doctorate			
	Do it right	up to 12	4.251	3.502	**0.748**
		Graduation	4.327	3.450	**0.877**
		Post-Graduation	4.402	3.409	**0.992**
		Doctorate			
Personal Interaction	**Inspiring Confidence**	up to 12	4.284	3.661	**0.623**
		Graduation	4.340	3.511	**0.828**
		Post-Graduation	4.402	3.615	**0.786**
		Doctorate			
	Helpfulness	up to 12	4.333	3.497	**0.836**
		Graduation	4.413	3.406	**1.006**
		Post-Graduation	4.418	3.462	**0.956**
		Doctorate			
Problem Solving		up to 12	4.349	3.245	**1.103**
		Graduation	4.403	3.013	**1.39**
		Post-Graduation	4.380	3.152	**1.228**
		Doctorate			
Policy		up to 12	4.262	3.704	**0.557**
		Graduation	4.374	3.638	**0.736**
		Post-Graduation	4.315	3.715	**0.6**
		Doctorate			

Source: Primary Data

Table 3.3 illustrates that under category organized retail, customers' expectation level of post graduation is the highest for personal interaction (4.4185) as compare to other dimensions and expectation level of up to 12 is the lowest for reliability (4.2514) as compare to other dimensions. In the same way organized retail customers' perception level of post graduation is the highest for physical aspects (4.1033) as compare to other dimensions but perception level of graduation is the lowest for problem solving (3.0135) as compare to other dimensions.

Table 3.4 : Comparison of Occupation with Various Dimensions (Organized Customers)

Dimensions		Occupation	Expectation	Perception	Mean diff
Physical Aspects	Appearance	Govt. service	4.304	4.169	0.134
		Pvt. Service	4.278	4.044	0.233
		Agriculture	4.263	3.722	0.541
		Business	4.273	4.003	0.277
		Students and house wife	4.271	3.995	0.275
	Convenience	Govt. service	4.326	3.897	0.459
		Pvt. Service	4.287	3.591	0.695
		Agriculture	4.250	3.222	1.027
		Business	4.328	3.361	0.967
		Students and house wife	4.220	3.576	0.644
Reliability	Promises	Govt. service	4.365	3.262	1.102
		Pvt. Service	4.298	3.248	1.050
		Agriculture	4.222	3.527	0.694
		Business	4.335	3.322	1.013
		Students and house Wife	4.245	3.313	0.932
	Do it right	Govt. service	4.401	3.525	0.876
		Pvt. Service	4.333	3.455	0.877
		Agriculture	4.185	3.611	0.574
		Business	4.342	3.394	0.947
		Students and house wife	4.276	3.350	0.926
Personal Interaction	Inspiring Confidence	Govt. service	4.376	3.794	0.581
		Pvt. Service	4.349	3.577	0.771
		Agriculture	4.185	3.481	0.703
		Business	4.355	3.350	1.004
		Students and house wife	4.333	3.480	0.853
	Helpfulness	Govt. service	4.459	3.525	0.933
		Pvt. Service	4.424	3.411	1.012
		Agriculture	4.287	3.407	0.879
		Business	4.370	3.410	0.960
		Students and house wife	4.339	3.409	0.929
Problem solving		Govt. service	4.470	3.200	1.269
		Pvt. Service	4.392	3.043	1.349
		Agriculture	4.259	3.185	1.074
		Business	4.368	3.017	1.350
		Students and house wife	4.344	3.079	1.265
Policy		Govt. service	4.410	3.733	0.677
		Pvt. Service	4.369	3.656	0.712
		Agriculture	4.144	3.633	0.511
		Business	4.289	3.594	0.694
		Students and house wife	4.315	3.708	0.606

Source: Primary Data

Table 3.4 illustrates that under category of organized retail, customers' expectation level for govt. service is the highest for problem solving (4.470) as compare to other dimensions and expectation level of agriculture is the lowest for policy (4.144). In the same way organized retail customers' perception

level for govt. service is the highest for physical aspects (4.169) as compare to other dimensions but perception level of business is the lowest for problem solving (3.017) as well.

CONCLUSION

The result reveals the mean difference for all the five dimensions. Customers were expecting the retail outlets to be more problem solving but contrary to their expectations, problem solving aspect of customer's in retail outlets was not matching their expectations. Gap in problem solving depicts that expectation was far more than what customers actually realised. This depicts all the Gaps as positive value which shows that customers were expecting more from retail outlets' service quality than what they actually got. So the retailers must focus on improving almost every factor to attract large customer.

Managerial Implications

The results of the study are eye-opening and worth considering for policy formulation. It gives an insight to the retailers regarding the dissatisfaction of customers on the quality of services they are providing. The retailers have to work on policy, Personal Interaction, Problem Solving, Physical Aspects and Reliability aspects of services. This will fade away the customer dissatisfaction and will result in more satisfied customer and, in turn, a loyal customer.

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A STUDY OF EVIDENCE OF THE IMPACT OF REGISTERED BROKERS AND MARKET CAPITALIZATION ON TURNOVER AND INDICES OF NATIONAL STOCK EXCHANGE OF INDIA (NSE)

Sapna Bansal* and Kuldip S. Chhikara**

This paper is an endeveaur to analyze the impact of registered brokers, and market capitalization on turnover and indices of NSE, simply based on secondary data, the analysis of which was made through the application of Karl Pearson's coefficient of Correlation and Multi Regression OLS model (Ordinary Least Square). The study underlines that market capitalization plays an important role in indices and turnover with significant values .000 shown by ANOVA table 3(a) and 3(b) which is less than .05, confirming a significant factor both for indices and turnover of NSE. Though market capitalization plays substantial role for indices and turnover yet its impact is more on indices with ($r^2 = .749$) which is greater than turnover with ($r^2 = .572$). The results further show that if two chosen independent variables remains constant then other factors also confirm their presence affecting indices by 162.265 units, but contrary to this in case of turnover these factors are held responsible by 1.291 units which is quite insignificant.

INTRODUCTION

Since the stock exchange reflects to the stock market and caters to the secondary market necessities of a country, the Indian capital markets have also been receiving international attention, especially from sound investors, due to the improving macroeconomic fundamentals, and the presence of a large pool of skilled labour and the rapid incorporation with the world economy augmented India's global competitiveness attracting the global ratings agencies like Moody's and Fitch who awarded India with investment grade ratings, indicating somewhat lower sovereign risks. The Indian stock exchanges are monitored by SEBI. Cash and derivative segments both have grown simultaneously with each other and the Indian stock market has been impacted greatly by the use of latest information and communication technology, as a result NSE and BSE have switch over from the open outcry trading system to a fully automated computerized mode of trading known as BOLT (BSE on Line Trading) and NEAT (National Exchange Automated Trading) System facilitate more competent processing, automatic order matching, faster accomplishment of trades and transparency. The National Stock Exchange (NSE) was set up by principal institutions in 1992 to provide fully automated screen based trading system within

nation reach. It is among the India's leading stock exchange covering 364 cities and towns transversely the country. The exchange has brought about unparallel, transparency, speed and efficiency, safety and market integrity; has played a unparallel role in reforming the Indian securities market in terms of microstructure, market practices and trading volumes; and a key regulator governing stock exchanges, brokers, depositories, depository participants, Mutual Funds, FIIs and other participants in Indian secondary and primary market is the Securities and Exchange Board of India (SEBI) Ltd. The authorities have been hopeful for the corporatization of the broking industry. As a result, a number of broker-proprietor firms and partnership firms have converted themselves into corporate. The total market capitalization of 1,118 firms permitted to trade on MCX-SX platform stood at Rs 63.57 lakh crore in the cash segment as on February 28, 2013 (SEBI) and at the same time, market value of the companies listed on the other two stock exchanges, NSE and BSE, stood at Rs 63.85 lakh crore and Rs 65.38 lakh crore, respectively. At the end of March 2011, 4,563 brokers—accounting for 49.4 percent of the total number of brokers—have become corporate entities. Those which are registered with the NSE around 89.2 percent were corporatized; the BSE had 83.55 percent corporate

* Research Scholar, Department of Commerce, M.D. University, Rohtak, Haryana.
** Professor, Department of Commerce, M.D. University, Rohtak, Haryana.

brokers. At the end of March 2011, there were 83,952 sub-brokers registered with the SEBI, as compared to 75,378 sub-brokers at the end of the previous year. The NSE and the BSE jointly accounted for 98.75 percent of the total sub-brokers. BSE and NSE recorded monthly turnover of Rs 42,138 crore and Rs 2, 26,642 crore, respectively in 2013. They give guarantee of transferability of securities with speed, accuracy and security, the Depositories Act was passed in 1996, which provided for the establishment of securities depositories and allowed securities to be dematerialized. Some Other measures to reduce transaction costs included: a movement toward electronic trading and settlement, and streamlining of procedures with respect to clearance of new issues. The all-India market capitalization ratio decreased to 86.89 percent in 2010–2011 from 94.2 percent in 2009–2010.

REVIEW OF LITERATURE

Walia, Nidhi and Kumar, Ravinder (2007), analyze the investors' preference for traditional and online trading. The key findings of the study showed that Indian stakeholders are more conventional, and they still choose brokers for trading but Internet traders feel more relaxed with online trading because of its transparency and total control over the terminal.

Gupta, L.C. (1992), observed through his study Indian stock market as extremely speculative in addition to this Indian investors are disappointed with the service provided to them by the brokers and limits levied by the stock exchanges are inadequate and liquidity in a bulky number of stocks is very low.

Sarkar, S.C and Bhole, L. M (1996), explored that the working of stock markets in India is characterized by unethical practices of diverse forms on the part of existing companies, new companies and entrepreneurs, brokers and other operators on the markets. The mergers and acquisitions through malpractices entering into unofficial transactions even before issues open up for subscription rigging up of premium on new issues, presenting excessively rosy picture about new ventures, insider trading, are some of the examples of utterly reprehensible practices on stock markets.

Castro, Rui et al. (2006), asserted through their study that enhanced investor protection implies better risk sharing and as entrepreneurs' risk aversion, this results into a superior demand for capital which is acknowledged as the demand effect and the supply effect follows from general equilibrium limitations i.e. better protection / higher demand increases the interest rate and lower the income of entrepreneurs, falling current savings and next period's supply of capital. The study concluded that the (positive) effect of shareholder protection on growth is stronger for countries with lower restrictions.

Srivastav, Sandeep et.al (2008), found that high net worth individuals and proprietary traders contribute to the major proportion of trading volumes in the derivative segment. The survey also revealed shareholders are using these securities for risk management, profit augmentation, speculation and arbitrage. It also emphasized to popularize option instruments as they may prove to be a constructive medium for attracting retail participation.

Prasanna, P.K. (2008), found that countries or firms are interested in attracting foreign capital because it helps to generate liquidity for both the firm's stock and the stock market in general. This leads to poorer cost of capital for the firm and allows firm to struggle more effectively in the international market place. This straight away benefits the economy and the country. Accessibility of foreign capital depends on many firm specific factors other than economic advancement of the country.

Mittal M. and Vyas R.K. (2008), studied that the relationship between various demographic factors and the investment traits exhibited by the investors. Empirical evidence suggested that factors such as income, education and marital status affect an individual's investment decision. In addition to this the results revealed that investors in India can be classified into four dominant investment personalities namely casual, technical, and informed and cautions.

OBJECTIVES OF THE STUDY

The present study was made to attain the following objectives:

1. To analyze the trends and patterns of registered brokers, traded companies, market capitalization, turnover, and indices of NSE in India.
2. To study the impact of registered brokers and market capitalization on turnover, and indices of NSE in India

HYPOTHESES OF THE STUDY

The following two null hypotheses were framed to conduct the study: Ho_1: There is no significant impact of total registered brokers on turnover and indices of NSE.

Ho$_2$: There is no significant impact of total market capitalization on turnover and indices of NSE.

RESEARCH METHODOLOGY

Data Collection

This study is solely based on secondary data related to registered brokers, traded companies, and market capitalization, turnover and indices of NSE. The requisite data have been collected from the Hand Book of Statistics of SEBI covering 13 financial years starting from the year 2000-01 to 2012-13.

Statistical Tools & Techniques

In order to examine the collected data, the statistical tools such as Karl Pearson's coefficient of Correlation and Multi Regression OLS model (Ordinary Least Square), mean score and CAGR, etc. were used. Correlation coefficient is a statistical measure that measures the degree to which the movements of variables are associated. In the present study, the linear relationship between independent variables-registered brokers, traded companies, and market capitalization and dependent variables- turnover, and indices of NSE has been recognized. The multiple regression analysis is a technique used to calculate the effects of two or more independent variables on a single dependent variable. Here, an effort has been made to study the impact of independent variables-registered brokers, traded companies, and market capitalization on dependent variables- turnover, and indices of NSE (Nifty).

The two model equations are:

Model A: (Indices of NSE) Nifty = b_0 + b_1 Total Registered Brokers + b_2 Market Capitalization

Model B: (Turnover of NSE) Nifty = b_0 + b_1 Total Registered Brokers + b_2 Market Capitalization

ANALYSIS AND INTERPRETATION

The systematic table 1 exhibits the trends of registered brokers, traded companies, market capitalization, turnover, and indices of NSE in India. It was found through the trend analysis that there was a decline in number of Traded Companies during 2001-02 to 2006-2007 in respect to base year 2000-2001, but afterwards it started increasing year over year and attained a position of 128.39 per cent. The mean score of the category is 1170. The number of traded companies had been below average up to 2006-07 but substantially enhanced over the next year of the period under study. The turnover also shows turn down during 2001-02 to 2004-05 and afterward it started increasing and attained a maximum percent of 308.92 in the year 2009-10 with a mean score of 2135599. Registered broker shows decline trend from 2001-02 to 2005-06 and thereafter increases and reach highest to 132.49 its mean score is 1163.23. Market capitalization shows a decreasing trend from the year 2001-02 to 2002-03 then it started rising and reach its maximum to 948.40 with a mean score 3347739.3. Similarly the indices declined in first two years and then after increases and reached a maximum to 418.90 with a mean score 3262. CAGR (Compound annual growth rate, CAGR is closing value / opening value) $^\wedge$ 1/n)-1, where n represents the number of years) shows that growth in case of market capitalization is recorded highest (18.892) followed with indices (11.537), turnover (5.565), registered brokers (2.149) and traded companies (1.941).

Table 1 : Trends of Registered Brokers, Traded Companies, Market Capitalization, Turnover and Indices of NSE

Year	Traded companies	Turnover (Rs.crore.)	Registered brokers	Market capitalization(Rs.cr.)	Indices
2000-01	1201(100)	1339511(100)	1074(100)	657847(100)	1335(100)
2001-02	1019(84.84)	513167(38.31)	1065(99.16)	636861(96.80)	1077(80.67)
2002-03	899(74.85)	617989(46.13)	1036(96.46)	537133(81.65)	1037(77.67)
2003-04	804(66.94)	1099534(82.08)	970(90.31)	1120976(174.40)	1428(106.96)
2004-05	856(71.27)	1140072(85.11)	976(90.87)	1585585(241.02)	1805(135.20)
2005-06	928(77.26)	1569568(117.17)	1014(94.41)	2813201(427.63)	2513(188.23)
2006-07	1114(92.75)	1945287(145.22)	1077(100.27)	3367350(511.87)	3572(267.56)
2007-08	1244(103.58)	3551038(265.09)	1129(105.12)	4858122(738.48)	4897(366.81)
2008-09	1277(106.32)	2752023(205.44)	1243(115.73)	2896194(440.25)	3731(279.47)
2009-10	1343(111.82)	4138023(308.92)	1310(121.97)	6009173(913.46)	4658(348.91)
20010-11	1450(120.73)	3577410(267.06)	1389(129.32)	6702616(101.88)	5584(418.90)
2011-12	1533(127.64)	2810893(209.84)	1423(132.49)	6096518(926.73)	5243(392.73)
2012-13	1542(128.39)	2708279(202.18)	1416(131.84)	6239035(948.40)	5520(413.48)
CAGR	1.941	5.565	2.149	18.892	11.537
Mean	1170	2135599.538	1163.23	3347739.3	3,262

It is clear from the above analysis that market capitalization increased significantly at a very high speed followed by indices in comparison to other variables and the least growth was shown by traded companies. The analysis confirms the fact that the investment environment in the country was not congenial during the total years under study but it improved significantly during the last years. A comparative view can be had regarding the urge in various variables showing the period under study with the help of figure 1.

Figure (Exhibit) 1 : Graphical Presentation of CAGR
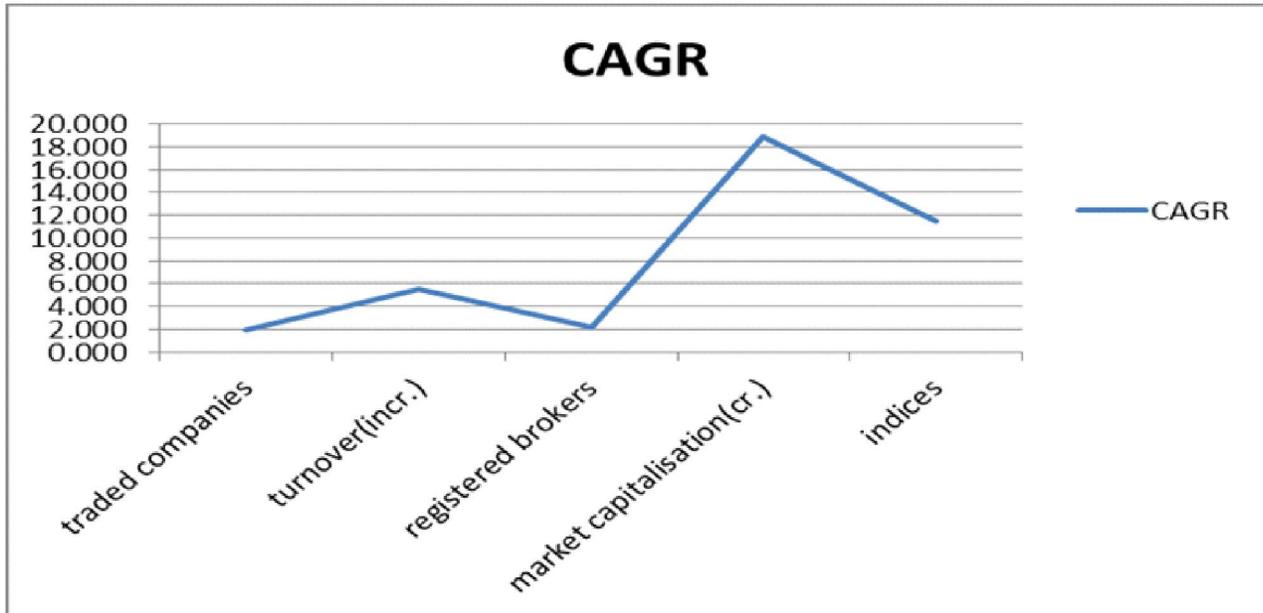
The table 1(a) and 1(b) exposed the power of relationship between the model and the dependent variables. The value of R depicts the multiple correlation coefficients between the predictors (independent variables) and the outcome (dependent variable). When only registered brokers was used as forecaster, a strong positive correlation (r=.756) between registered brokers and turnover was observed. The next column gives the value of r^2, which tells us a measure of how much of variability in the outcome turnover is accounted for the predictors (registered brokers and market capitalization). For the first model its value is .572 tables 1(a), which means that registered brokers accounts for 57.2 percent variations in the turnover. However, when the other predictor market capitalization is included as well, the value increases to .811 or 81.1 per cent. Therefore, if registered brokers' accounts for 57.2 per cent we can say that market capitalization account for an additional 23.9 percent variance in the outcome. So the addition of the new predictor has explained a quite low amount of variation in turnover. Table 1(b) highlighted a high correlation in assessment to turnover between registered brokers and indices, when registered brokers were used as a predictor. The next column gives the value of r^2, which express a measure of how much of the variability in the outcome (indices) is accounted for the predictors (registered brokers and Market capitalization). For the first model its value is .749, which means that registered brokers' accounts for only 74.9 percent variations in indices of NSE. However when the other predictor market capitalization is included as well, the value increases by .210 or 21percent. Consequently, if registered brokers' accounts for 74.9 percent, we can say that market capitalization accounts for additional 21 percent variance in the outcome. So the inclusion of the new predictor has explained high amount of variation in indices comparison to former. The above discussion shows that market capitalization has a better relationship and impact on indices of NSE in comparison to registered brokers. Durbin-Watson statistics confirms the assumption regarding the acceptability of independent error. If this value is close to 2, it is regarded as better and for the present data it is .809 and 1.555 in table1 (a) and 1(b) respectively, which is less than 2, indicating towards the best fitness of the collected data which have been analyzed for the purpose of the study.

Table 1(a): Model Summary of Turnover of NSE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Durbin-Watson
					R Square Change	F Change	Sig. F Change	
1	0.756	0.572	0.533	819011.8	0.572	14.710	0.002	
2	0.900	0.811	0.773	570330.7	0.239	12.684	0.005	0.809

a. Predictors: (Constant), rb

b. Predictors: (Constant), rb, mc

c. Dependent Variable: turnover

Table 1(b): Model summary of Indices of NSE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Durbin-Watson
					R Square Change	F Change	Sig. F Change	
1	0.865	0.748	0.725	942.074	0.748	32.761	0.000	1.555
2	0.979	0.959	0.951	396.977	0.210	51.948	2.9	

a. Predictors: (Constant), rb

b. Predictors: (Constant), rb, mc

c. Dependent Variable: indices

Table 2(a) : Coefficients of Turnover of NSE

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-4.065E6	1.562E6		-2.602	.023		
	Rb	5330.198	1330.553	.756	4.006	.002	1.000	1.000
2	(Constant)	1.291E6	1.797E6		.718	.488		
	Rb	-708.303	1861.403	-.101	-.381	.711	.246	4.070
	Mc	.498	.133	.987	3.735	.003	.246	4.070

a. Dependent Variable: turn

Table 2(b): Coefficients of Indices of NSE

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-7381.54	1877.73		-3.931	0.002		
	Rb	9.158	1.598	0.865	5.723	0.000	1	1
2	(Constant)	162.265	1312.083		0.123	0.904		
	Rb	0.643549	1.358	0.060	0.473	0.645	0.245	4.07
	Mc	0.000702	9.74	0.926	7.207	2.9	0.245	4.07

a. Dependent Variable: indices

Testing for Collinearity in Data: The column Tolerance and VIF depicts the results about the Collinearity of data .If the value of VIF is higher than 10, and tolerance less than 0.2 indicates a potential problem. For the present models (A &B) all the values of VIF are below 10 and the tolerance statistics is well above 0.2 for all the independent variables. Hence, there is no problem of Collinearity among the variables used in the model and multi regression is appropriate.

The **ANOVA** is just a way of testing whether our model is better than using just the mean to predict an outcome. It is statistically significant when the value is less than.05. As the value is less than .05, which suggests that, our model is a better predictor of the outcome. It is just a way of testing whether a model gives us anything more than just guessing each time the average value.

Table 3 (a) : ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.868	1	9.868	16.048	.002[a]
	Residual	7.379	12	6.141		
	Total	1.725	13			
2	Regression	1.399	2	6.997	23.661	.000[b]
	Residual	3.253	11	2.957		
	Total	1.725	13			

a. Predictors: (Constant), rb   b. Predictors: (Constant), rb, mc   c. Dependent Variable: turn

Table 3 (b) : ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	29075738	1	29075738	32.761	0
	Residual	9762555	11	887505		
	Total	38838293	12			
2	Regression	37262384	2	18631192	118.225	0
	Residual	1575909	10	157590.9		
	Total	38838293	12			

a. Predictors: (Constant), rb   b. Predictors: (Constant), rb, mc   c. Dependent Variable: indices

The analytical Tables 2(a) & 2(b) exhibit the estimates of b-values (Unstandardized coefficients) which explicate the individual contribution of each independent (predictors) variable to the model. The positive value depicts positive relationship between the predictors and outcome variable and vice-versa. The b-values also explain to what degree each predictor affects the outcome variable if the effects of the other predictors are held constant. In Table 1 (a), the b-value of registered brokers' is-708.303; it means that if registered brokers increase by 1 unit, turnover decreases by -708.303 units (if independent variables market capitalization remains constant).

The b-value for market capitalization is .498; it means that if market capitalization increase by 1 unit, turnover increases by.498 units impact the change in turnover. Similarly, in the Table 2(b), the b-value of registered brokers is -1622.591; it means that if registered brokers increase by 1 unit, indices increases by .644 units (if other independent variable market capitalization remain constant). The b-value for market capitalization is .001; it means that if market capitalization increases by one unit indices increases by .001 units. . It was further indicated through the results that if two selected independent factors remain constant, then there are other factors which

are explaining turnover of NSE up to 1.291 units and indices by162.265 units.

TESTING OF HYPOTHESES

H_{01}: There is no significant impact of total registered brokers on turnover and indices of NSE. The p-value related to registered brokers shown in Tables 2(a) & 2(b), are greater than 0.05 so null hypotheses H_{01} is accepted. Hence, it is concluded that trends of registered brokers, turnover and indices of NSE are not dependent and registered brokers have not played a significant impact on turnover and indices of NSE.

H_{02}: There is no significant impact of market capitalization on turnover and indices of NSE. The p-value related to market capitalization shown in Tables 2(a) and 2(b) is less than 0.05 so null hypotheses H_{02} is not accepted; hence, it is concluded that trends of market capitalization and indices of NSE are not independent.

CONCLUSION AND SUGGESTIONS

The study which was conducted to study the impact of registered brokers, traded companies, and market capitalization on turnover and indices of NSE, found that the registered brokers ($R^2 = .546$) is the most significant predictor of indices of NSE (nifty) and market capitalization ($R^2 = .352$) is most important interpreter of turnover of NSE, with coefficient of correlation of .739 and .659 respectively. Though, the registered broker is an important factor both for indices and turnover of NSE yet its impact on indices of NSE (54.6 percent) has been greater. The factor traded companies showed moderate (19.9 per cent) and market capitalization showed a mild impact (only 2 per cent) on Nifty. It was further exhibited during the results that if three selected independent factors remain constant, then there are other factors which are explaining turnover of NSE up to 1771546.243 units, but contrary to this they have a negative impact on indices of NSE (Sensex) up to -14101.863. Keeping in view the above findings, it is suggested that while making planning regarding the upliftment of the securities markets, financial markets, etc., the factor affecting their movement and the direction thereto are needed to be kept in mind for the sake of common good and also for the interest of the economy of the country so that a positive change may be brought about showing signs of recovery and dominancy of the country in global context.

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GLOBAL WARMING TRAJECTORY AND RISING ANTHROPOGENIC CARBON EMISSION AND STOCK

Seema Singh*

*G*lobal warming is now a reality. During the past 100 years, earth climate has warmed by approximately 0.6°C. Global warming is the result of multiple factors both natural and manmade. The recent increase in warming is due mainly to the excessive emission of carbon dioxide (CO_2) in the atmosphere due to stepped up human activities. This paper seeks to prevent the CO_2 emissions in terms of volume and per capita in top emitting countries over the time period. It further seeks to adumbrate some action plan (at national and international levels) to combat the menace of global warming and climate change. It is hoped that the forthcoming Paris Summit in December 2015 would be able to tackle the issue more effectively in a more determined way.

INTRODUCTION

The global warming (GW) now has become unequivocally, a reality. During the past 100 years, earth climate has warmed by approximately 0.6°C with two main periods of warming, between 1910 and 1945 and from 1976 onwards. The rate of warming during the latter period has been almost double that of the first and thus greater than at any time during the last 1,000 years (Reddy and Vijaylakshmi 2010) The scientific evidence about increasing global warming is robust and unquestionable. Global warming is the result of multiple factors, both natural and man made (anthropogenic). However, the recent increase in global warming and change of climate is due to anthropogenic excessive emission of carbon dioxide (CO_2) and other green house gases (GHGs) in the earth atmosphere. The CO_2 is the most prominent and main culprit contributing to the growing global warming. The global increase in CO_2 concentration is primarily due to excessive use of fossil fuel (coal, petroleum products, natural gas) respiration, burning of bio-mass, deforestation and land use change. The IPCC Fifth Assessment Report (IPCC AR5) published in 2014 observes that there has been an increasing trend in the anthropogenic emissions of GHGS since the advent of industrial revolution. The concentration of CO_2 in the tropospheric atmosphere that was counted 280 ppm (part per million) in 1750 AD now has reached to about 400 ppm in early 2015 AD and is increasing at the rate of about 1.5 ppm annually.

Scientists working for IPCC carrying out global warming research have predicted that average global temperature could increase between 1.4°C and 5.8°C by the close of the present century. Notably, CO_2 concentration stayed within a range of 180 ppm to 280 ppm throughout the last 800,000 years until the increase of the last 250 years. The sub-period 1983-2015 proved to be more prominent, as concentration of CO_2 was more than hardly occurred during the last 1,400 years. It is worthwhile to note that combustion of fossil fuel and industrial process resulting in CO_2 contributed a major portion (78%) of total GHGs during 1970-2015. In other words, CO_2 exerts a larger overall warming influence than all of those other gases combined.

Historically, CO_2 emission in 1850 was about 2.0 giga tons (Gt) which increased to a level of 35.27 (Gt) in 2013. It may be added that as the concentration and layers of heat-trapped gases grow, less escapes back into space making the environment warmer and changes the climate and alters weather patterns. Not only this, CO_2 once emitted stayed in the atmosphere for decades and is another worry (Wikipedia). To be exact the atmospheric life time or residency of CO_2 in atmosphere is about 500 years. This increase in CO_2 will have far reaching major consequences and negative impacts such as rising sea level, and its acidification, formation of El Nino and tropical cyclones, melting of glaciers, degradation of eco-system and loss of bio-diversity, threat of food safety and human health, climate refuges and depletion of ozone layers. This will have destabilizing implication for human society, and the poor, everywhere, would be hard hit. The effect would be world-wide as the IPCC AR5 reiterates "the striking feature of observed impacts (of GW) is

* Assistant Professor, Institute of Management Science And Research (IMSAR), M.D. University, Rohtak.

that they are occurring from the tropics to the poles from small islands to large continents and from the wealthiest countries to the poorest". In fact, nobody on the planet (earth and sea) is going to be untouched by the impacts of global warming. The report also clarifies that earlier, natural forces such as sun, earth orbit, volcanic events caused change in climate but during the last century earth warming is taking place at somewhat greater than natural variability due to increased anthropogenic activities driven by the reckless impulse for growth and development. Rising human population are also altering the carbon-cycle by releasing more CO_2 and other gases to the environment. This has also influenced the natural sinks like forests, oceans, rivers and lakes (**NRC 2010).**

OBJECTIVE AND DATA SOURCE

This research paper is designed to present succinctly the global warming and climate issues directly connected to the rising emissions of carbon dioxide gas over the time period. While presenting data and other information regarding CO_2 in terms of annual emissions and stock, we focus on two years apart i.e. 1990 and 2013 – year for which latest data is available, for the purpose of comparison. To be systematic, orderly, and brief, and to highlight the problem, CO_2 data (volume and per capita) have been given for the 10 top ranking countries and the entire world. Then under the head 'Action Plan' success/failure and the action required to combat the menace of global warming have been brought out. Conclusions and suggestions emerging from the findings, thereof, have also been adumbrated. The data have been compiled from diverse sources including IPCCC's Assessment Reports, and policy documents prepared by World Bank, UNFCCC, FAO, COP, EDGAR, Govt. of India (Economic Survey), books, journals and reports.

ANALYSIS

Emissions and Stock : Some initiative notwithstanding, annual emissions and stock of CO_2 and other GHGs, world-wide, is increasing quite dangerously. IPCCAR5 has reported that till 2011, the world had emitted, 1900 Gt (giga ton) of CO_2. On the basis of available record (1850-2008), United States has contributed 28.5%, EU 5.73%, Japan 3.80% and India 2.52%. Evidently, historical responsibility of US and European Union is the highest and second highest in the total cumulative CO_2 emission. India's share is comparatively quite small (**World Resource Institute)** despite its 1.25 billion population. USA emission is quite disproportional in view of its only 5% population of the world. IPCC AR5 has also cautioned that for temperature increase to remain below 2°C of pre-industrial levels, the world can emit only about 2,900 giga tons of CO_2 from all sources counting from the industrial revolution till 2100. The world has already consumed around two-thirds of the CO_2 budget and so only 1,000 Gt remains to be used between now and till 2100. The World Resource Institute estimates that if emission continues unabated, the remaining budget will last 30 more years only **(Economic Survey (2014-15).**

Now we proceed to present CO_2 emissions at the world aggregate level and also 10 top ranking countries in the years 1990 and 2013, respectively, for which the latest data is available. Tables 1 and 2 taken together contain such information.

Table 1 : Carbon Dioxide (CO_2) Emissions in Top 10 Countries

Year		1990				2013			
Ranking	Country	CO_2 Total Volume (Gt)	Share in World Total %	Per Capita in tons	Ranking	Country	CO_2 Total Volume (Gt)	Share in World Total %	Per Capita in tons
1.	USA	4.99	22.01	19.60	1	China	10.28	29.15	7.42
2.	China	2.47	10.89	2.12	2	USA	5.30	15.03	16.55
3.	Russian Federation	2.44	10.76	16.47	3	India	2.07	5.87	1.65
4.	Japan	1.16	5.12	9.51	4	Russian Federation	1.80	5.10	12.63
5.	Germany	1.02	4.50	12.69	5	Japan	1.36	3.86	10.70
6.	Ukraine	0.77	3.40	14.88	6	Germany	0.84	2.38	10.21
7.	India	0.66	2.91	0.76	7	S. Korea	0.63	1.79	12.72
8.	U.K.	0.59	2.60	10.28	8	Canada	0.55	1.56	15.67
9.	Canada	0.45	1.99	16.20	9	Brazil	0.51	1.45	2.56
10.	Italy	0.43	1.90	7.48	10	Indonesia	0.49	1.39	1.95
	World Total	22.67	66.08	4.27	–	–	35.27	67.58	4.94

Source : For Tables 1 and 2 data compiled from Emission Database for Global Atmospheric Research (EDGAR).

Note : Emission Total of fossil fuel use and industrial process excluded are : short-cycle biomass burning (such as agriculture waste burning) and large scale bio-mass burning (such as forest fires)

It is observed from table 1 that the world annual emission of CO_2 increased from 22.67 Gt in 1990 to 35.27 Gt in 2013 showing as overall increase of 12.60 percent during this period. It is also noticed that ten top ranking countries contributed a little more than 66 percent of the world CO_2 emission in 1990 whereas 10 top countries increased their share to 67.58 percent. Dramatically, China which was second next to USA in 1990, emerged on the top surpassing USA in annual CO_2 emission in 2013. India which was placed at 7th in 1990 in the matter of CO_2 emission now appears at 3rd place after China and USA. Further, China, according to the latest report, emits about two times more CO_2 than the USA and five times than that of India. On the top 10 ranking dispensation, three new countries S. Korea, Brazil and Indonesia occupied places in 2013 by replacing Ukraine, Italy and UK as per earlier list of 1990. Presently top four emitters viz., China,

USA, India and Russian Federation taken together share more than half (55.15%) of the world CO_2 emission.

In terms of per capita emission, the world average increased from 4.27 tons in 1990 to 4.94 per ton in 2013. It is worth noting that India though third in ranking in total CO_2 emission, is way behind USA and other developed countries and China as well in terms of per capita emission. For example, in terms of per capita emission in India is ten and four times less than that of USA and China respectively. In fact, the way Indian society is structured results in lower energy users. In India, a very large segment of the population still cook using bio-mass, cow dung and crop residues and not the fossil fuel. Another noticeable feature is that three countries namely India, Brazil and Indonesia which figure in the top ranking list of countries in total volume of CO_2 emission are even below the world average per capita emission. It is also observed that USA, Canada and Russian Federation and Germany experienced some reduction in per capita emission in 2013 over 1990.

Table 2 : Carbon Dioxide (CO_2) Emissions Per Capita in Top 20 Countries in 2013

Ranking	Country	Per Capita CO_2 ton	Ranking	Country	Per Capita CO_2 ton
1	Montserrat	117.83	11	USA	16.55
2	Qatar	39.02	12	Estonia	15.75
3	Trinidad and Tobago	29.75	13	Canada	15.66
4	Kuwait	28.14	14	Kazakhstan	15.39
5	Brunei	25.39	15	Gibraltar	15.08
6	Bahrain	21.74	16	Falkland Islands	14.79
7	UAE	21.62	17	Iceland	14.17
8	Luxembourg	20.42	18	Oman	13.78
9	Saudi Arabia	16.60	19	S. Korea	12.72
10	Australia	16.92	20	Russian Federation	12.63

Source : EDGAR

It is revealed from table 2 above that several tiny countries and islands also rank very high in terms of per capita CO_2 emission. Above table provides a list of 20 countries and islands where per capita emission exceeds 12.63 per ton per annum. Montserrat, occupying the first place in the per capita CO_2 emission gives whopping figure of 117.83 tons, followed by, with a wide margin, Qatar, Trinidad and Tobago, Kuwait, Brunei and Bahrain. Surprisingly USA appears in the list at number 11 in this respect and Russian Federation being the last

nation in the list. The high per capita CO_2 emission in small country mostly Arabian ones is necessitated due to very harsh and hostile weather conditions and also their high petro income.

Action Plan

Having realized the real threat of global warming and climate change, efforts are underway to combat the looming menace at international, national and regional levels. Initiatives to address the problem at international level began with the adoption of

United Nations Framework Convention on climate change (UNFCCC) at Rio de Janeiro in 1992, and subsequent conference of Parties (COP) meetings of 194 member countries, under the former ageis. A few landmark decisions have been taken at 20 meetings of COP held so far across the globe starting with 1995. Decisions taken at two COP meetings one held in Kyoto (1997) known as Kyoto Protocol and the other at Lima (2015) merit due attention. Kyoto Protocol is significant in the sense that it laid down quantitative targets to cut down emission for 37 developed countries by at least 5.2% below 1990 level in the first commitment period (2008-12) which now stands extended further. Because of the lukewarm attitude of USA, Australia and Canada, the targets of Kyoto Protocol could not be achieved, and on the ground, enough has not happened. COP at Lima (2015) was another milestone in this direction, as it was decided, after long and intense negotiations, that all member countries would submit quantifiable information related to the Intended Nationally Determined Contribution (INDCs) on the principle of equity and common but Differentiated Responsibility (CBDR) to be taken up for discussion and finalization in the COP 21st session in December 2015 in Paris. It is another positive sign that recently ahead of Paris session, United States and China (the two top ranking carbon emitters) have made epoch making decisions, to reduce heat trapping emission by more than one-fourth below 2005 level in 2025. India, Brazil, S.Korea and Russian Federation have also announced their carbon reduction plan that augurs well and indicate that a momentum is building up toward the climate talks in Paris. Rightly, no single country, no single action will change the planet. It is expected that at UN led world summit in Paris on climate change will arrive at real agreement based on binding principles of equity, and measurable targets to tackle the global warming caldron. If USA, China and India – the three major emitters show determination to reduce fossil fuel, then other nations would also follow suit.

India so far is not under any binding emissions cut but has pledged voluntarily to reduce emission intensity of its Gross Domestic Production (GDP) by 20-25% by 2020 as compared to the base year of 2005. India has established a 'National Action Plan' on climate change. This is, undoubtedly, the welcome step but there is no clear and consistent-approach or framework that directs and guide these efforts **(Navroz 2013)**. India now is expected to change its posture in international negotiations to solve the global problem. India need to adopt combination of bold strategies in case of energy policy such as use of low carbon-energy technologies, use of carbon capture technologies, reemergizing renewable energy sources (like solar, wind, hydro, bio-mass) and capacity expansion of carbon sinks. Besides, India must also explore all other possibilities to cut carbon emissions by improving all three strategies – preventive, mitigative and adoptive to defeat the negativities of global warming.

CONCLUSIONS AND SUGGESTIONS

Several significant conclusions and suggestions, emerging from the study, thereof, are adduced hereunder.

- There is a broad scientific consensus today that human induced global warming is taking place at an alarming rate, putting life on this planet to a greater risk. The adverse impacts of global warming and resultant climate change patterns are already beginning to be felt in every part of the world.

- Historically, though developed countries are mainly responsible for accumulated and high concentration of CO_2 and other hazardous gases in the earth atmosphere, but developing countries like China, India, Brazil and several others have also joined, in the mad race of carbon emission making the solution of this complex issue still difficult.

- So far nothing tangible is visible on the ground despite some half-hearted efforts made to reduce emission level, at different levels during the last two decades.

- This grim picture points towards immediate climate resilient strategies to overcome the challenge that has surfaced across the globe. If we wish to keep global temperature increase to below 2 degree Celsius then by the middle of the century, the world would have to treble or quadruple low or zero Celsius level energy supply.

- At this juncture, the big emitters like China, USA, India and EU countries need to take up greater responsibility at international negotiation in the fast approaching World Summit.

- The world political leaders must not delay further the solution to global warming, otherwise the risk will be pervasive and irresistible. Nature can't be fooled for a long and now it is in a revengeful mode. It is hoped, on present showing, that if US, China and India cooperate on this issue, others would also fall in line to take some concrete decisions to reduce the carbon imprints at the Paris Summit in Dec. 2015.

End Notes

*1.   **Carbon dioxide (CO_2)**: It is a chemical compound. It is made of one carbon and two oxygen atoms. It is colourless, odorless and vital to life on earth. CO_2 is one important trace gas in Earth's atmosphere and earth could not exist without atmospheric CO_2 as it provides warm up that the planet enjoys. CO_2 regulates Earth's temperature throughout its 4.7 billion year history. Without CO_2 and other GHGs, Earth surface would average about 33°C colder what is about present average of 14°C. It helps to defer the next ice age. It is vital to life on earth because its ability to act like a blanket, trapping some of the infrared radiation, without the process, the temp on the earth's surface would be a lot cooler. But the blanket (layer) of CO_2 and other gases, the process would appear to be disturbing the natural balance between incoming and outgoing radiation energy. CO_2 has biological application. It is necessary for the growth of vegetation to conduct photosynthesis and eliminates pests. CO_2 has applications in agriculture, medical and other areas as well. In fact it is the raw material for the growth of plants in plant kingdom.

*2.   **PCC AR5** : The Inter-governmental Panel on Climate Change (IPCC) an international body of 194 nations established in 1988 by the World Meteological Organization (WMO) and the United Nations Environment Programme (UNEP) is to assess scientific and socio-economic information relevant to increasing our understanding about global warming and climate change, its potential and options for adaptation and mitigation through its periodic reports. So for it has released Five Assessment Reports, the recent one released on 2nd Nov. 2014, published by Oxford University Press, and the full Synthesis Report based on it, was launched on March 18, 215.

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BLUE PRINT TO REVERSE CLIMATE CHANGE

Manjeet Kaur*, G.S.Bhalla** and Hema Khanna***

All that we observe, study, write, discuss, review, experience and capture from discussions with enlightened personalities, both conscious and subconscious mind continues to absorb and filter the relevant knowledge (especially in the field of one's interest). This widens ones mental horizon to provide meaningful solutions and relevant suggestions to stem the tribulations and problem faced by nations. This paper attempts to give a concrete solution to save the planet that is on the brink of extinction due to reckless and shameless ecological degradation in the name of development rather affluence. Nature provides us in abundance but it takes back in equal measure when exploited recklessly. It must be ensured that the demand on the environment from which we derive our sustenance, doesn't exceed its carrying capacity for the present as well as future generations.

INTRODUCTION

Development without considering an optimum utilization of natural resource can only be short-term achievement. In the long-run, it would add to the process that would advance only at the cost of enormous human suffering, increased poverty and oppression.

The environmental consequence of the so called economic development at the cost of ecological destruction tend to offset many benefits that would accrue to country's individuals and societies on account of the higher or increased incomes. These would appear in the form of cost on the health of our human resources, their longevity and on quality of life on account of deterioration in the environmental quality, to state a few. Moreover, ecological destruction, which affects the productivity of the factors of production, in turn undermines our future attainments and productivity. By equating development with affluence we are digging our own graves and heading towards the collapse of ecological system thereby leading to the doom of the civilization. In 1924, the father of our nation Mahatma Gandhi drew our attention to this aspect and asked us to maintain a healthy balance between economic growth and ecological environment emphasizing that ecology and economy have common roots, which need to be nursed by proper education. Noted environmentalist, Mr. S.L Bahuguna of the Chipko Movement fame - a living legend, in the voice of ecological concerns the world over minces no words in stating that the question no longer is that of striking a balance between economic development and ecological degradation but is that of survival or extinction. Moreover, true development is always based on a judicious balance between immediate and long-term requirements. Development can hardly be sustained when the natural resources of soil, water and vegetation, the basic economic capital of a country, are depleted recklessly and raped shamelessly.

Man has no choice today but just to move towards a sustainable environment by preserving its natural wealth, thereby moving towards a secure future. An unbroken link with Nature and life has to be re-established. Development must aim at improving the environment for living; providing food, water, sanitation and shelter; turning deserts green and country-area habitable. Higher standard of living must be achieved without alienating people from their heritage and without despoiling Nature of its beauty, freshness and purity, so essential for survival.

We need to start changing behavior. We need to change direction, and we need to change it now. We have to start somewhere to come to the right path-the ecological path. Still it is not too late to have a beginning. We need to ask ourselves and we need to act before it is too late.

Richard B. Howarth (2003) suggested the use of emission taxes. Relating the link between climate change and world economy, he concluded through his study that taxing the greenhouse gas emissions equal to the cost that 'emission' would impose on the future society would catalyze the welfare gains

* Research Scholar, Department of Commerce, Guru Nanak Dev University, Amritsar.
** Professor, Department of commerce, Guru Nanak Dev University, Amritsar.
*** Post Doctoral Fellow, Bhodh Gaya University, New Delhi.

generated through climate change mitigation measures. Thus, imposition of an emission tax could prove to be an important instrument to check the increasing emission level. Juergen G. Backhaus (2004) emphasized the judicious use of natural resources as an important prerequisite for sustainable growth not only in the developed but in the third world too. To a large extent, the use of natural resources is determined by the tax structure operating in a country. Designing of an appropriate tax structure that stimulates the judicious or optimal use of natural resources, could prove an important step towards sustainable growth. He concluded that the solution to the environmental problems rests with a simple administrative infrastructure and the help of international developmental agencies including big MNC's to play a role in solving out the problem. India Together (2006) quoted "The US National Environmental Policy Act (NEPA) in 1970 was one of the first laws ever written that established the broad national framework for protecting the environment. NEPA's basic policy was to assure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment. This Act also made the public participation mandatory in the environmental decision making process. The Tribune (January 4, 2007) under the news head 'PM wants sustainable development' stated that the developing world cannot afford to ape the west in terms of its "environmentally wasteful lifestyle", Prime Minister Manmohan Singh said while inaugurating the 94th Indian Science Congress in the Temple town of Tamil Nadu. "As incomes and consumption levels of the poor rise, we must find ways to meet the growing demand for goods and services in an environmentally sustainable manner", he said. Singh also stressed that the developed industrial countries should alter their consumption patterns so that "so few do not draw upon so much of Earth's resources". "The developing world cannot accept a freeze in global equity", he said. Singh said the "wisdom of our forefathers" has much to offer in pursuing an environment friendly and sustainable development path. He said new environment friendly technologies must be made available to all so that Earth is saved. Singh urged the scientists to engage in exploring the links between greenhouse gas emissions and climate change. "You must also examine its impacts on our monsoons. There is urgent need to upgrade our weather for forecasting systems for better crop

prediction", he said. The Tribune (June 30, 2008) under 'Wind energy sector gets a boost' stated that the Centre announced generation-based incentive to promote grid interactive wind energy generation plants in the country. With this new incentive, the Ministry of New and Renewable Energy hopes to give a boost to the wind sector, promote higher efficiency in wind power generation and encourage independent power producers in the sector. Investors, apart from getting the tariff as determined by the respective state regulatory commission, will get an incentive of Rs. 0.50 per unit of electricity for a period of 10 years provided they do not claim the benefit of accelerated depreciation. Grid interactive wind power generation plants of minimum installed capacity of 5 MW will be eligible for the incentive, which would be available only for projects commissioned, that is synchronized to the grid and certified by the concerned utility. It will be for projects installed at wind potential site validated by the Centre for Wind Energy Technology (C-WET) and for those independent producers whose capacities are commissioned for sale of power to the grid. Grid connected renewable power has been a major focus area of the ministry and by the end of the 10th Plan period, the installed capacity of renewable power will be about 12,400 MW, constituting about 8.8 per cent of the installed capacity. Wind power has made significant contribution to this achievement by installed capacity of 8760 MW. These activities have largely limited to Tamil Nadu, Gujarat, Maharashtra, Andhra Pradesh, Karnataka and Rajasthan. Iltus (2011) found that child friendly schools can only be effective if they are an integral part of the community. No school can or should operate in isolation from the community where it resides. While this principle is widely accepted, it is even more relevant within the framework of CCEE. Most adults should see the value in cooperating with schools on environmental issues. After all, the effects of climate change threaten the security and livelihoods of adults as well as children. In that sense, parents and other adults' participation in the school life must extend beyond children's education to the society. The school carries the primary responsibility for facilitating this relationship, however, and should proactively develop and strengthen its links with the community. Setting up an effective parent-teacher association structure, for instance, remains one of the most effective ways of ensuring community participation.

Children's community outreach may sound simple, but in fact requires significant planning and adjustments to the standard school curricula. Transferring the experience of the community to the school extends beyond inviting speakers to organizing class outings and visits, talking to individuals and, most importantly, encouraging children's research and action projects within the community. Unfortunately, most schools and teachers are not equipped to deal with such complexities. In many cases, strict school curricula do not allow for such flexibility. Therefore, it is important to find opportunities to link conventional learning with community experience and knowledge systems. Laura L. (2012) concluded as trusted community institutions, libraries are ideal locations for green technology demonstrations. Combining such projects with public education programs strategically positions them to become community models for sustainability. To take advantage of this positioning, library directors, staff, and board members need to think past a one-time building project and aim to start a community conversation. For librarians to become true sustainability leaders, they must rethink their operations to ensure that their actions match their message. They must identify, nurture, and support champions who will continue to improve, innovate, and integrate new green technologies and practices. Finally, they must inform and educate the public about their practices and explain how they apply throughout the community. Library leaders need go beyond telling their patrons about the green features of the building to show them how these technologies and practices can be used to improve the environmental quality of their homes, workplaces, and community. Vaughter, Wright, McKenzie, and Lidstone, (2013) comparative investigations into institutional sustainability in PSE are not as abundant as case studies of individual institutions, a number of comparative studies have been carried out on the sub-national, national and international levels since the declaration of the DESD in 2003. This review has illustrated three of the dominant themes emerging from this published literature: research comparing sustainability curricula across institutions (both within specific disciplines of study and across disciplines); research comparing campus operations policies and practice across multiple institutions; and research on how to best measure or audit approaches and outputs in sustainability in PSE. While it is our intent to disentangle the many narrative threads of research into sustainability in PSE institutions, it must be acknowledged that some of these categories overlap to some degree, particularly operational initiatives for sustainability and the analysis of sustainability audits. This overview has also illuminated gaps in the research within each of these emergent themes in the literature. For comparative studies investigating sustainability in PSE curricula, there has been an emphasis on integration of sustainability into science and engineering, with little attention paid to curricula in the humanities and social sciences. Within comparative literature on sustainability in campus operations, a number of studies examine where the impetus for operations policies comes from, but little work has been done in comparing how effective these policies are in affecting outputs and how that may vary among different PSE institutions. There is also a gap in the research literature critically comparing how PSE institutions' sustainability operations policies link to the larger community. Finally, in terms of existing comparative research on sustainability audits, the majority of studies examines operational outputs of institutions and do not focus on the evaluation of other dimensions of institutional sustainability, such as education, research, governance or community engagement. While multi-dimensional assessment tools, such as AASHE's STARS and the CSAF, exist, these type of tools are self-reporting and tend to not be the focus of much of the literature in comparison to those studies focusing on auditing sustainability in institutional operations. Additionally, the comparative audits of PSE sustainability with other fields are undertaken only in relation to corporations that use sustainability criteria to measure their performance, with little exploration in relation to other fields outside of business. While the analysis of this literature has allowed for a perfunctory understanding of dominant themes within the comparative research on sustainability initiatives within PSE institutions, it is by no means an all-encompassing work. Because this review has drawn heavily on literature from educational research (six of the eight most cited journals discussing the topic were exclusively education journals, while the other two publish extensively on education), a meaningful step forward would be to take to heart many of the critiques of sustainability in post-secondary education within the literature and expand the review to draw on more interdisciplinary research for further understanding.

Compelling research on sustainability within PSE institutions may very well be occurring outside of the academic literature on education, especially as sustainability itself is a growing field in and of itself, as evidenced by the increasing number of journals devoted to the topic. The fact that so much of the research on sustainability in PSE curricula focuses on the disciplines of engineering and material sciences suggests that engineering journals may be a good place to start. Finally, as within any discipline, what is occurring within the field is not always observed nor written about by those within the ivory tower, even or especially when the topic is the ivory tower. Therefore, it is important to caution that a paucity of evidence in the literature may not necessarily be indicative of what is being practiced on the ground. Academic literature gives crucial insights into the field of sustainability in PSE institutions, but it is not the whole story. However, this work can serve as a foundation for future studies and we believe offers a lay of the land for those engaged in research on furthering sustainability through post-secondary education. Goldman, Yavetz, and Pe'er, (2014) findings of this study have implications for all teacher education programs the environment affiliated disciplines and non-environment affiliated disciplines. With regards to the 'environmental' programs, results point to the necessity (without compromising the disciplinary goals of these programs) to reorient the curriculum from the traditional scientific approach to include:

A comprehensive perspective that addresses the complexity and inter-relationships among the biophysical, economic, social and political dimensions of sustainability issues; and Provides learning experiences, beyond science context, that foster the knowhow (knowledge, skills and commitment), as well as environmental citizenship skills, so that these will be reflected in the graduates' competence as environmental educators. Such reorientation requires that the wider goals of EE, those that go beyond the cognitive knowledge level, be explicitly incorporated within the curricular goals of the programs, infiltrating down to the courses and academic staff. It cannot be assumed that such reorientation towards education for sustainability will occur on its own. With respect to all other programs, principles of EE need to be incorporated in at least one component, disciplinary or teaching and pedagogy, of all training programs. Following are some suggestions. One approach is a mandatory course on EE for all students as part of their basic

education courses. Alternatively, would be a component within the pedagogical framework. The latter approach has a number of advantages: It takes advantage of a component common all programs; In view of the interdisciplinary nature of EE, it can both contribute and benefit from the integrative nature of pedagogy studies; The pedagogical component provides a built-in framework for addressing practical aspects of the pedagogies for teaching environmental dilemmas in the classroom as well as the internship for hands-on experience. A joint initiative of The Ministry for Environmental Protection and Ministry of Education, reflecting these ideas, was commenced in the academic year of 2012. Pant (2014) found that the problem of environment abuse is a serious one and need to be addressed at the local ,national and international levels .To achieve a good quality of life on earth for all living beings ,it is essential to spread awareness about and educate humankind in sustainable development and environmental problems. It is agreed, that teachers are potential change agents and are capable of generating a workforce of enlightened, skilled and motivated learners. They can empower the citizens with the ability attitude and values to protect the environment using formal and non formal channels of education. It is essential that teachers themselves need to be trained and equipped with the requisite knowledge skills and values to effect such a change. Universities and schools have to play an important role to translate the objectives and recommendations of the various commissions and committees into practice for achieving environmental literacy and awareness among learners. Technological interventions and mass media should be employed to create environmental awareness among the teaching community. A convergence of the conventional and open and distance learning systems should be employed to meet this challenge. There is a need to train teachers in additional competencies regarding environment education. The teacher training curricula should integrate environment education with the methodology component of all disciplines, since environment is a part of all areas of study .Instead of burdening the existing teacher training curriculum with an extra subject on Environment Education, some weight age could be assigned in the practical component of the content cum methodology courses of all disciplines, for environment education. Appropriate training strategies need to be devised considering the constraints in which the teacher

training system operates especially in developing countries. Non formal channels of education like t. v., radio, press and satellite technology can be effectively utilized for capacity building of environment educators. United Nations Conference on Environment (2005-2014) concluded that the 1st European Youth Eco-Parliament and the Baltic Sea Project have served a pilot function for sustainable development and continue to serve as a source of inspiration for others. They impressively show how pan-European projects can raise the environmental awareness of children and young people, whilst at the same time offering them the opportunity to consider various economic, social and cultural aspects in neighboring countries. The youngsters learn to exchange views, to understand each other, to take responsibility for local and national proposals for action, and to work collectively on proposals for a common purpose.

CONCLUSION AND SUGGESTIONS

- Most of the work to save the ecological environment remains on paper only. In spite of numerous regulations passed in various world level conferences, summits and meets, hardly any implementation worth the numbers takes place. It must be ensured that the various regulations being passed are effectively implemented. Advanced countries, though most polluting, are not taking the desired responsibility. Rather they are playing a blame game and mostly the developing countries are blamed one way or the other. Uniform laws, at the world level must be made to punish the defaulting countries, either developed or developing. The "polluter pays principle" must be strictly adhered to.

- Technological development must continue and improve, but it is high time that it be made relevant to the country's priorities. That it concentrates on selected, high-technology areas, not dependent on scarce natural resources. As reveled by Prime Minister Manmohan Singh in the climate change action plan on June 30, 2008 focus would be on increasing share of solar energy in the total energy mix; implementation of energy efficiency measures; launching sustainable habitats; effective water resource management; safeguarding Himalayan glacier and mountain eco-system, enhancing eco-system services; making agriculture more resilient to climate change and setting up a Strategic Knowledge Mission for research in the area. More such action plan together with their

effective implementation could help solve the problem.

- 'Put breaks on development activity', it may sound strange but that's the way. Myanmar has shown this way to the world by intentionally putting brakes on mad race for economic development. This country in this regard is a role model for the world. This moral needs to be followed in India also.

- Major industries contributing largely to global warming through the release of harmful chlorofluorocarbon (CFC) gases, for instance, refrigeration and air conditioner industries must immediately be put at halt or at least be discouraged by imposing large taxes on its products and other inputs required for producing it.

- Environmental objectives given by the policy makers tend to be too broad and vague. The objectives desire to focus attention on a specific, simple, clear and feasible ways of solving environmental problems to make the implementation of ways easier to promote sustainable development.

- Environmental information is one of the strategic issues requiring adequate disclosure in annual reports of the company, however, companies have not even managed a separate section to disclose this information in their annual reports, it is suggested that environmental information should be given due consideration along with other strategic issues. Chairman's letter in the annual reports should include information regarding existence of environmental policy/programs in the company, environmental management system, environmental objectives and commitment towards environmental improvement. Impact of measures undertaken by the company for environmental protection should be quantified to the extent possible.

- It would be naïve to assume that without mass public participation it would be possible to bring about social transformation. The masses should be awakened regarding the urgency to pay heed to environmental concerns. The government should give extensive publicity for greening the brown through print media and electronic media.

- Universities should play an active role locally, nationally and internationally in enhancing knowledge and action competence regarding sustainable development through research and education in co-operation with surrounding society. Besides other things the universities must

introduce a comprehensive subject on Ecological Environment for students of M.Com, MBA and even BBA or B.Com. This is necessary to provide knowledge to the budding managers about the environmental hazards that the economic activity causes.

- 'Genuine' Non-Government Organizations (NGOs) should be encouraged in the task of a forestation, reforestation, water and air pollution control measures. To ensure that the NGOs are genuine their accounts should be checked, intelligence reports be taken and their accountability be ensured. Moreover, there needs to be transparency on the part of these NGO's work on environmental concerns for effective results.

- Nobel Prize should go greener and be awarded to environmentalists as was being awarded to Wangari Maathai; a Kenyan environmentalist was awarded Nobel Prize in the year 2004 for planting 30 million tree plantings across Africa. The voices of the environmentalists need to be heard and given emphasis.

- Print, electronic media should play an active role to create environmental awareness amongst the masses. More movies and programs should be targeted on environmental themes in such a way that they leave a lasting imprint on the mind of the masses especially the children because they represent the future. For this catch them young policy need to be implemented. Since it is true that charity begins at home, there should be a separate T.V. channel for children to create environmental consciousness among the children at the tender age.

- President Kalama's recommendations to plant at least ten times the number of trees being cut to build a helipad for his visit and Norwegian Prime Minister Kjell Magne Bondevik's resignation to King Harold followed by the vote in the Parliament against his anti-pollution proposals must act as an inspiring force for other politicians, bureaucrats and other citizens of the country.

- It must be ensured that the grants received from World Bank, Monetary Funds for environmental betterment are not misused or embezzled. There must be a monitoring authority to check this and at the same time any such embezzlement should be severely dealt with.

- Alike the recitation of national anthem, every educational institution and business concern should initialize its activities by conducting a short talk on sustainable development so that it becomes a mass movement.

- China's policy of simple living and high thinking needs to be followed. As regards, bicycles should be subsidized and advertisements depicting its health benefits and related matters must be repeatedly circulated though both print and electronic media.

- Before deciding what policy is to be designed, be it tradable permits, environmental taxes, tax incentives, subsidies or user fee, we must determine which instrument is the most appropriate one to use based on its effectiveness, efficiency, income distributional effect, regional distributional effect, international competitiveness, innovation, flexibility etc.

- Governments have been actively dealing with fiscal deficits and debts, yet not enough attention has been paid to dealing with environmental deficits. The federal Budget is the most important environmental policy statement of the year, and if the environment is to be taken seriously, it must be front and centre in the budget.

- It is better to tax "bads" rather than "goods". Governments have long used selective taxation to discourage use of alcohol and cigarettes, while unprocessed food and children's clothing remain tax free. This tradition must be continued with selective "eco-sin taxes" to discourage a wide range of grey products and lifestyles. At the same time, taxes would be eliminated on green products and lifestyles. People should be able to avoid taxation by choosing green products and lifestyles.

- Taxes should be designed to conserve resources and energy. Rather than taxing jobs and profits, taxes should be moved to resource use and energy consumption to reward conservation. The community should benefit from the use of commonly held resources.

- Resource taxes should be introduced as early as possible. Resources should be taxed before entering the manufacturing process in order to green all aspects of the manufacturing process from extraction to the finished product. Increasing taxes on resource and energy use will encourage resource and energy efficiency, innovation, reuse, repair, recycling and used material recovery.

- The use of auto-related taxes as a preventive measure for global warming must be emphasised. In order to ensure emissions reduction that can meet the new fuel-efficiency standards, it is suggested to take supportive measures on the

demand side that encourage consumers to choose fuel-efficient vehicles.

- Heavy forestry tax when felling is not compensated by equipment reforestation of the right natures must be followed on lines of countries like Brazil, Columbia and Japan.

- Landfill tax, a tax on producers who dump their industrial wastes in the landfills, as imposed in many western countries including Great Britain must be adopted in our country too as it would act as a deterrent on dumping industrial and other wastes in landfills.

- In order to encourage a shift to fuels, which emit less carbon-dioxide when burnt, tax like "carbon-tax" that is a tax on fuel which increases with the relative carbon content of the fuel must be imposed as followed in other countries like Canada.

- Policy makers, environmentalists, corporate houses should come forward to impress upon the Ministry of Finance, Government of India to revolutionize its tax system and structure and allow a good space for environmental taxes.

- Judiciary's role needs to be more strengthened as regards the cases relating to environmental protection and preservation. To avoid the time consuming procedure, fast track courts must be initialized to deal cases relating to ecological concerns.

- 'Bold' judgments from justices of various states need to be given in order to break the nexus of forest mafia, unscrupulous businessmen, bad politicians and bureaucrats who always tend to influence the decisions which adversely affect their vested interests. The justices should show zero tolerance towards ecological degradation by taking a notice of the various cases relating to environmental protection.

- Separate fast track environmental courts must be set up to deal exclusively with the cases related to ecological environment

- Before the initialization of any project, its Environmental Impact Assessment should be done and it should be made a mandatory policy .The contents of the Environmental Impact Assessment report should be strictly followed in letter and spirit thereby heavily punishing the defaulting units.

- The use of pollution control devices by the industrialists must be practiced. For the better, effective and speedy results, government must give subsidies on the installation of these devices and should also ensure whether Pollution Control Boards are working properly or not. The intelligence reports regarding the same should be taken.

- Considering the on-going increase in the number of vehicles in the country, the government needs to strengthen the public transport system of the country so that the masses would prefer to travel via the public transport in spite of using their own private vehicles.

- As remarked by the Nobel Laureate, Wangari Maathai, human survival is directly proportionate to the amount of carbon-dioxide absorbed by ten trees. So those who have not planted ten trees in their lifetime are breathing off somebody else's trees. Considering this as a basic norm, it must be ensured that every citizen plants at least ten trees in his lifetime.

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APPLICATIONS OF INFORMATION TECHNOLOGY IN RURAL DEVELOPMENT

D.S. Hooda*

More than 70 percent population of India lives in rural and remote areas. We need to increase connectivity to the villages by the applications of Information and Communication Technologies, making cluster out of these even while retaining their individuality. Traditionally, small fraction of this population has access to electro communication, radio broadcasts and voice telephony. However, these days a vide variety of new telecommunication applications such as e-mail, e-commerce, telecommunication, tele-health and telemedicine have made access to interactive multimedia services for rural people. In the present paper a brief account of the role of information technology and its practical contribution to various sectors of rural areas such as agriculture, telecommunication, telemedicine community, business management and distant education is given. India is still having large number of people living in rural areas and one of the basic needs of them is still lacking in India is healthcare. The role of information technology and multimedia terminals in the environmental and social development of rural areas has been explained. Geographical Information Systems (GIS) for rural health and sustainable development are discussed in detail. IT applications for Women Self Aid Activities (WSHA) are also discussed.

INTRODUCTION

The villages epitomize the soul of India as more than 70% of Indian population lives in rural areas. Since rural population reflects the very essence of Indian culture and civilization, therefore, a holistic development of India as a nation rests on a sustained all round development of rural India. Information and communication technologies have emerged as important tools of reaching out to the people at grass root level.

In India the application of computers in governance process had started in 1980 with the following initiatives:

· Computerized rural information centre project by Rural Development Department, Government of India.

· District Information Systems of the National Information Centre (DISNIC), Project

· National Resource Data Management System (NRDMS) by the Department of Science and Technology, Government of India

· An other project was Land Records Computerization started by Government of India.

Information technology doubtlessly can contribute to rural development in following manners:

· It can facilitate rural activities like provision of distance education, tele-medicine, remote public services, remote entertainment, etc. to provide more comfortable and safe rural life as equivalent to urban areas.

· It can initiate new agricultural and rural business such as e-commerce, real estate business for satellite offices, rural tourism, and virtual corporation of small scale farms.

· It can support policy-making and evaluation on optimal farm production, disaster management, agro-environment resource management, etc. using tools such as geographic information systems (GIS).

· It can improve farm management and farming technologies by efficient farm management, risk management, effective information or knowledge transfer, etc.

In Japan IT police for agriculture and rural development started late in 1980s , but could not succeed due to the policy of wrong priority to hardware than software resulting in inefficient data resources and poor applications that were not useful enough to convince farmers of the beneficial effect of IT in agriculture. Poor rural network of infrastructure and IT literacy contributed to this failure.

* Former PVC, Kurukshetra University & Dean(R), JUET, Guna(MP).

In the present talk we discuss the role of information technology and its practical contribution to various sectors of rural areas such as agriculture, telecommunication, telemedicine community, business management and distant education. We also explain IT applications for Women Self Aid Activities (WSHA)

COMPUTERS IN AGRICULTURE AND RURAL DEVELOPMENT

In the wake of agricultural development through scientific means, the need for information and data has increased many folds. Computers having immense power of information about data processing, storage and retrieval has become an indispensable tool for this purpose. Computer networking and use of modems are extremely useful for communication and dissemination of the processed data at lightning speed, however, with advent of very powerful personal computers and use of software have made things much easier. Thus the opportunities for computer application in agricultural and rural development have further increased.

Looking at the present status in Japan, we can identify existing issues that we need to solve in order to extend IT to the agricultural domain. Agriculture stands on the very complex interaction between biological, climate and geographical factors in addition to human economic activities. The information through such a complicated system is unpredictable, unstable, subjective, site-specific and reliant on empirical decisions given the inherent variability of biological phenomena.

Agricultural information with these features is typically beyond the scope of the information science used in industrial information system and that has surely led to the failure of IT in agriculture. We should also consider how to easily collect field data. Though field data are the basis for farm decision support, few people realize the importance of it in developing several decision support programs through the case-based knowledge management.

A case-base is a kind of database that stores empirical cases and has a function to recommend relevant cases according to users decision making queries. Otuka and Ninomiya (1998) , and Otuka and Kitamurua (2002) developed a prototype case base system using a concept search engine that is based on latent semantic indexing Deerwester (1990) . In other words, this is a search based on meaning. Using the system, one can retrieve cases without entering any keywords. The user can enter normal sentences as queries to the system and the system searches for the recommended cases corresponding to the queries, based on the context or the concept of the queries.

The above mentioned case-based approach can be applied to several types of cases collected in many ways. E-mails exchanged in mailing lists are good examples of cases. Images can be cases as well as ordinary texts. In the system they developed, farmers request that extension services diagnose diseases and pests by sending queries and images taken by digital cameras by e-mail, and extension services reply to these. These question-and-answer (Q&A) and images are automatically stored as cases for a forthcoming automated Q&A system. Here the stored images and queries will be automatically matched with new queries and images to find out the proper answer.

Indian farmers need timely expert advice to make them more productive and competitive. So it is proposed a frame of a cost-effective agricultural information dissemination system (AgrIDS) to disseminate expert agriculture knowledge to the farming community to improve the farm productivity. Some of the crucial benefits of AgrIDS are given below:

· It is a scalable system which can be incrementally developed and extended to cover all the crops of Indian farmers in a cost effective manner.
· It enables the farmer to cultivate a crop with expertise seeking both crop and location specific advice from the agriculture expert
· On using AgrIDS we can reduce the lag period between research effort to practice be reduced significantly.
· The proposed system assumes a great significance due to the trend of globalization as it aims to provide expert advice which is crucial for the farmer to harvest different kinds of crop varieties based on the demand in the world market.

Integrated rural level development and micro – level planning has also been stressed for many years in the successive National Development Plans. Since India has different types of terrain, natural resources, climate, socio – economic levels, administrative set up, cultures, etc., micro – level planning and modeling requires a comprehensive panchayat/village level, spatial and non – spatial databases and integrated information systems. Such databases and integrated information system can be developed using computers and communication networks.

Computers have also played a very significant in agricultural research. The use of computers for analysis of data pertaining to research experiments is well known. Research planning in agriculture is also a complex process. The research planner must identify a specific problem, define specific objectives, construct hypotheses, mobilize resources for experiments, disseminate results and continuously re- assess the research results. Computers are extremely useful for these activities.

Research management is another area where the use of computers has increased considerably for determining research priorities by allocation of resources for specific commodities or projects. The project management is an important area where computers are increasingly being employed. Optimal allocation of resources is important in multistate, interdisciplinary research programs where activity network can be developed by scientists and administrators on computers to identify the critical research activity, organize these activities in time and formulate the integration of research that can lead to optimal allocation of limited funds/resources to research programs by assigning benefits, probabilities of success and time and resource requirements to alternative programs. Computers can be used for development of management information systems for supporting such activities.

IT APPLICATION IN TELECOMMUNICATION DEVELOPMENT

A conference in March 1998, sought to promote universal access to basic telecommunication, broadcasting and Internet as tools for development in rural remote areas. Rural and remote (or just "rural") areas exhibit one or more of the characteristics such as scarcity or absence of public facilities such as reliable electricity supply, water, access roads and regular transport and so on.

Research groups have found that the Internet is the most widely used platform adopted to deliver multimedia applications in rural areas of developing countries. While much negative attention in developing countries has been focused in the use of the Internet as an illegal bypass mechanics in the international traffic arena, however, the long-term importance of the Internet for developing countries lies in its potential to improve the domestic flow of economic and educational resources between isolated rural communities and urban centers.

Areas of application for Internet- and other communication- based applications include telemedicine and public health education, coordinating regional food security efforts, making government –sponsored agricultural extension services more effective and accessible to rural farmers. Internet enables more rural children, adolescents and post-secondary students to receive an education about heath.

INFORMATION TECHNOLOGY AND MULTIMEDIA TERMINALS

It is of the utmost importance that International Telecommunication Union Development Sector (ITU-D) strives to raise awareness of the rural information and communication needs of developing countries within the computing and information technology industry. Unlike the telecommunication industry, which has been doing business in underdeveloped rural areas for several decades, companies in the IT sector are generally unfamiliar with the environmental and social requirements of rural areas of developing countries. Multimedia systems profiled by, some Research Group which were only launched during the period between June and August 2000, demonstrate many features with potential lifetime cost savings for rural areas.

For example, information appliances supporting e-mail, World Wide Web (WWW) browsing and e-commerce applications provide simplified user interfaces in packages with fewer maintenance requirements than traditional PCs. Internet client network solutions can offer Internet Services Providers (ISPs) the ability to upgrade their rural customers' browser and applications software remotely, reducing the skills requirement s for tele-center operators and rural schools. Finally technical Industries and R&D organizations in developing countries their own custom, low cost IT terminals and devices.

GIS AND ITS APPLICATIONS IN HEALTH CARE

Geography is information about the earth's surface and objects found in it, as well as a framework for organizing knowledge. GIS is a computer technology that uses a Geographical Information System as an analytical framework for managing and integrating data; solving a problem and understanding a past, present or future situation. It is capable of capturing, storing, analyzing, and displaying geographically

referenced information i.e. data identified according to location.

Crisis Helper aims to identify the disease through symptoms and finding the curing procedure using the concept of Geographical Information System (GIS) . The diagnosis performed under emergency situation needs related cases in medical history. So to provide a helpline under such critical situation GIS was developed in health care.

GIS can be used for scientific investigations, resource management and development.

Parts of Geographical Information System
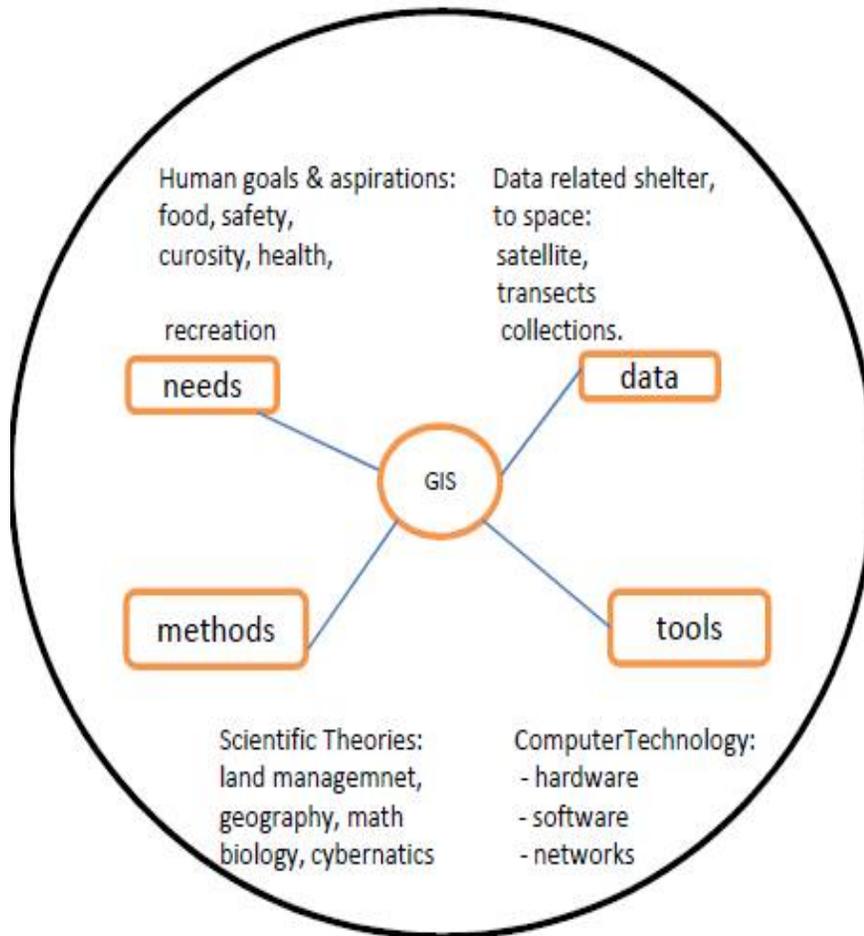
This diagram shows the four basic parts of a GIS in the contest of relationship with nature. In practice, a GIS consists of people using technology to work with data under various methods in order to meet specific human needs. This has a specific implication of human centered activity, in contrast to other technologies, databases and theories.

GIS is a technology that is used to view and analyze data from a geographic perspective. GIS links location to information and layers that information to give you a better understanding of how it all interrelates.

WOMEN SELF HELP AID (WSHA)

Self-help is a way to deal with problems that everyone faces from time to time in their lives like illness, divorce, the death of a loved one, emotional upsets or strains, etc. Talking over these problems with other people who have lived through them can help us to deal with tomorrow. The knowledge base of self-help mutual support groups is experiential, indigenous, and rooted in the wisdom that comes from struggling with problems in concrete and shared ways. Self-help groups build on the strengths of their members (2002).

A significant development in recent years has been the mushrooming of community –based organizations and initiatives at the local level for women. WSHA was initiated with the intention to combat unemployment and poverty and, above all, to procure earnings for the participants.

Many rural women are landless laborers and are economically very poor; most of them are illiterate or semi-literate. These women can be organized into self-help groups. The goal of this program is to promote savings and credit activities, and to promote employment of these women into production units. This will lead to a strong and permanent improvement of their socio-economic conditions in number of ways. Initiation of savings and credit activities and promotion of income generating programs in these self-help groups will bring more economic development and independence to these women and their families. As consequences of the welfare of these families, more children will be able to attend the school instead of being forced into agriculture child labor .

For the first time in their life, these disadvantaged rural women become organized into groups. The formation of these self-help groups will facilitate the discussion of many issues pertaining to their socio-economic, educational and health status. Thus, the formation of this group provides a forum to initiate many participatory activities (including training and awareness camps). This process will also lead to increase confidence in these women, and will help them to get decision-making status in their society,. This will encourage these women to participate and contribute in general social and political matters in their respective villages, including women rights.

OTHER APPLICATIONS

There are many other applications of IT and some of them are discussed as follows:

• Community and business development

A great of progress is being made in rural community and business development through the introduction of telephony, tele-centers, e-mail, and radio broadcasts.

For example, People-Link, an organization sponsored by info-Dev (the Information for Development Program of the World Bank) has established an e-commerce program allowing local artisans in developing countries to bypass middlemen and market their products directly to first world consumers. Two of the key requirements for the success of community and business development applications were found to be local language support and the availability of relevant content.

• Telemedicine

The motivation and commitment to telemedicine in developing countries is very strong. This motivation is often backed by a willingness to pay for systems which are expected to improve health outcomes and lower medical costs in the long run. Telemedicine services may be perceived as more of a necessity in developing countries than they are in the industrialized countries, resulting in a greater willingness among the former to change established methods of doctor-patient interaction and health care administration.

Telemedicine and tele-health applications are not limited exclusively to expensive, high bandwidth services. As long as the local medical community remains motivated and committed to implementing telemedicine and tele-health programs, there are wide range of health benefits that can be achieved through remote patient monitoring and diagnosis, multimedia communication links between urban and remote facilities, and broadcast of health information over radio and television.

• Distance Education

Unsurprisingly, the focus group found that university-level distance education programs lend themselves to cross-border implementation. Using distribution by satellite or Internet, the administrative costs of running distance education courses can be spread over a very wide potential student base. A number of existing programs, such as the African Virtual University (AVU) and the distance education network of the University of the South Pacific (USPNet), are already based on the concept of cross-border educational access.

• Data Mining

Data mining is useful for discovering and outlining hidden patterns in the data base. As the data in the database expand as a result of wide use of the portal, it becomes difficult to find information manually. Data mining provide algorithms which allow automatic pattern discovery and interactive analysis. Data mining has two basic goals : prediction and description.
• Prediction includes the use of parameters, in order to predict unknown or future values of a variable in our database records.

• Description focuses on finding pattern models, which categorize data via clustering. In clustering data are divided in group and each record is assigned to a specific group according to the training technique and the training data set.

In comparison with the classification technique there are no predefined groups; records are classified taking only similarity criteria into consideration

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AN EMPIRICAL STUDY ON EFFECTIVENESS OF TRAINING PROGRAMMES IN AUTOMOBILE OUTLETS

Ram Darshan*

Training is a transforming process that requires some input and in turn it produces output in the form of knowledge, skills, and attitudes. It is a process that involves the acquisition of knowledge, sharpening of skills, activities designed to facilitate the learning and development of new techniques, and to improve the performance of specific task or roles. The present study is undertaken to know the effectiveness of training and development programs and the level of satisfation towards these programmes in various organizations. To achieve the aforesaid objectives, data is gathered from 100 respondents randomly. Descriptive statistics and ANOVA were used to analyze the data. It is found that the most of the employees are satisfied with training and development programmes and these programmes are helping employees to increase their efficiency on their job and consequently increasing effectiveness. Consistency is observed among employees that the training programmes are effective and interesting.

INTRODUCTION

Development in science & Technology has brought tremendous change in business strategy. The Globalization has impact on the industrial environment making it more competitive. Hence, to survive in the market, the Captains of the industries perform to keep themselves abreast with changing environment & adopt new technique of resource management. The human resource is not only important but valuable to any organization. This significant factor is in due consideration for all HR personnel right from the beginning. As the structure of organizations, in responding to the ever changing business scenario is continuous to change in order to increase organizational productivity and profits or expansion and above all for remaining competitive. In the era of dynamism, the need for training and development programs continues to grow with the changing organizational requirements and structure.

In Organizational development, the related field of training and development (T&D) deals with the design and delivery of learning to improve performance within organizations. After hiring the employees by an organization, next step is determining the need of training and development for them. It is obvious that some new employees are not experienced to their work so they need special training to perform effectively and efficiently. Different organizations hold different training and development programs according to their available resources and requirements.

On the other hand, the important aspect of training and development programs is that it helps to avoid the managerial obsolescence. These programs also play an important role in managing the changes in organizational structure caused by mergers, acquisitions, rapid growth, downsizing and outsourcing. Training and development programs are also important to cope up with the changes in technology and with diversity within the organization. Today because of number of changes in technological fields, these programs are increasingly emphasizing on converting the organization to learning and knowledge organizations.

Training is a transforming process that requires some input and in turn it produces output in the form of knowledge, skills, and attitudes. It is a process that involves the acquisition of knowledge, sharpening of skills, activities designed to facilitate the learning and development of new techniques, and to improve the performance of specific task or roles. Training may involve structured programs or more informal and interactive activities such as group discussion or role playing which promote experiential learning. A wide variety of activities, including classroom-based course, on-the-job training, and business or simulation games, are used for training which should enhance learning among individuals and consequently improve organizational performance. Training and Development programmes help in optimum utilization of human resources that further help them to achieve the organizational goals as well as to increase motivation and satisfaction level. Such

*Associate Professor, Kedarnath Aggarwal Institute of Management, Charkhi Dadri (Bhiwani)

programmes provide an opportunity and broad structure for the development of human resources' technical and behavioral skills in an organization. This in turn helps the employees in attaining personal growth and effectiveness.

REVIEW OF LITERATURE

Training is a dynamic process made up of four major components: planning and support, needs assessment, methods and activities, and evaluation and feedback. Training experts suggest that agencies should continuously plan for and support training that is linked to their mission, goals and objectives; assess current and future training needs of all employees; ensure that appropriate training activities are provided; and evaluate and utilize the results.

The more you sweat in peace, the less you bleed in war. An old war proverb is still prevalent. Today's highly competitive corporate battle field is not different from a conventional war zone. With technology making rapid strides and knowledge getting outdated in hours coupled with constantly changing business models, there will be corresponding changes in the requirement of skill sets of the employees of the organization. Training thus plays a vital role in strengthening the existing skills and in instilling and nurturing new competencies. Raised skill levels contribute to the versatility and the adaptability of employees which by themselves have become a critical need in the globalized business scenario. There is a need to understand the term training and development in the right perspective as they are normally associated with learning activity. Experts distinguish between training which tends to be more focused towards preparing an employee for his present job performance and development which is all about broadening mental set up and individuals' skills for future responsibility to satisfy his personal growth needs.

Training in a general sense refers to a planned effort by an organization to facilitate employees in acquiring skill, attitude and behavior that are critical for successful performance on the job. On acquiring the knowledge and skills the employees are expected to apply them to day-to-day activities without which the relevance of training would be lost and no competitive advantage would accrue to the company. Training has now acquired the status of a strategic initiative in the sense that employees have to be trained for the future, assuming that they are already trained for the present.

Dessler (2005) defined training as a process that applies different methods to strengthen employees' knowledge and skill needed to perform their job effectively. Other researchers on human resources development literature defined training with similar perspectives (Ivancevich, 2003; Mondy & Noe, 2005; Yong, 2003). According to Goldstein and Ford (2003) training is one of the most pervasive methods for improving job performance and enhancing employee's performance in a work environment. Kirkpatrick (1996) asserts that training is of little value to organization unless it translates into performance. Training effectiveness is thus a measure of the extent to which training achieves its intended outcome, for instance to improve work performance (Krager, Ford & Salas, 1993). Training and development is essential for an organization to build and sustain competitive advantage in the organization's core competence. Definitely, employee's competence is specialized knowledge and skill that is often enhanced by continuous training and development (Cascio, 1998; Beardwell, Holden, Claydon, 2004; Ivancevich, 2003). Performance is a major multidimensional construct aimed to achieve results and has a strong link to strategic goals of an organization (Mwita, 2000). As explained that performance is the key element to achieve the goals of the organization so to increase the effectiveness and efficiency of the organization which is helpful for the achievement of the organizational goals. It is very necessary for the organization to design the training very carefully (Michael Armstrong, 2000). It seems that training design plays a very vital role in the employee as well as organizational performance (Khan et al., 2011).

OBJECTIVES OF THE STUDY:

- To ascertain the effectiveness of training and development programmes in the automobile outlets.
- To assess the level of satisfaction towards training and development programmes.

RESEARCH METHODOLOGY

The study sample comprised of 100 employees of different automobile outlets of Bhiwani District of Haryana (India). The data was collected through a questionnaire consisting close ended questions. All questionnaires were distributed and collected by hand. Only 94 questionnaires were found correct and assessable. The analysis of the questionnaire was undertaken using Statistical Package for Social Sciences (SPSS). Descriptive statistics and ANOVA were used to conclude the results.

DATA ANALYSIS & INTERPRETATION

To attain the objectives and analyzing hypothesis of the present study the data was collected and transcribed into tables and the same was analyzed with the help of appropriate statistical tools and techniques to arrive at the conclusion.

Table 1 : Demographic Profile of the Respondents

			Frequency	Percentage
1	Gender	Male	76	80.9
		Female	18	19.1
2	Age	< 20 yrs	7	7.4
		21-40 yrs	77	81.9
		41-60 yrs	10	10.6
3	Education	Up to Graduation	89	94.7
		PG	5	5.3
4	Experience	Fresher	7	7.4
		Up to 5 yrs	82	87.2
		More than 5 yrs	5	5.3

Table 1 shows the demographic profile of the respondents according to their age, gender, education and experience. In which 80.9% male and 19.1% female responded comprising 81.9% respondents were in the age group of 21-40 years. Of the respondents, 94.7% were under graduate and 87.2% respondents were having an experience of less than 5 yrs.

Table 2 : ANOVA Results

		Sum of Squares	df	Mean Square	F	Sig.
Were the topics covered in the program relevant, interesting and pertinent to your work?	Between Groups	.848	2	.424	2.696	.073
	Within Groups	14.312	91	.157		
	Total	15.160	93			
Were the topics covered easy to understand?	Between Groups	.115	2	.058	.823	.442
	Within Groups	6.364	91	.070		
	Total	6.479	93			
Do you think that the trainer was capable of delivering knowledge effectively?	Between Groups	.059	2	.029	.571	.567
	Within Groups	4.675	91	.051		
	Total	4.734	93			
Do you think the training climate was favourable?	Between Groups	1.137	2	.568	3.291	.042
	Within Groups	15.714	91	.173		
	Total	16.851	93			
Do you think that the training aids during the programme were appropriatet?	Between Groups	.115	2	.058	.823	.442
	Within Groups	6.364	91	.070		
	Total	6.479	93			
Do you agree that the training programme helped you to pick up new technical skills?	Between Groups	.115	2	.058	.823	.442
	Within Groups	6.364	91	.070		
	Total	6.479	93			
Do you agree that after attending the training programme, you can perform better at your job?	Between Groups	.085	2	.042	.695	.502
	Within Groups	5.532	91	.061		
	Total	5.617	93			
Do you agree that the training programme helped you to develop soft skills like communications skills, team work skills etc.?	Between Groups	.761	2	.380	2.510	.087
	Within Groups	13.792	91	.152		
	Total	14.553	93			

Source : Primary Data

The results of ANOVA as shown in table 2 point out the fact that the training and development programmes have consistent responses from employees of all age groups. Almost all the employees agree that the training has been able to achieve the objectives and since they find the programmes relevant to their work, they consider it to be effective too.

In order to test the satisfaction levels of the employees with respect to the training and development programs descriptive statistics of mean and standard deviation were assessed. The results of the same are displayed in Table 3. On a glance of the table we can infer that the employees found the training climate to be extremely favourable. The employees by and large agreed that the training and development helped improve the soft skills and the contents of the program were considered relevant and interesting.

With a mean of 1.09 and standard deviation of 0.281 we can conclude that the training programmes were satisfactory. The topics covered as well as the training aids were considered appropriate as per most of the employees. With focus on the delivery by knowledgeable trainer and clarity of objectives of the training programmes prior to the commencement of the programmes would definitely improve the effectiveness of training programs in the future ensuing programmes.

Table 3 : Descriptive Statistics of Satisfaction levels of Employees

	Mean	Std. Deviation
Do you think the training climate was favourable?	1.23	.426
Were the topics covered in the program relevant, interesting and pertinent to your work?	1.20	.404
Do you think that the nature of training programme you attended was related to your work?	1.20	.404
Do you agree that the training programme helped you to develop soft skills like communications skills, team work skills etc.?	1.19	.396
Was the overall quality of topics covered in the training programme good?	1.13	.335
Did the training program increase your satisfaction in the job?	1.10	.296
Do you think that the training objectives are achieved?	1.10	.296
Do you feel satisfied with the training programmes in your organisation?	1.09	.281
Do you feel that the training programmes have effect on reducing accidents/injuries in the premises?	1.07	.264
Do you agree that the training programme helped you to pick up new technical skills?	1.07	.264
Do you think that the training aids during the programme were appropriatet?	1.07	.264
Were the topics covered easy to understand?	1.07	.264
Do you agree that after attending the training programme, you can perform better at your job?	1.06	.246
Are you satisfied with the techniques and methods used in the programme?	1.06	.246
Objectives of the training programme were made clear to you before commencement of the programme?	1.06	.246
Do you think that the trainer was capable of delivering knowledge effectively?	1.05	.226

Source : Primary Data

CONCLUSION

According to the results and discussion above, it can be concluded that even the training programmes have their own implications; they however share the same goals of enhancing the employee and organizational performance. Similarly, the automobile outlets are not only confronting with the lack of qualified and skilled human resource supply for the market demand, but also facing problems of competent employees' retention. Hence, both the existing automobile outlets and future investors who expect to penetrate in the automobile outlet markets are suggested to take the employees training issues into priority consideration. Briefly speaking, this study is limited only within the automobile outlet sector; the future research that expects to test the training programme issues and relations should investigate more in other businesses.

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UNDERSTANDING CONSUMER PERCEPTION TOWARDS BRANDED CARS IN HISAR

Amita Girdhar*, Suman Ghalawat** and Subodh Aggarwal***

The purchase of product is significantly affected by a large number of factors. Marketers are always interested in knowing the key aspects on which the customer perception is influenced in a positive way. The present paper focuses on the major factors that affect consumer perception towards different brands of car and make suggestions in the light of the findings of the study. The study is mainly primary data based with a sample of 300 respondents from Hisar district of Haryana state and applied statistical tools of factor analysis is used to achieve the objective of the study. The factor analysis reveals five factors named as: product strategies, technology know-how, and level of satisfaction, workshop features and lastly service orientation. Factor analysis discloses that product strategies, technology know-how and level of satisfaction are being considered as the major factors as their factor loading is also very high and hence strongly affect the overall satisfaction of customers. Alternatively, workshop features and service orientation are considered to be reasonably affecting the overall contentment of customers using cars of various brands.

INTRODUCTION

Marketers can justify their existence only when they are able to understand consumer's needs and preference and satisfy them. For successful management of a firm, the modern marketing concept requires marketers to consider the consumer as the focal point of their business activity. Although it is important for the firm to understand the buyer and accordingly evolve its marketing strategy, the buyer or consumer continues to be an enigma - sometimes responding the way the marketer wants and on other occasions just refusing to buy the product from the same marketer. For this reason, the buyer's mind has been termed as a black box, which should be opened by the seller to be a successful marketer. The study of consumer behaviour also includes an analysis of factors that influence purchase decisions and product use. Understanding how consumers make purchase decisions can help marketing managers in several ways. For example, if a manager knows through research that fuel mileage is the most important attribute for a certain target market, the manufacturer can redesign the product to meet that criterion. If the firm cannot change the design in the short run, it can use promotion in an effort to change consumers decision making criteria. For example, an automobile manufacturer can advertise a car's maintenance-free features while downplaying fuel mileage.

This makes customer feel more confident while taking decision about which car to purchase as they are not so sure about the knowledge they have gathered about the other brands. They have the view that branded cars are more reliable than unbranded car so they are very conscious about branded and unbranded cars. During purchase intention, customers prefer to purchase the product, whose image is very close to customer. Moreover, from their past experience or information from their friends and relatives (Teng, 2008), customers are well aware of certain brand name through advertising.

The willingness to buy that brand is called the intention of a consumer to purchase a particular brand. Being just interested in a product does not mean that the consumer has the intention to buy the product e.g. after being exposed to a TV commercial; a consumer may have interest for the product. Kotwal (2009), stated that now buyers prefer to have comfort and luxury of a mid size saloon or sedan, like to have more space in the cars. Customer develops a certain maturity in taste with the growing affluence and technological advancement, as evidenced by the growing popularity of the Indian Hatchback market. Clement Sudhakar and Venkatapathy (2009) find out the effect of peer group suggestions in the purchase of car with special reference to Coimbatore District. It was also found that for the purchase of small sized

* Asst. Professor, Dept of Business Management, CCS Haryana Agricultural University, Hisar, Haryana.

** Asst. Professor, Dept of Business Management, CCS Haryana Agricultural University, Hisar, Haryana.

*** Asst. Professor, Dept of Business Management, CCS Haryana Agricultural University, Hisar, Haryana.

and mid-sized cars, the influence of friends is higher. White (2004) find out the factor affecting car-buyers' choices and comments that people expect to negotiate with dealers over price and about substantial rebates or incentives as well as low-interest payment plans and so on. He discussed that car dealers and advertisers needed to target the right audience due to increase in multi-car households, taking into consideration the increasing power of children and the importance of life stage. He admits that the motor trade has traditionally been contemptuous of women's role in the car-buying process, despite the fact that women are the primary buyers of most new cars.

The car industry is establishing a long-term relationship, predominantly driven by the product characterization, classification and orientation, Now It is being considered to be essential marketing strategy at all distribution levels. Thus, to contribute to a car dealer's competitive advantage, customer knowledge and relationship building are considered to be vitally important selling ingredients, through constantly addressing their needs as ascertained by Chojkacki (2000). Sharma and Patterson (1999) pointed out that car dealers were implementing a strategy, more effectively in the market place than before, to position themselves by means of continuous improvement of quality maintenance through services delivery packages, as car dealers are increasingly being confronted by shortened product model lifecycles, demanding and technologically knowledgeable consumers, intensified competition and fragmented market segments etc. Sagar and Chandra (2004) discussed, as to how the Indian car industry has advanced technologically, driven by variety of factors such as intense competition, Govt. policies (especially tightening emission standards), demanding consumer preferences, and the international strategies of the various players. They explained that the designs and incorporating advanced technologies of the car manufactured in India, are often comparable with those available globally and Indian car exports, are also growing.

STATEMENT OF PROBLEM

At present, the demand of car is very high across all the segments. In the emergent economy, people are able to invest more money for fulfilling their needs like cars. Moreover banks and financial institutions have an arrangement of vehicle loan schemes with suitable EMI's and attractive rates of interest. These schemes allure the customers to go for loans to purchase car of their choice. Now it is not a dream,

but becoming a reality for a common man to have a car of their choice at easy installments. Hence, the present study focuses on identifying the factors that affect consumer perception towards different brands of car and give suggestions to improve the decision making of the customers in the light of the findings of the study. Moreover this information could be used by marketers to read the minds of the consumers and plan strategies accordingly. The study is restricted to Hisar District of Haryana.

OBJECTIVES OF STUDY

The present study investigates the behavior of consumers, their importance in the aspects of life style, perception of product attributes and level of satisfaction. Hence, the study is aimed at the following objectives.
· To find out the major factors that affect consumer perception towards different brands of car.
· To make suggestions in the light of the findings of the study.

RESEARCH METHODOLOGY

The present study is an empirical research to examine the factors affecting consumer perception towards different brands of car. The study is based on the sample of 300 respondents of Hisar district of Haryana state. The data was collected in January-March 2014. Convenient sampling method is adopted for collecting the sample. Questionnaire was the research instrument used for data collection. It was divided into two sections. Section A consist of question related to demographical variables for the purpose of describing the sample and it consist of questions pertaining to age, income, marital status, occupation, qualification, fuel variant and price range whereas, Section B consists of statements related to major factors that affect consumer perception towards different brands of car. The adapted versions of standardized instruments were used with necessary modification to elicit the consumer buying behavior of Hisar area. All the 16 questions from section 2 of the questionnaire is based on Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The data is analyzed using SPSS version 13.0. The study employs factor analysis to determine the factors that are considered important while under stress. Factor analysis is a set of technique to identify underlying factors from the collection of seemingly important variables. It trims down the total number of variables into fewer factors and also shows the correlation between the factors (Nargundkar, 2005). Secondary data has been

collected through research papers, journals, websites, magazines and books.

The demographic characteristics of the respondents are summarized in Table 1. It is clearly being shown from the table regarding gender information which shows that 90 percent of the respondents were male and 10 percent respondents were female. The survey shows majority of the respondents were male and the main reason for this is because majority of men drive a car than female in India, especially in Hisar. Sample has been selected randomly without any bias and all the respondents are basically car owners. Furthermore the table provides the respondents age-group information. The first age group (20 to 30 years) accounted for 55 percent and next 30 to 40-years-age-group accounted for 21 percent, the 40 to 50-years-age-group were 16 percent and the above 50 years age group respondents were 8 percent. Hence it is clearly shown from the results that respondents were in the age group of 20-40 years. The table also explains the respondents' income. Data shows that 24 percent respondents' annual income are below 4 lakh and 34 percent respondents annual income is between 4 to 6 lakh and 27 percent respondents earn annually between 6 to 8 lakh and 15 percent respondents' annual income is above 8 lakh. All respondents have a different brand car, matching their individual income level. It is clear that 53 percent respondents are married and 47 percent respondents are unmarried.

Table 1 : Demographic Profile of Respondents

S. No.	Demographic Detail	Frequency	Percent
Age	20-30 years	165	55.0
	30-40 years	63	21.0
	40-50 years	48	16.0
	above 50 years	24	8.0
Income	Below 4 lac	72	24.0
	4-6 lac	102	34.0
	6-8 lac	81	27.0
	above 8 lac	45	15.0
Marital Status	Married	159	53.0
	Unmarried	141	47.0
Occupation	Businessman	108	36.0
	Serviceman	153	51.0
	Any other	39	13.0
Qualification	PG	105	35.0
	Graduate	165	55.0
	Diploma/10+2	18	6.0
	Matric	12	4.0
Brand preference	Maruti Suzuki	63	21.0
	Tata	48	16.0
	Hyundai	57	19.0
	Honda	36	12.0
	Mahindra	48	16.0
	Toyota	21	7.0
	any other	27	9.0
Fuel Variant	Petrol	114	38.0
	Diesel	159	53.0
	LPG	21	7.0
	CNG	6	2.0
Price range	Below 4 lac	33	11.0
	4-8 lac	129	43.0
	8-12 lac	108	36.0
	Above 12 lac	30	10.0

From the table. it is also clear that 51 percent respondents are in service and 36 percent respondents run their own business and 13 percent respondents were belongs to other occupation. From the table it is also clear that 35 percent respondent qualification is P.G, 55 percent respondent qualification is Graduate, 6 percent respondent qualification is Diploma/+2 and 4 percent respondent qualification is matric. Hence it can be concluded that majority of the respondents were highly qualified. Regarding the brand preferences of consumer, 21 percent respondent prefer Maruti Suzuki followed by Tata Motors (16 percent), Hyundai (19 percent), Honda (12 percent), Mahindra (16 percent), Toyota (7 percent) & other brand (9 percent). Further, 38 percent respondents preferred petrol variant followed by 53 percent respondents preferred diesel variant, 7 percent respondent preferred LPG variant and 2 percent respondent preferred CNG variant. In the above table it is also clear that 11 percent respondent prefer below 4 lakh price range, 43 percent respondent

prefer between 4-8 lakh price range, 36 percent respondent prefer between 8-12 lakh price range and 10 percent respondent prefer above 12 lakh price range. In order to know the various factors considered important for the car buyers, two tests were conducted under the factor analysis to judge the reliability of data, i.e., Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett test of sphericity. The results so obtained in Table 2 were subjected to both these tests. The value of KMO statistics in all the factors is >0.5. Hence, all the factors are not considered equally important for measuring the brand preferences. Therefore, null hypothesis is rejected. Bartlett's test of sphericity shows the value of Chi-square which is significant at 0.000 levels in all the dimensions of service quality. These two tests show that the data is fit for conducting the factor analysis. The Cronbach's alpha value for the 16 statements is 0.628, which is also significant in the Table 3 mentioned as below:

Table 2 : KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.647
Bartlett's Test of Sphericity	Approx. Chi-Square	397.690
	Df	120
	Sig.	.000

Table 3 : Reliability Statistics

Cronbach's Alpha	N of Items
.628	16

Table 4 (a) : Rotated Component Matrix

Statements	Component				
	1	2	3	4	5
a11 discounts available	**.776**	-.311	.054	.069	-.071
a15 competitive price	**.759**	.081	-.010	-.056	.020
a7 promotional strategies	**.714**	-.039	.122	-.052	.192
a1 marketing influence	**.565**	.383	.467	-.071	-.095
a5 guarantee/warranty	**.553**	.122	-.264	.187	-.085
a12 resale value of car in markets	**.534**	-.528	-.197	.379	-.068
a10 acquaintance with retailer	**.505**	-.144	.416	-.368	.074
a3 imported technology	.148	**.861**	-.044	.235	-.024
a6 technology advancement	-.186	**.714**	-.253	.005	.240
a8 friend & relative recommendation	-.019	-.177	**.765**	-.130	.246
a9 level of satisfaction with old car	.011	-.003	**.730**	.305	-.053
a14 availability of spare parts	-.060	-.066	-.034	**.753**	.112
a16 location of workshop	.079	.240	.171	**.705**	.064
a4 after sales services	.042	-.009	.205	.063	**.752**
a2 brand reputation	-.035	.347	.054	-.012	**.522**
a13 pick & serve facility	.079	-.020	-.314	.342	**.513**
percent of Variance	19.553	13.671	11.819	9.568	6.773
Cumulative %	19.553	33.223	45.042	54.610	61.383
Eigen Value	3.128	2.187	1.891	1.531	1.084

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 8 iterations.

Five factors were extracted which accounted for 61.383 percent of variance explained by factor 1 to 5 are 19.553, 13.671, 11.819, 9.568, 6.773 percent respectively. This is represented in the Table 4 (a).

Table 4 (b) : Factor Names and Their Labels

Factor Names	Statements	Factor Loading	Cron-bach Alpha
Product Strategies (F1)	A11 Discounts Available	.776	.762
	A15 Comparative Price	.759	
	A7 Promotional Strategies	.714	
	A1 Marketing Influence	.565	
	A5 Guarantee/Warranty	.553	
	A12 Re-Sale Value Of Car in Markets	.534	
	A10 Acquaintance with Retailer	.505	
Technology Know-How (F2)	A3 Imported Technology	.861	.651
	A6 Technology advancement	.714	
Level Of Satisfaction (F3)	A8 Friend & Relative Recommendation	.765	.557
	A9 Level of Satisfaction with Old Car	.730	
Workshop Features (F4)	A14 Availability Of Spare parts	.753	.419
	A16 Location of Workshop	.705	
Service Orientation (F5)	A4 After Sales Services	.752	.286
	A2 Brand Reputation	.522	
	A13 Pick & Serve Facility	.513	

RESULTS AND INTERPRETATION

Factor analysis yielded 5 factors, which throw light on the car buying behavior & their attributes. The process of extraction was stopped where the size of Eigen value has gone less than 1.084 and that level it explain 61.383 of total variance as mentioned in Table 4 (a). The method of principal component analysis has been applied to draw the results of factor analysis.

The factor names, variables loaded on the respective factors and their factor loadings and Eigen values of the factors may be seen in Table 4 (b). Derived five factors are as follows:

Factor 1: Product Strategies
Factor 2: Technology Know-How
Factor 3: Level of Satisfaction
Factor 4: Workshop Features
Factor 5: Service Orientation

Product Strategies (Factor 1)

This is an important factor, which account for maximum percentage of variations equal to 19.553. Three out of 16 variables have loaded on this factor and named as product strategies. The Eigen value more than 3.128 also highlights that it is most important factor in respect of identifying brand preferences of consumers while purchasing a car. The components included in this factor are discounts availability, comparative price, promotional strategies, marketing influence guarantee/warranty, re-sale value of car in markets, acquaintance with

retailer, imported technology and lastly technology advancement plays an important role in the purchase of a car. Hence it can be concluded that customer can be attracted by adding more and more features to the product and Unique selling proposition (USP) make it different from your competitor.

Technology Know-How (Factor 2)

The second factor, which account for 13.671 percent of variations, has been named as Compliant. Two out of 16 variables have loaded on this factor and named as technology know-how. The Eigen value more than 1 i.e. 2.187 also highlights that it is also an important factor in respect to purchase a car by the consumer. The statements included in this factor are imported technology & technology advancement. Hence it can be concluded that technology is very crucial aspect of product like car. Now day's manufacturers of car try to use updated technology to allure customers.

Level of Satisfaction (Factor 3)

This factor also accounts for maximum percentage of variations equal to 11.819. Two out of 16 variables have been loaded on this factor and named as level of satisfaction .The Eigen value more than 1.891 also highlights that it is slightly an important factor in respect to our main objective as per factor analysis. The variables included in this factor are friend & relative recommendation and level of satisfaction with old car. Customer orientation is now becoming a Buzzword for manufacturers and putting their efforts to maximize satisfaction while increasing sales.

Workshop Features (Factor 4)

The fourth factor that emerges from the factor model has been designated as workshop features, which account for 9.568 percent of variations. Two out of 16 variables have loaded on this factor. The Eigen value more than 1.531 also highlights that it is moderately important factor in respect to our objective as per factor analysis. The statements included in this factor are availability of spare parts and location of workshop. Hence it can be concluded that customer is going to purchase car from where they are getting all the facilities under single roof.

Service Orientation (Factor 5)

This factor, which account for 6.773 percent of variations is named as service orientation. Three out of 16 variables have loaded on this factor. The Eigen value more than 1.084 also highlights that it is slightly important factor in respect to take decision regarding purchasing a car. The variables included

in this factor are after sales services, brand reputation, pick & serve facility. A product becomes more popular when after sale services are getting easily available and with no cost involved. Hence service orientation also determines the scope for further purchase.

SUGGESTIONS

• To attain the above said objective, this study focuses on examining the factors affecting consumer perception towards different brands of car. An effort was made to ask an open ended question, so as to reach at a solution. The reason being was that consumer behavior is sometimes unpredictable. The following suggestions were given by the respondents as follows:

• Car companies should do efforts to find a place in the mind of customers through proper sales promotions activities and advertisements as well.

• To influence the customers, car companies should use celebrity endorsement according to the reputation of celebrity.

• Social campaign should be organized by car manufacturers at periodic intervals to interact with their customers and their friends and family members.

• There should be some tie-up with financial institution to give installment facility to the customers.

• According to the present family size, car manufacturer should identify the tastes, need, want, desire and preferences of the customers and design the product.

• Introduce loyalty programs like loyalty bonus and added benefits for using that brand for longer period and treat them as preferred customers.

• Try to improve the service quality while offering different service level like basic, extended and premium services.

• Car companies should focus on safety or security mechanism as their USP, customers prefer these features over other and ready to pay higher amount for it.

CONCLUSION

It is rightly said; yesterday's luxuries are today's necessities. Hence in this digital world, car is no longer a luxury. The growth in the population of India and the increasing number of middle class consumers has attracted the attention of car manufacturers and marketers. The manufacturers and marketers who study the behavior of consumers and

cater to their needs will be successful. The present study is to find out the major factors that affect consumer perception towards different brands of car. The factors taken into consideration provide a wide platform to the car manufacturing companies and further scope of improvement. To achieve the objective of the study, the paper developed five factors having the various sub-factors. In light of the research and analysis done it can be concluded that, car manufacturer companies is marked by the factors such as product strategies, technology know-how, level of satisfaction, workshop features and lastly service orientation. Product strategies, technology know-how and level of satisfaction are being considered as the major factors as their factor loading is also very high and hence strongly affect the overall satisfaction of customers. Alternatively, workshop features and service orientation are considered to be reasonably affecting the overall contentment of customers using cars of various brands. The study also focuses on the suggestions in the light of the findings of the study. Some suggestions were given by the customers while questionnaire get filled from them like Car companies should do efforts to find a place in the mind of customers through proper sales promotions activities and advertisements as well, influence the customers, car companies should use celebrity endorsement according to the reputation of celebrity and social campaign should be organized by car manufacturers at periodic intervals to interact with their customers and their friends and family members

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