



INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT AND MANAGEMENT

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JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

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FORCASTING OF FINANCIAL MARKETS - APPLICATION OF FUZZY ASSOCIATION RULES

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ABSTRACT

The article has been designed to forecast financial market indicators using rule based fuzzy system. The fuzzy system has been applied on Gold commodity future market, Carbon credit and CNX Nifty Index. The report is devoted to articulate the impact of rule based fuzzy system for forecasting the above mentioned parameters. Fuzzy rule have been designed by considering the standard deviation of the above parameters as a rule input variable and is applied on the moving average of 2 days, 7 days and 15 days of the input variable that is the future commodity gold prices, carbon credit and the CNX Nifty Index. Around 42 rules have been designed by considering the bullish, bearish, near bullish, near bearish and active bullish and active bearish etc. The article effectively forecast future gold price and the bullish and bearish nature of market. It also forecast the Index along the cycle of bullish and bearish. In-sample prediction has supported the rule based fuzzy system as an effective methodology of forecasting.

KEYWORDS

Commodity Future Market, Fuzzy Association Rules, Fuzzy Inference System, Financial Market Forecasting.

INTRODUCTION

The article primarily discusses financial market forecasting using fuzzy system based association rules. The fuzzy system has been applied on Gold futures, Carbon credit and CNX Nifty Index. The fuzzy logic based inference system design to capture the historical movements of above parameters. The inference system has been designed to capture the time-varying volatility and factor the variability for the prediction of financial prices. In place of single input series, the study has used multiple input series of the same data through different periods of moving averages and factored the variability with time-varying volatility. Fuzzy rules have been designed by considering the standard deviation of the above parameters as a rule input variable and is applied on the moving averages of 2 days, 7 days and 15 days of the input variable that is the future gold prices, carbon credit and the CNX Nifty Index. Around 42 rules have been designed by considering the bullish, bearish, near bullish, near bearish and active bullish and active bearish etc. The outcome of the study is quite impressive as the prediction is significant. The model can also be used for prediction of other financial parameters.

FUZZY LOGIC IN FINANCE

Fuzzy systems have been widely used in expert systems, machinery, home appliances and robotics. Recently, applications in the finance field have also been reported, exploiting the ability of fuzzy systems to model the vague and imprecise information. Fuzzy systems have been used with various technical indicators in previous studies. It shows that the returns generated with the fuzzy systems are significantly larger than linear regression models, neural networks and other investment strategies. The results combining technical analysis and fuzzy logic were very promising. Since different artificial intelligence methods have different strengths and limitations, hybrid systems have also been studied to obtain synergetic combinations of methods models and architectures. In particular, combinations of fuzzy systems with neural networks and/or genetic algorithms appear to be popular in real-world implementations.

Traditionally science, engineering and mathematics showed virtually no interest in studying uncertainty. It was considered undesirable and the idea was to eliminate it. In fact, eliminating uncertainty was considered as one of the manifestations of progress. This attitude towards uncertainty was prevalent in the 19th century and faced serious challenges by the advent of probability theory in the early half of the 20th century. When constructing a system for some given purpose, one's ultimate goal is to obtain a system that is as useful as possible for the given purpose. This implies that a system should be a proper mixture of the three fundamental characteristics of systems: credibility, complexity and uncertainty. Ideal we would want a system of high credibility, low complexity and low uncertainty. Unfortunately these three ideas conflict with one other. Thus to achieve a system with better performance we need to reach a tradeoff between these three characteristics.

The relationship between credibility, complexity and uncertainty is quite intricate and has not yet been fully understood. However, it is already well established that uncertainty has a pivotal role in any effort to maximize the usefulness of constructed systems. Although usually undesired in system, when considered alone, it becomes very valuable when considered in connection with credibility and complexity. A slight increase in relevant uncertainty may often significantly reduce complexity and at the same time increase credibility of the system. Uncertainty is thus an important commodity in the knowledge business, a commodity that can be traded for gains in other essential characteristics of systems by which we represent knowledge. Because of this important role, uncertainty started being no longer viewed in science and engineering as an unavoidable plague, but rather as an important resource that allows us to deal effectively with problems with systems involving complexity.

By the early half of the 20th century it was believed that only probability theory can be applied to fully capture the essence of uncertainty. The equivalence of probability and uncertainty was challenged in the latter half of the 20th century by an important generalization in mathematics, namely, the fuzzy set theory which was introduced by L. Zadeh in 1965. In the fuzzy set theory, the requirement of sharp boundaries as in the classical sets is abandoned. This implies that the membership of an object in a fuzzy set is not a matter of 'present' or 'absent' as in classical sets but is a matter of degree.

Fuzzy logic is now a well established tool in the field of engineering, but its application in finance is still less developed.

FUZZY LOGIC BASICS

Fuzzy Logic was initiated in 1965 by Lotfi A. Zadeh, professor of computer science at the University of California in Berkeley. Basically, Fuzzy Logic (FL) is a multivalued logic that allows intermediate values to be defined between conventional evaluations like true/false, yes/no, high/low, etc. Notions like rather tall or very fast can be formulated mathematically and processed by computers, in order to apply a more human-like way of thinking in the programming of computers. Fuzzy systems are an alternative to traditional notions of set membership and logic that has its origins in ancient Greek philosophy. The precision of mathematics owes its success in large part to the efforts of Aristotle and the philosophers who preceded him. In their efforts to devise a concise theory of logic, and later mathematics, the so-called "Laws of Thought" were posited. One of these, the "Law of the Excluded Middle," states that every proposition must either be True or False. Even when Parmenides proposed the first version of this law (around 400 B.C.) there were strong and immediate objections: for example, Heraclitus proposed that things could be simultaneously True and not True. It was Plato who laid the foundation for what would become fuzzy logic, indicating that there was a third region (beyond True and False) where these opposites "tumbled about." Other, more modern philosophers echoed his sentiments, notably Hegel, Marx, and Engels. But it was Lukasiewicz who first proposed a systematic alternative to the bi-valued logic of Aristotle.

Fuzzy Logic has now emerged as a profitable tool for the controlling and steering of systems and complex industrial processes, as well as for household and entertainment electronics, as well as for other expert systems and applications like the classification of satellite data and application in various pure sciences.

LITERATURE REVIEW

As financial forecasting has been addressed for such a long time period, the number of proposed method is tremendously large. Statistical linear models such as the linear regression, the autoregressive model (Yule, 1927), the moving average and autoregressive moving average (Box et al., 1994) have dominated for decades. But statistical linear models have inferior performance because the dynamic of financial time series are strongly nonlinear (Qi and Maddala, 1999). More sophisticated nonlinear models such as the bilinear model (Granger and Anderson, 1984), the threshold autoregressive model (Tong and Lim, 1980), the smoothing transition autoregressive model (Chan and Tong, 1986) and the autoregressive conditional heteroscedastic model (Eagle, 1982) were also developed and applied to forecast financial time series. However, nonlinear statistical models are limited in that they make strong assumptions about the properties of the data, thus introducing a high degree of bias in to the models. The emergence of artificial intelligence techniques has seen their enormous application to financial forecasting, such as expert systems (Tsaih et al., 1998), genetic algorithms (Bauer, 1994), fuzzy logic (hiemstra, 1994), wavelets (Bjorn, 1995; Pan and Wang, 1998), chaos theory (Trippi, 1995) and neural networks (Chou et al., 1996; Kryzanowski et al., 1993; Mani et al., 1995; Pi and Rognavldsson, 1995). Among them, neural networks are the most popular and successful tools. There is extensive literature about the application of neural networks in financial forecasting (Azoff, 1994; Beastaens et al., 1995; Goonatilake and Treleaven, 1995; References, 1995; Trippi and Turban, 1994; Turban and Trippi, 1992; Van 1996; Wong and Selvi, 1998). One of the most popular Journals published on the application of neural networks in finance is the Journal of Computational Intelligence in Finance. Various applications of neural networks in financial forecasting range from options price (Barucci et al. 1996; English and Mayhew, 1995; Lajbcygier et al., 1995; Yao et al., 2000), foreign exchange rate (Green and Pearson, 1995; Hwa and Seng, 1995; Lee, 1995; Staley and Peter, 1995; Yao and Tan, 2000; Yao et al., 1996; Zhang and Michael, 1998), stock price and index (Abecasis and Lapenta, 1997; Kohara et al.; 1996; Schoneburg, 1990; White 1988; Wittkemper and Steiner, 1996), mutual fund (Chiang et al., 1996), interest rate (Guenther, 1995; Steven and Noh, 1997), commodity price and index (Edelman et al., 1999; Grudnitski and Osburn, 1993), treasury bond (Cheng et al., 1996), and emergent markets (Jang and Lai, 1994; Siriopoulos et al., 1995).

METHODOLOGY

The fuzzy rule used in the model uses variance as rule based parameter for designing different rules. Different days moving average considered as input variable along with variance as the rule based variable. Fuzzy rules have been designed by considering the standard deviation of the above parameters as a rule input variable and are applied on the moving average of 2 day, 7 days and 15 days of the input variable that is the future commodities like Gold and Carbon. It is also applied on CNX Nifty Index for equity price forecasting. Around 42 rules have been designed by considering the bullish, bearish, near bullish, near bearish and active bullish and active bearish etc. Investors generally invest in financial market my looking in to future perspective yield over a medium and long time periods. This calls for preparing a forecasting model by factoring the medium and long term returns into the current yield. Using this, the study has made a fuzzy based association rules by relating the current yield with the moving averages yields of 2days, 7days and 15days. This fuzzy association model provides ideal framework for forecasting financial markets prices by developing fuzzy association rules based logic. The study has considered current yield, its volatility and the moving averages of returns for above mentioned days as inputs and involving these inputs about 35 fuzzy association rules based logic to forecast financial market prices. Various Logics have been developed to capture the bullish and bearish trends of financial markets prices.

INPUT DATA FOR THE FUZZY INFERENCE SYSTEM (FIS)

Real time data of commodity prices of Gold and Carbon taken from the NCDEX Exchange India. Both Gold and Carbon are being most traded and active commodities and are always high on demand. Hence the selection of the commodities are taken since its price variation are very much reflected in most of the factors of economy as whole as very much affected by the financial market and stock prices of the Trading Exchange. While prices for many physical commodities tend to revolve around supply-demand data, Gold and Carbon need to be treated more like a financial market that responds to fear and anxiety. Both Commodities prices typically move higher in times of crisis and panic. Gold and Carbon prices usually move higher during periods of high inflation, which tend to bring on higher interest rates. Gold and Carbon futures prices also have an inverse relationship with the price of the U.S. dollar.

S&P CNX Nifty is a well diversified 50 stock index accounting for 21 sectors of the economy. It is used for a variety of purposes such as benchmarking fund portfolios, index based derivatives and index funds. The study also forecast needs future movements using the Fuzzy based Association Rules.

Moving average of the Average day futures prices is taken in case of Gold future for 2 day, 7 days, and 15 days. For each of the moving average future price we analyse the variance, its fluctuation range, and its bearish and bullish trend is observed. For CNX Nifty Index we consider Return from moving average value of the Index

The bearish and bullish trend is classified into three different categories:

- Active bearish
- New bearish
- Mild bearish
- Active bullish
- New bullish
- Mild bullish

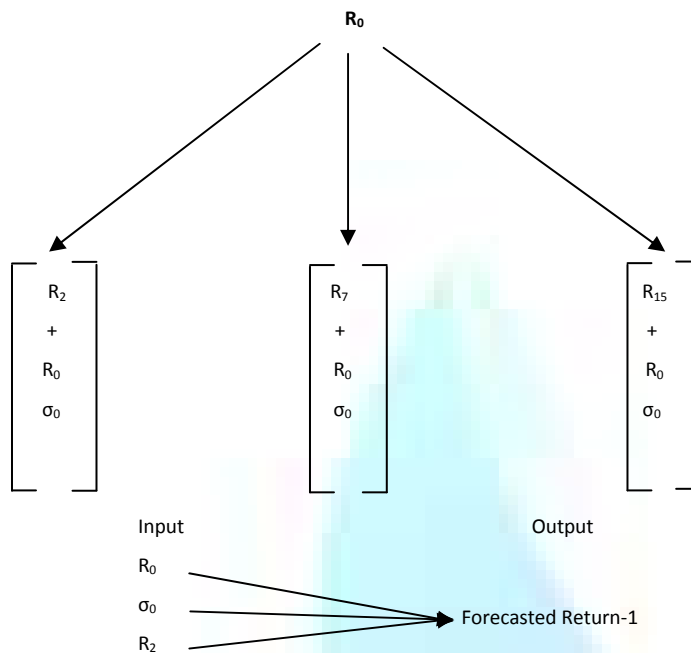
Daily data for 3 years have been considered to forecast the future prices/returns using the 35 fuzzy association rules based logic.

ASSOCIATION RULES

Appropriate Membership function is chosen so as to reflect the above stated trends in a proper diversified manner and so that all the factors are represented appropriately by them. Appropriate rules are defined so as to train the fuzzy system and enable it to process the inputs and on the basis of decision rules and the Membership function of the fuzzy system we get the output. The study has designed fuzzy association based logic system to optimize to forecasting methodology. In this case the current return and its volatility is considered as the primary inputs and the co-occurrence inputs are the moving averages of the

primary inputs. The fuzzy association rule based logic has been developed considering the primary inputs and co-occurrence inputs are the associated variables. The logic is depicted below.

FIGURE 1: FUZZY ASSOCIATION RELATION



From each input set will provide a particular level of output and the objective of the fuzzy rules based association is to find that input set which provides the optimum level of output.

The objective of this thesis was to setup up a fuzzy inference system so as to predict the future price of Gold, Carbon and the Return on CNX Nifty Index. Data from the Commodity Market (NCDEX) and actual CNX Nifty Index for the past 3 years has been analyzed. The shape of the membership function, number of fuzzy regions and the fuzzy terms are defined for the data. Here mainly triangular membership functions are made using the Gaussian function. The fuzzy membership functions are the same for the inputs and the outputs. Two cases were taken, one with 5 membership functions and another with 3 membership functions. Fuzzy terms used for the 6 membership functions were (active bearish, new bearish, mild bearish, mild bullish, new bullish, active bullish) and for the 3 membership function case.

FIGURE 2: 6 TRIANGULAR MEMBERSHIP FUNCTIONS

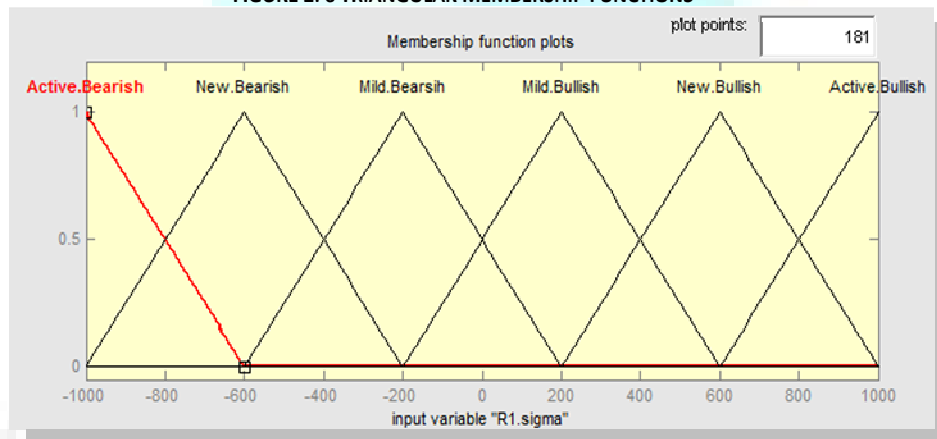
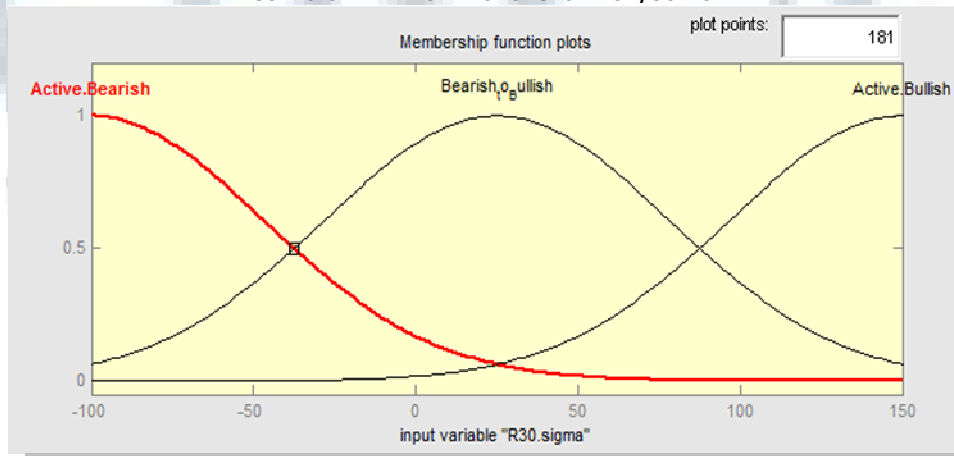


FIGURE 3: 3 MEMBERSHIP FUNCTIONS INPUT /OUTPUT



1. The space associated with each fuzzy term over the universal discourse for each variable was then calculated and divided evenly over the 5/9 membership functions.
2. For each available core data a fuzzy rule was established. For self generation of the rules, certain MATLAB codes were written which took the data as input and gave output the rule from that given input-output pair. The idea is to 1st divide the input output space into fuzzy regions. The fuzzy rule was established by directly mapping the physical value of the variable to the corresponding fuzzy membership function. Most of the time for a given value, it always falls into more than one fuzzy region. In such a case the value was assigned to the fuzzy region with maximum degree
3. These steps were repeated for the entire given core data and a rule were established for each of the dataset.
4. These set of rules along with the centroid defuzzification method form the Fuzzy Inference System.

GOLD MARKET IN INDIA

India is the largest importer of gold jewellery contributing to 25% of world's gold demand. It imports about 663 tonnes of gold annually mainly in the form of small cast bars known as TT bars or biscuits. India is also the largest consumer of gold worldwide.

Gold trading has existed for centuries and has been a keystone for economies throughout history, continuing to have global financial impacts today. Gold has not only been a means of exchange but also is regarded as a store of value and an excellent hedge against inflation. In addition to being a monetary commodity, gold has a number of uses in jewellery, dentistry, etc. and is also an important industrial commodity because it is an excellent conductor of electricity and is extremely resistant to corrosion, making it critically important in electronics and other high-tech applications. Gold is one of those markets that provide a wide range of viable investment vehicles for almost any type of investor. In addition to the physical gold itself in the form of gold bullion or gold coins, investors can express their opinions about the outlook for gold prices in gold futures and options, stocks of companies involved in metals and mining including the gold mining penny stocks and gold exchange-traded funds.

The price of gold depends on a host of factors, which makes it very difficult to predict. In a fashion similar to shares, gold is an asset class by itself. In fact, in many villages and small towns of India, gold is preferred to bank deposits as a savings and investment instrument. Till few years ago, to gain from price volatility, one would have to hoard and trade in gold physically. Not any more, however. With the commodity futures market operating in full swing, one has the option of not physically stocking gold to gain from its price movements.

CARBON MARKET IN INDIA

India may be the leader in the number of carbon credits issued so far and the number of clean development (CDM) projects registered with international CDM body, but it already lags behind China in the volume of average annual credits expected till 2012. India has cornered nearly 43% of the Carbon credits (CERS) issued so far by the CDM executive board, the highest international body under the Kyoto Protocol to register projects and issue credits. In comparison, only 17% of the CERs have been issued to China. But the expected average annual CERs from registered projects till 2012 has China (44%) far ahead of India (15%), although India, with 259 projects, leads China (101) in the number of registered projects. Carbon credits, or CERs (Carbon Emission Reductions), are tradable credits earned for investing in projects aimed at reducing greenhouse gas emissions. One CER is equivalent to one tonne of carbon dioxide reduced. Under the Kyoto Protocol, governments and companies in the European Union can use these credits to offset their carbon emissions and meet part of their reduction targets. Carbon credits are generated mainly in the developing countries because of the lower project cost. "Indian companies have mainly concentrated on renewable energy (biomass, wind power, etc.) or waste heat recovery projects that generate much less CERs compared with the Chinese who have several projects in high CER-yielding HFC23 projects. Each tonne of HFC23, a by-product of the refrigerant gases production process, is equivalent to 11,700 tonnes of carbon dioxide. Naturally, destroying small quantity of HFC23 can fetch a very large volume of CERs. Also, these projects attract more investments since they are relatively cheap to execute and earn more credit.

S&P CNX NIFTY

The 50 or S&P CNX Nifty nicknamed *Nifty 50* or simply *Nifty* (NSE: ^NSEI), is the leading index for large companies on the National Stock Exchange of India. The Nifty is a well diversified 50 stock index accounting for 22 sectors of the economy. It is used for a variety of purposes such as benchmarking fund portfolios, index based derivatives and index funds S&P CNX Nifty is owned and managed by India Index Services and Products Ltd. (IISL), which is a joint venture between NSE and CRISIL. IISL is India's first specialised company focused upon the index as a core product. IISL has Marketing and licensing agreement with Standard & Poor's (S&P), who world leaders are in index services.

- The total traded value for the last six months of all Nifty stocks is approximately 65.68% of the traded value of all stocks on the NSE
- Nifty stocks represent about 65.34% of the total market capitalization as on Mar 31, 2009.
- Impact cost of the S&P CNX Nifty for a portfolio size of Rs.2 crore is 0.16%
- S&P CNX Nifty is professionally maintained and is ideal for derivatives trading.

RESULTS AND DISCUSSION

Following the above mentioned steps the following FIS has been setup for Gold Future.

FUZZY INFERENCE SYSTEM USING MATLAB

FIGURE 4: FUZZY INFERENCE SYSTEM OF GOLD

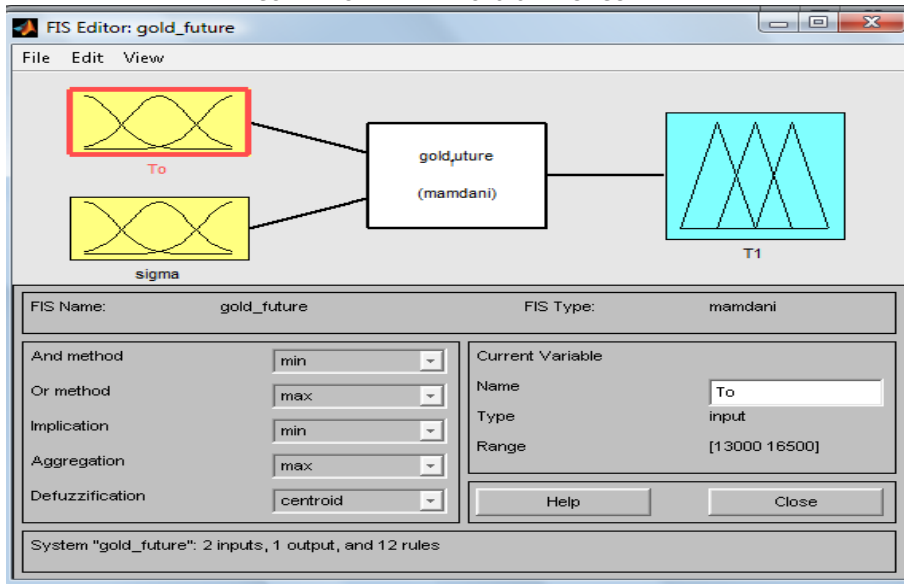
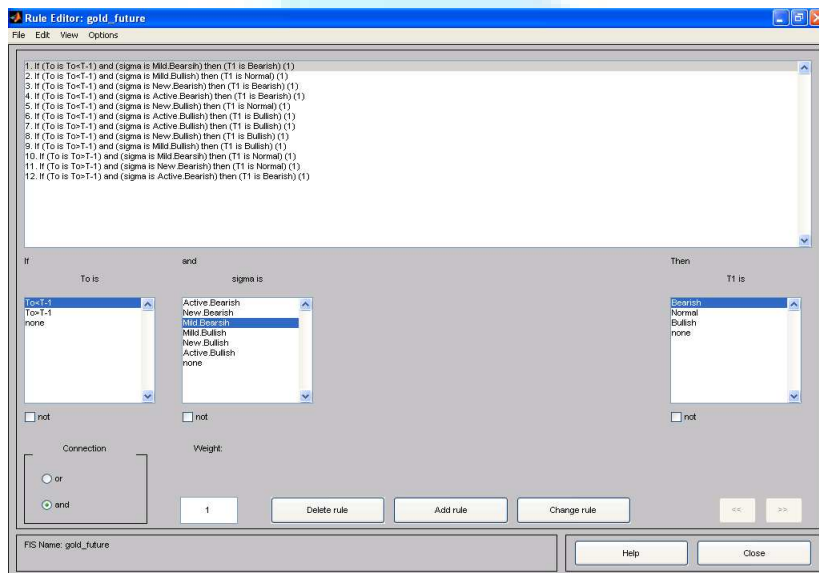


FIGURE 5: FUZZY INFERENCE SYSTEM RULES OF GOLD



Following the above mentioned steps the following FIS has been setup for Carbon Future.

FIGURE 6: FUZZY INFERENCE SYSTEM OF CARBON

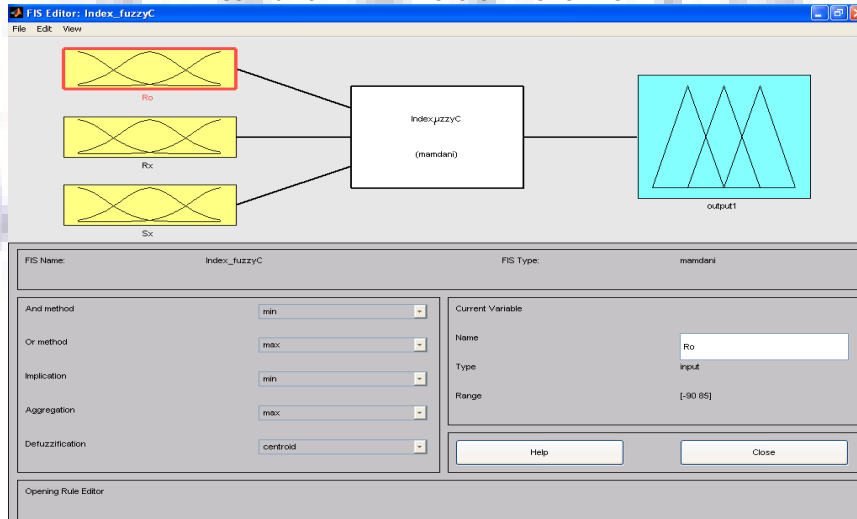
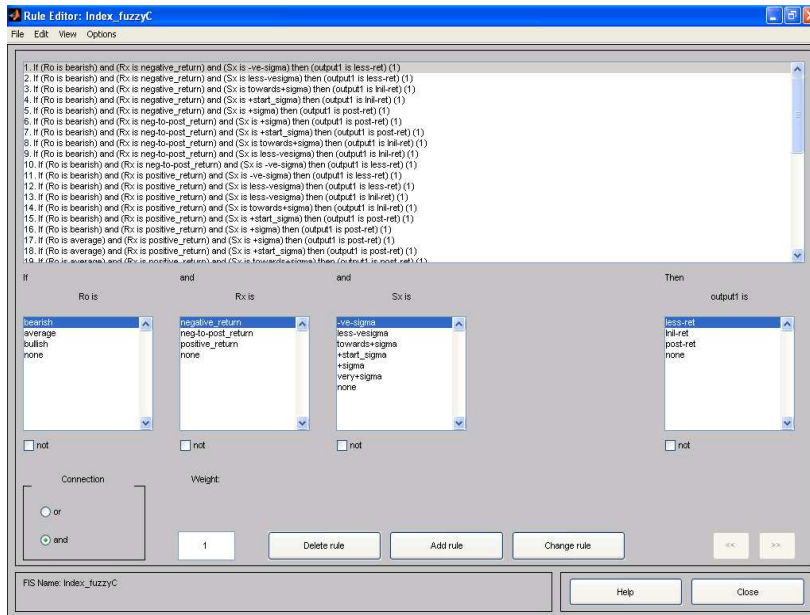


FIGURE 7: FUZZY INFERENCE SYSTEM RULES OF CARBON



Following the above mentioned steps the following FIS has been setup for CNX NIFTY Index.

FIGURE 8: FUZZY INFERENCE SYSTEM OF CNX NIFTY

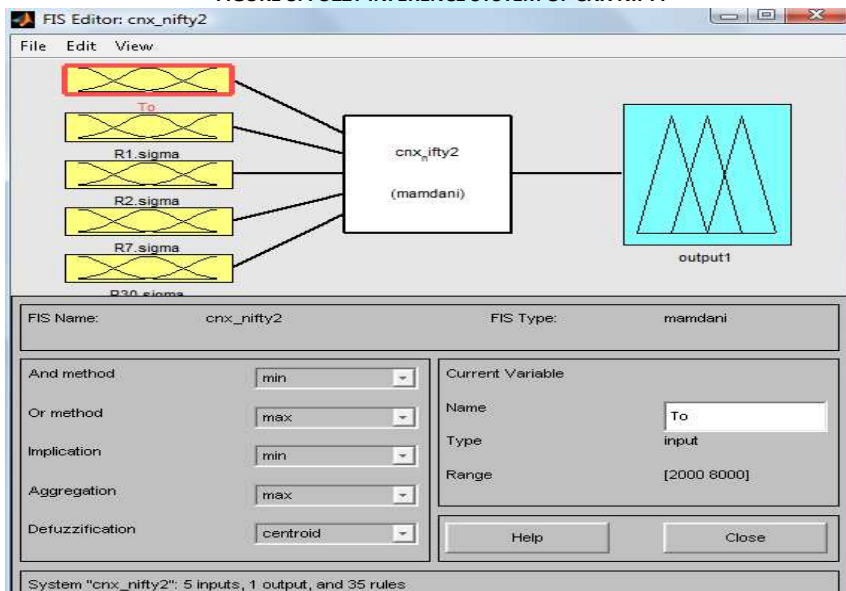
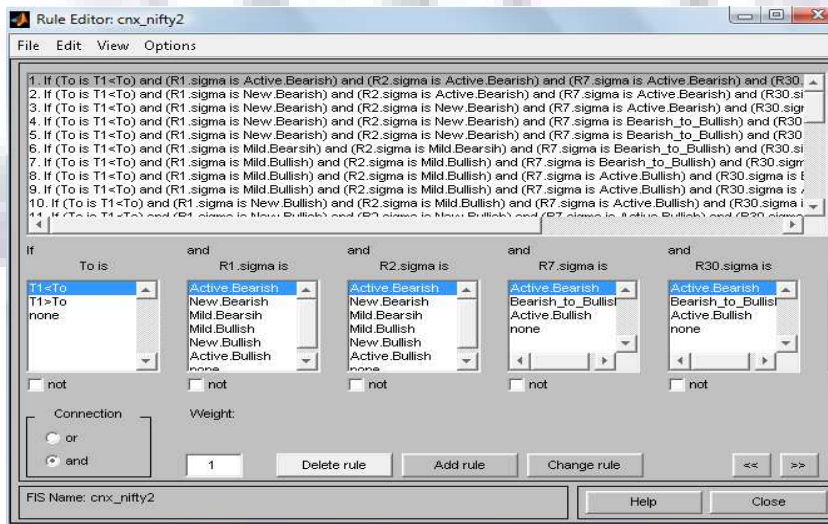


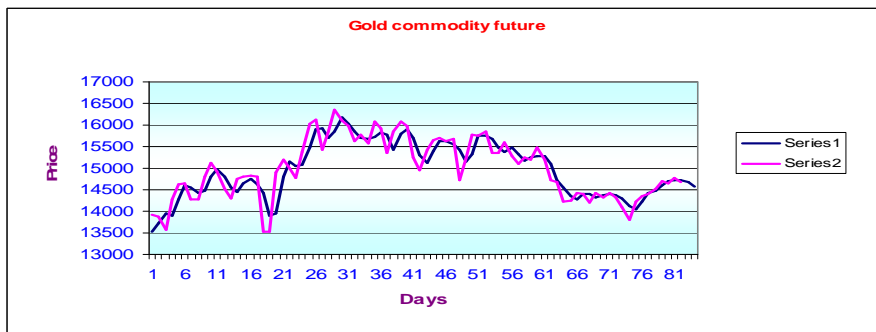
FIGURE 9: FUZZY INFERENCE SYSTEM RULES OF CNX NIFTY



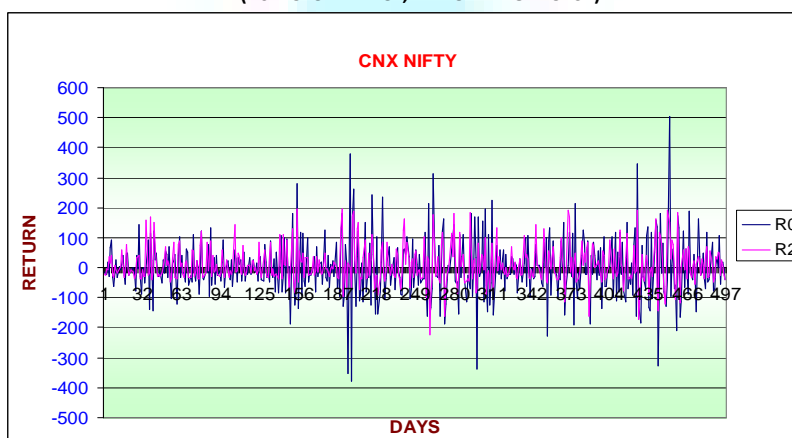
RESULT OF THE RULE BASE FORMED IS SHOWN BELOW

The following graph shows the results by overlapping the actual values and the values obtained from the fuzzy inference system. It must be noted that some of the obtained values were at places where no training of the FIS had been performed.

**GRAPH 1: OUTPUT FOR GOLD FUTURES
(SERIES1- ACTUAL PRICE, SERIES2-FUZZY FORECAST)**



**GRAPH 2: OUTPUT OF CNX INDEX OF TWO DAYS
(R0-ACTUAL PRICE, R2-FUZZY FORECAST)**



**GRAPH 3: OUTPUT OF CARBON FUTURES OF SEVEN DAYS
(R0-ACTUAL PRICE, R2-FUZZY FORECAST)**

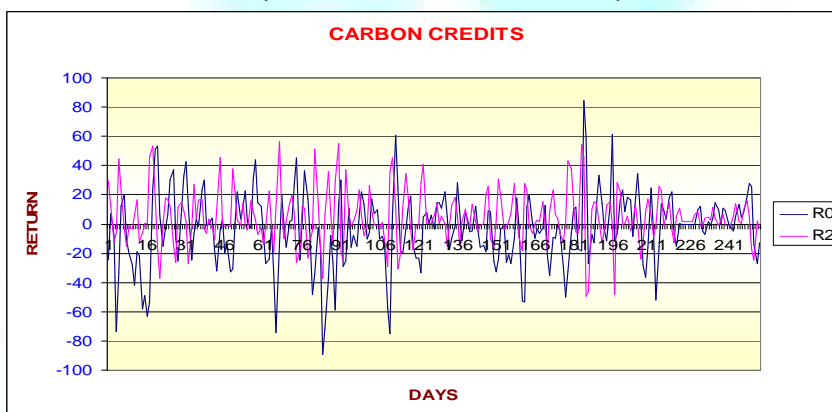


TABLE 1: FORECASTED VIS-À-VIS ACTUAL

	Gold Future	Carbon Future	CNX -NIFY Index
Closing Price	667.03	Closing Price 324.09	Closing Price 935.08
FR-2	642.50	FR-2 322.28	FR-2 934.29
FR-7	603.96	FR-7 361.25	FR-7 960.42
FR-15	501.45	FR-15 328.31	FR-15 929.52

FR: Forecasting Return

Using the fuzzy Association rules the study as forecasted future prices of Gold future, Carbon future and CNX Nifty Index. The rule based fuzzy logic has provided very close approximation of forecasted price with its actual price. However after going through the Standard deviation of actual, against the various rules based combinations of forecasted price, it is found that for Gold future the inputs combination R0 and R2, from Carbon future the inputs combination R0 and R2 and CNX Nifty Index future the inputs combination R0 and R2 provide the optimum forecast.

CONCLUSION

The study has used fuzzy logic based inference system to capture the historical movements of Gold prices, Carbon future and CNX Index, so as to, predict the future movements. The inferences have been designed to capture the time varying sigma and factor the variability for the prediction of movements. In place of single input series, the study has used multiple input series of same data through different periods of moving averages and factored the variability with time varying sigma. The system, so designed, is quite robust and the predictions are quite accurate once number of input series increases over time. Additional human knowledge or core information can be incorporated in the system easily and quickly in the form of rules without, thus the final mode can also incorporate the core data knowledge as well as any input from an experienced user. It's easy in use and setting up makes it more meaningful and useful for analysts. The study can further be extended by designing different FIS which can capture the minute cyclical movement of input series by factoring the wavelength of each minute cycle. In place of 'day closing' data we can also consider minute-wise/high frequency data to capture the non-linearity of the series movements.

REFERENCES

- Agrawal, Rakesh; Imielinski, Tomasz; Swami, Arun (1993): "Mining Association Rules between Sets of Items in Large Databases," Proceedings of the 1993 ACM SIGMOD International Conference on Management of Data, 22(2), 207-16.
- Agrawal, Rakesh; Srikant, Ramakrishnan (1994): "Fast Algorithms for Mining Association Rules," Proc. 20th Int. Conf. Very Large Data Bases, VLDB.
- Alex A. Freitas (1998), "Data Mining and Knowledge Discovery with Evolutionary Algorithm," Springer.
- Alex Berson, Stephen Smith, Kuert Thearling (1999), "Building Data Mining Application for CRM," Mc Grow -Hill.
- Bakk. Lukas Helm, Priv. Doz. Dr. Michael Hahsler (2007), "Fuzzy Association Rules An Implementation in R," Vienna, 2.8.2007.
- Christer Carlsson, Mario Fedrizzi, Robert Fuller (2004), "Fuzzy Logic in Management," Kluwer Academic Publishers.
- Earl Cox (2005), "Fuzzy Modelling and Genetic Algorithms for Data Mining and Exploration," Elsevier Inc.
- Francis Eng-Hock Tay, Francis Tay Eng Hock, Lixiang Shen, Lijuan Cao, "Ordinary shares. exotic methods: Financial Forecasting using Data Mining Techniques," World Scientific publication.
- George J. Klir, Bo Yuan (1995), "Fuzzy Sets and fuzzy Logic Theory and applications," Prentice Hall PTR.
- Gyenesei, A. (2000): "Mining Weighted Association Rules for Fuzzy Quantitative Items," Proceedings of PKDD Conference, 416-423.
http://economictimes.indiatimes.com/India_gets_43_Of_Carbon_Credits/articleshow / 2245328.cms
- J.F. Baldwin, (1996), "Knowledge from data using fuzzy methods," Pattern Recognition Letters, vol. 17, pp 593-600.
- Kuok, Chan Man; Fu, Ada; Wong, Man Hon (1998), "Mining Fuzzy Association Rules in Databases," SIGMOD Record Volume 27.
- L.A. Zadeh, (1968), "Fuzzy algorithms," Info. & Ctl., Vol. 12, pp. 94 -102.
- L.A. Zadeh, (1984), "Making computers think like people," IEEE. Spectrum, 8/1984, pp. 26 - 32.
- L.A. Zadeh, (1965), "Fuzzy Sets," Information and Control, Vol. 8, pp. 338-353, 1965
- L.A. Zadeh, (1973), "Outline of a new approach to the analysis of complex systems and decision processes," IEEE Transactions on Systems, Man, and Cybernetics, Vol. 3, No. 1, pp. 28-44, Jan. 1973.
- L.A. Zadeh. (1996), "Fuzzy Logic = Computing With Words," IEEE Transactions on Fuzzy Systems, Vol. 4, pp. 103-111. IEEE Press, Piscataway, NJ, USA.
- Maeda, A., Ashida, H., Taniguchi, Y. and Takahashi, Y. (1995), "Data Mining System using Fuzzy Rule Induction," Proceedings of 1995 IEEE International Conference on Fuzzy Systems.
- Rakesh Agrawal, Ramakrishnan Srikant, (1994), "Fast Algorithms for Mining Association Rules in Large Databases," VLDB, 1994, pp. 487-499.
- Sotiris Kotsiantis, Dimitris Kanellopoulos, (2006), "Association Rules Mining: A Recent Overview," GESTS International Transactions on Computer Science and Engineering, Vol.32 (1), pp. 71-82
- Srikant, Ramakrishnan; Agrawal, Rakesh (1996), "Mining Quantitative Association Rules in Large Relational Tables," SIGMOD Conference, pp. 1-12.



PERCEIVED QUALITY OF SERVICES RENDERED BY UNIVERSITY LIBRARY: A CASE STUDY OF PANJAB UNIVERSITY MAIN LIBRARY, CHANDIGARH, INDIA

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ABSTRACT

This study aimed at exploring, analyzing, and measuring the perceived service quality of the Panjab University (PU) main library, as well as to identify the dimensions that determine the customers' evaluation of service quality. Moreover, the relationship between service quality, customer satisfaction and positive word of mouth was examined. A total of 80 (out of 100 sample) main library users responded the SERVQUAL instrument. After frequency, descriptive, Pearson's correlation, factor analysis, and Cronbach's alpha was tested the paired t-test, one-way ANOVA, independent sample t-test, and multivariate regression was employed for hypothesis testing. Its finding revealed the expectation of library users was not met and that the largest gap was found in the empathy. Assurance dimension also had the largest influence on customer satisfaction and overall satisfaction of library customers had a positive effect on their word-of-mouth. Besides, the study revealed almost non-existence of significant mean differences on expectations, perceptions, and rating of the most or least important dimension among the user groups (age, gender, education, and occupation). The study also suggested input from library customers and employees on what constitutes "service excellence" will be useful. The library need to reassess "what customers expect from the library" and provide client specific services. It needs to invest on employee training programs that will provide employees with an understanding of service culture and service excellence-particularly at front line levels. Employee training programs should focus on interpersonal communication and customer care factors in order to be able to meet the customers' need for personalized service (because empathy is all about human interaction). There were some limitations, to mention few, in conducting the survey: the questionnaire was targeting only 100 main library users (80 responded), and customer expectation and perception explored at the same time with no interval. Thus, the study must be considered as explorative rather than conclusive. Finally, future research could be conducted on the library's service quality and customer satisfaction by (1) taking greater sample size and (2) collecting data at reasonable intervals: first about their expectations and later about their perceptions of the same sample respondents.

KEYWORDS

Expectations, Library, Perceptions, Quality, SERVQUAL.

INTRODUCTION

It is an era of accountability for research libraries housed on university campuses confronting funding cutbacks and increased competition to recruit and retain tuition-paying students. Libraries have been starting introducing an entrepreneurial approach to library management to ensure value for money, who ever finances the library. It can be financed by government, students and other patron's fee, or grants. But it has to discharge its responsibilities that the service financed is quality. Nitecki (1996b) said that every unit is valued in proportion to its contribution to the quality success of the campus.

Thompson and Cook (2000) described that the traditional evaluation criteria of the Association for Research Libraries (ARL) emphasized objective descriptions of collection sizes and their special features. Such evaluations include rankings and comparisons to peer institutions based on tangible measures such as budgets and collection size. The ARL annual statistics are designed to meet this traditional evaluation approach (Franklin & Nitecki, 1999). The variables that comprise the ARL Membership Index score are input measures: number of volumes held; number of volumes added; number of current serials; total library expenditures; and number of library staff. By implication, a higher rank on these performance indicators suggests a better quality of library. These input measures do not assess how well user needs are met.

However, recently there has been increasing pressure on libraries to assess the degree to which their services demonstrate criteria of quality as perceived by customers. Herson and McClure (1990) explained that the emphasis on these measures and services provided to library clientele requires librarians not to equate quality merely with collection size. Nitecki (1996b) also noted that a measure of library quality based solely on collections has become obsolete. The impact of the library must be measured in terms of the user's interaction with the library's resources and its services. A critical judge of the impact is the user.

Gronroos (1984) argued that service quality was composed of technical quality and functional quality. Technical quality is an objective assessment of what the customer receives from the service organization, and it concerns the outcome or content delivered through the service (for instance, materials in a collection). Functional quality, on the other hand, is a subjective measure of how the customer perceives the actual service delivered, and takes the measure of the process of service delivery. Gronroos puts a larger emphasis on this quality, contending that functional quality is more important to the perceived service than the technical quality, at least as long as the latter quality dimension is on the satisfactory level.

Thus, researchers have turned to the marketing literature for a measurement model that can be used for library service quality. The Parasuraman, Zeithaml and Berry's SERVQUAL model, which includes 22 items measuring perceptions of tangibles, reliability, responsiveness, assurance and empathy, has been used for this purpose. With in this model, it is only the customer judge the quality of library service. They defined service quality in terms of reducing the gap between customers' expectations for excellent service and their perceptions of actual services delivered.

Nagata et al. (2004) discussed that SERVQUAL has been evolved since 1985 - 1994 from 10 dimensions with 97 questionnaire items to 7 dimensions with 34 questionnaire items and then to its current status of 5 dimensions with 22 questionnaire items. SERVQUAL with five dimensions and its corresponding 22 items captures facets of all ten originally conceptualized dimensions" (Zeithaml, Parasuraman, & Berry, 1990), and could be widely utilized in any industry with only minor modifications (Parasuraman, Berry, & Zeithaml, 1991a). There is a need, therefore, to take the attributes unique to the university library service into consideration in the assessment of its quality.

Definitions of the dimensions are as follows (Zeithaml et al., 1990):

- 1) Tangibles are the appearance of physical facilities, equipment, personnel, and communication materials.
- 2) Reliability is the ability to perform service dependably and accurately.
- 3) Responsiveness is the willingness to help customers and provide prompt service.
- 4) Assurance is the knowledge and courtesy of employees and their ability to convey trust and confidence.
- 5) Empathy is the caring, individualized attention the institution provides its customers.

SERVQUAL MODEL

Nitecki (1996b) claimed that SERVQUAL is a mechanism to shift the assessment of quality of a library from the traditions of measuring collection size and counting incidents of its uses, to begin investigating how the provision of services relates to the library users' service quality expectations. SERVQUAL has been used in various service industries, including academic, public, and special libraries (Herson, 2002). It is important for libraries to know how well their performance by getting feedback from users because it is the factor for libraries to succeed in service performance.

Only the user can judge quality, but on what criteria he/she judges it, or which aspect he/she values had not been made clear. The SERVQUAL instrument, designed by Parasuraman, Zeithaml and Berry (1985), has been playing a central role in the evaluation of service quality in marketing research and practice. Assessment of service quality has been an active topic of research since the pioneering work of Parasuraman et al. They identified five universally important dimensions of service quality: reliability, assurance, tangibles, empathy, and responsiveness. They developed the SERVQUAL instrument to measure customer assessment of service quality.

The SERVQUAL instrument is a questionnaire that consists of 22 pairs of statements. The first set of these statements measures the library user's expectations by asking each respondent to rate, on a 7-point scale, how essential each item is for an excellent library. The second set of 22 statement measures the respondent's perceptions of level of service given. The differences between the ratings for each statement are averaged to calculate the SERVQUAL score, an indicator of the library service's quality as perceived by its users. In addition, the questionnaire includes a section in which participants were asked to allocate 100 points among descriptions of the five dimensions to indicate how important each is when they evaluate the quality of a library's service. A set of overall and comparative service quality questions and a set of demographic questions are included on most adaptations of the SERVQUAL to library settings.

LITERATURE REVIEW ON LIBRARY SERVQUAL

From applications in a variety of service settings, Parasuraman et al. identified that reliability consistently ranks as most important to the delivery of service quality and tangibles as least important (Franklin & Nitecki, 1999). The research results from Nitecki's doctoral dissertation shown that among the five dimensions of SERVQUAL, the users rated reliability was most important and tangibles was least important. This finding is parallel to those of Srisa-ard's, Abdallah's as well as Ford's which found that the users reported the high expectation on reliability. On the contrary, the findings from the research project of Seay, Seaman and Cohen was shown that tangibles and reliability were the key concerns of library patrons. In sum, most findings reflected that reliability is the most important quality in evaluating library services that is similar to the result which the Parasuraman et al. proposed (as cited by Nimsomboon & Nagata, 2003).

In their study on "the dimensions that construct the evaluation of service quality in academic libraries", Nagata et al. (2004) found that the ranking of desired expectations in the four universities indicated three items with the highest total mean scores: availability of required information, providing services as promised, and library staff with the knowledge to answer users' questions were ranked within the top ten in all universities, showing no large variations. The items that were ranked differently depending on universities were space that enables quiet study, timely document delivery, assuring users of the accuracy and confidentiality of their personal information/data, willingness to help users, and modern equipment.

White (1998), in service quality survey at the University of Virginia Library, found the following results:

1. For Alderman Library Reference and Information Services, nine items were identified as the high importance/high rating: Assurance (staff who are consistently courteous and staff who have the knowledge to answer my questions); Responsiveness (providing service at the promised time, willingness to help me, readiness to respond to my questions, and offering appropriate services and resources); Reliability (providing the service promised and dependability of staff in handling my service problems); and Tangibles (modern equipment). On the contrary, three items identified as the high importance/low rating: Reliability (maintaining error-free circulation records and equipment that functions well) and Empathy (convenient hours of operation).
2. For Fiske Kimball Fine Arts Library, seven items were identified as the high importance/high rating: Assurance (staff who are consistently courteous); Responsiveness (providing service at the promised time, willingness to help me, readiness to respond to my questions, and offering appropriate services and resources); Reliability (providing services as promised); and Tangibles (modern equipment). On the contrary, five items identified as the high importance/low rating: Reliability (maintaining error-free circulation records, equipment that functions well, and signs and space arrangements that function well); Assurance (staff who have the knowledge to answer my questions); and Empathy (convenient hours of operation).

The findings of Nimsomboon and Nagata (2003) on "the assessment of library service quality at Thammasat University library system" were summarized as follows. On most of the SERVQUAL statements, user expectations for service quality lagged behind user expectations of actual service quality. When looking at the size of the expectation-perception gaps, faculty members appeared to desire improvements in the updating of equipment and in the promptness, sincerity, knowledge-ability, and degree of understanding with which staff assist users. Graduate students had the same concerns, though they were generally more critical of the library in terms of the number of SERVQUAL statements for which mean expectation rating exceeded mean perception ratings. Unlike the faculty, students indicated that their expectations for physical facilities, the visual appearance of library materials, the neatness of employees, operating hours and the personal attention staff give to users were not met. Among 5 dimensions of service quality, the findings suggested that the library users place a premium on the non-tangible aspects of service, particularly reliability and responsiveness.

OBJECTIVE AND SIGNIFICANCE

This study aimed at assessing and measuring the library service quality perception of users; to examine the relationship between service quality, user satisfaction and positive word of mouth; and some useful recommendations were presented to improve service quality and become more users centric. Besides, the study is significant that it contributes to the existing literature and suggests further study areas.

RESEARCH HYPOTHESES

- H1: There are no significant mean differences between expectations and perceptions of library users regarding the tangibles, reliability, responsiveness, and empathy and assurance dimensions of service quality.
- H2: There are no significant mean differences on expectations in terms of the tangibles, reliability, responsiveness, empathy and assurance among user groups (i.e., age, gender, education, and occupation).
- H3: There are no significant mean differences on perceptions in terms of the tangibles, reliability, responsiveness, empathy and assurance among user groups (i.e., age, gender, education, and occupation).
- H4: There is no positive significant impact of service quality dimensions on over all users' satisfaction.
- H5: There is no positive significant impact of library user satisfaction on users' positive word of mouth about the library.
- H6: There is no significant mean difference on the rating of importance of the tangibles, reliability, responsiveness, assurance and empathy dimensions of service quality among user groups.

METHODOLOGY

The aim of this research was to explore the PU main library users' service quality perceptions, expectations and satisfaction. It was an exploratory research employing quantitative analysis. Questionnaires were distributed to samples of 100 (80 responded) respondents who are regular users of the library service selected using non-probability convenience sampling. The SERVQUAL questionnaire as proposed by Parasuraman et al. (1988) was employed to collect data. Data were collected on the first – second week of February 2011. These data have been analyzed using the Pearson's correlation matrix, t-test, ANOVA (f-test) and multiple regressions in order to test the aforementioned hypothesis. A pilot test was conducted with 10 willing respondents who were selected on a convenience basis and who were voluntary to take their precious time to evaluate the questionnaire and forward their constructive comments for further refinement if there was any kind of problem with regards to wording, expressions and clarity of the questions.

The SERVQUAL questionnaire used in this study comprises of five parts: Part A and Part B include expectations (E) and perceptions (P), respectively, of respondents according to five dimensions. These dimensions are tangibles, reliability, responsiveness, assurance and empathy. A seven-point Likert scale ranging from strongly disagree (1) to strongly agree (7) was used to measure the 22 items; and Part C contains two items that measure the dependent variables of the

study as proposed by White (1998); namely degree of overall satisfaction and degree of recommendation of the library to others. Each of these variables was measured by a single item because of their ready interpretability and clear definition. A seven-point Likert scale ranging from (1= very bad) to (7= very good) was used to measure the two variables. Part D contains allocation of 100% among the five dimensions in terms of importance and, finally, Part E contains questions about personal profiles of the respondents including gender, educational level, age, and occupation.

Expectations and perceptions were given for each item. P (perceptions) - E (expectations) was also used to find gap scores because service quality depends on perceived performance in delivery value relative to users' expectations. If $E > P$; the user is dissatisfied and if $E < P$ the user is satisfied (Kotler & Armstrong, 1999; Parasuraman, 1998; Parasuraman et al., 1991a).

SCOPE AND LIMITATION

The study was targeting only the patrons on the first - second week of February 2011. The researcher had time and resource constraints which limited the potential sample size and the target group. Besides, data on expectations and perceptions was filled at the same time rather than at different intervals due to the already mentioned time constraint. This research finding provides only a glimpse of the users' library service satisfaction, not used for generalization. Hence, future research could be conducted on the library's service quality and customer satisfaction by (1) taking greater sample size and (2) collecting data at reasonable intervals: first about their expectations and later about their perceptions of the same sample respondents.

RESEARCH FINDINGS AND DISCUSSIONS

DEMOGRAPHIC VARIABLES

Out of the total sample size of 100 participants, only 80 respondents responded (i.e., the response rate is 80%); 2 (50 and above), 33 (41-50), 17 (31- 40), and 28 of them were at the age of between 21-30 years; 43 of the respondents were male and 37 of them female; educational background of the respondents was 31 (PhDs) and 49 (post graduates); 6 of the respondents were office workers, 17 professors and 57 of them students.

The study indicated insignificant number of respondents rated some of the 22-items below 4 thus resulting in higher customer expectation. There were also high mean scores (i.e., 6.2625 – 6.6250 in a 7-rating scale) and low variance. In this case it would be possible to have low rating of overall satisfaction as well as word of mouth to recommend the library to others unless there is a corresponding high customer perception. However, there was low rating of perception below 4 in a 7-rating scale. This leads to the low mean scores that is lower than 5 for all the five quality dimensions. There were also significant variances as compared to the low variances in the case of expectation. The significant discrepancy between expectation and perception result in the relatively lower overall satisfaction and recommendation to others. The variance among respondents was also relatively high for recommendation than over all satisfaction.

PRE-ANALYSIS TESTING (Validity and Reliability Testing)

The Pearson correlation indicated significant positive correlation among the five service quality dimensions. A change in either of the dimensions will have a significant change on the others. Besides, over all satisfaction (Q10S) had significant positive correlation with assurance (0.830), tangible (0.794), empathy (0.788), reliability (0.770) and responsiveness (0.673) respectively at $p < 0.001$. Overall satisfaction had strong positive correlation with assurance and had relatively low positive correlation with responsiveness. It also had significant positive correlation with customers' recommendation to others (Q1R) (0.841), i.e., the more customers are satisfied, the more they will have positive word of mouth and are inclined to recommend the library to others. Customers' recommendation to others had relatively significant positive correlation with reliability (0.878) and tangible (0.825). It means any positive improvement on reliability and tangibility of the library service will have a more positive word of mouth towards the library (Annexure I).

FACTOR ANALYSIS (Expectation)

Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. However, in this study, the factor analysis is used to make pre analysis testing in order to check for adequacy of sample and validity of the data for further statistical analysis.

Pre-analysis testing for the suitability of the entire sample for factor analysis was computed as recommended by Comrey (1978). The study showed that Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.715 and the Bartlett tests of sphericity was significant at $p < 0.001$. As Bedi (2004) stated, KMO larger than 0.6 is appropriate for factor analysis.

As the Kaiser-Meyer-Olkin Measure of Sampling Adequacy indicated, KMO equals to 0.715 which is adequate to conduct statistical analysis; because 0.60 is the cut-off point. The KMO value increases with an increase in sample size (Thompson & Cook, 2000). Besides, the Bartlett's test of Sphericity was significant at $p < 0.001$.

Reliability Measures: Cronbach's alpha [the 22-item customer expectations]

Reliability analysis allows studying the properties of measurement scales and the items that make them up. The Reliability Analysis procedure calculates a number of commonly used measures of scale reliability and also provides information about the relationships between individual items in the scale. Intraclass correlation coefficients can be used to compute interrater reliability estimates. Alpha (Cronbach) is a model of internal consistency, based on the average inter-item correlation.

RELIABILITY ANALYSIS – SCALE (ALPHA)

Reliability Coefficients

N of Cases = 80.0

N of Items = 22

Alpha = .8831

The above result indicates alpha for the total scale (the 22-item customer expectation) measure is 0.8831. According to Sekaran (2005), the closer the reliability coefficient gets to 1.0, the better. Reliabilities less than 0.60 are considered to be poor, those in the 0.7 range are acceptable and those over 0.8 are good. Thus, the internal consistency reliability of the measures used in this study was good. The alpha reliability coefficient on dimension-by-dimension indicated tangibles and reliability measures were found to be poor; and responsiveness, assurance and empathy are found to be acceptable according to Sekaran's analysis (Tangibles 0.5619; Reliability 0.5884; Responsiveness 0.6929; Assurance 0.7452; and Empathy 0.7440).

FACTOR ANALYSIS (Perception)

As the Kaiser-Meyer-Olkin Measure of Sampling Adequacy indicated, KMO equals to 0.791 which is almost low though it is adequate to conduct statistical analysis; because 0.60 is the cut-off point. However, the KMO value increases with an increase in sample size (Thompson & Cook, 2000). Besides, the Bartlett's test of Sphericity was significant at $p < 0.001$.

Reliability Measures: Cronbach's alpha [the 22-item customer perceptions]

RELIABILITY ANALYSIS – SCALE (ALPHA)

Reliability Coefficients

N of Cases = 80

N of Items = 22

Alpha = .9404

This result indicates alpha for the 22-item customer perception measure is 0.9404. With the same logic as Sekaran said it above, the internal consistency/reliability of the measures used for customer perception is considered good. The alpha reliability coefficient on dimension-by-dimension indicated all the dimensions, except tangibles, were found to be good according to Sekaran's analysis (Tangibles 0.4903; Reliability 0.7611; Responsiveness 0.8770; Assurance 0.7421; and Empathy 0.8320).

HYPOTHESIS TESTING

The factor analysis and reliability testing are pre-analysis testing requirements:

1. The Kaiser-Meyer-Olkin measure of sampling adequacy is 0.715 (Expectation) and 0.791 (Perception) which is above the cut-off point (0.60) and the Bartlett test of sphericity is significant at $p < 0.001$.
2. The over all reliability testing of expectation (0.8831) and perception (0.9404) is good, i.e., above 0.80 alpha,
3. The reliability testing of all service quality dimensions of perception items is good (except for tangible, i.e., 0.4903 alpha); and tangibles and reliability measures are poor, and responsiveness, assurance and empathy are found to be acceptable in the case of expectations, The above factor analysis and the reliability test proved goodness of the data for further statistical analysis. Thus, the formulated six hypotheses were tested subsequently.

H1: There are no significant mean differences between expectations and perceptions of library customers regarding the tangibles, reliability, responsiveness, and empathy and assurance dimensions of service quality.

A paired t-test was used to determine if there is any significant mean difference between expectations and perceptions. On all the five dimensions at the 95% confidence level, there is a significant mean difference between what the customers expect from an excellent library and their perceptions of the services offered at the PU main library. The difference between expectation and perception for each item in each dimension, each dimension, and the total shows there is significant mean difference between expectation and perception (t -statistic at $p < 0.001$). The PU main library fails to meet service quality expectations.

The mean differences between expectation and perception (E-P) indicated the order of importance of the service quality dimensions as empathy (2.3425), reliability (2.2700), assurance (2.1594), tangibles (1.8281), and responsiveness (1.8031), respectively. Therefore, the hypothesis is rejected for it is not statistically hold up (Annexure II).

H2: There are no significant mean differences of expectations in terms of the tangibles, reliability, responsiveness, empathy and assurance among customer groups (i.e., age, gender, education, and occupation).

The one-way ANOVA test indicated:

1. Significant mean difference among the age group of respondents at $p < 0.05$ for tangibles and responsiveness; however there was no significant mean difference among these group of respondents for reliability, assurance, and empathy because their significance value of the statistic was above $p < 0.10$ (Annexure III).
2. Significant mean difference among the education group of respondents at $p < 0.05$ for assurance and at $p < 0.10$ for empathy; however there was no significant mean difference among these group of respondents for tangibles, reliability, and responsiveness because their significance value of the statistic was above $p < 0.10$ (Annexure IV).
3. No significant mean difference among the occupation group of respondents for all the five quality dimensions (i.e., tangibles, reliability, responsiveness, assurance, and empathy) because their significance value of the statistic was above $p < 0.10$ (Annexure V).

The Levene's test indicated not equal variance is assumed for tangible because the significance value of the statistic was below $p < 0.05$; and equal variance is assumed for reliability, responsiveness, assurance, and empathy since the significance value of the statistic was above $p < 0.05$. Therefore, the t-test for equality of means showed significant mean difference only in tangibles at $p < 0.05$; and no significant mean difference in reliability, responsiveness, assurance and empathy among the gender respondent groups because the significance value of the statistic was above $p < 0.05$ (Annexure VI).

In summary, the statistical measures (ANOVA and t-test) by and large revealed the non existence of significant mean differences of expectations in terms of the tangibles, reliability, responsiveness, empathy and assurance among the customer groups (i.e., age, gender, education, and occupation). Therefore, the hypothesis is accepted for it is statistically substantiated.

H3: There are no significant mean differences of perceptions in terms of the tangibles, reliability, responsiveness, empathy and assurance among customer groups (i.e., age, gender, education, and occupation).

The one-way ANOVA test indicated:

1. No significant mean difference among the age group of respondents for all the five quality dimensions (i.e., tangibles, reliability, responsiveness, assurance, and empathy) because their significance value of the statistic was above $p < 0.10$ (Annexure VII).
2. No significant mean difference among the education group of respondents for all the five quality dimensions (i.e., tangibles, reliability, responsiveness, assurance, and empathy) because their significance value of the statistic was above $p < 0.10$ (Annexure VIII).
3. Significant mean difference among the occupation group of respondents in empathy at $p < 0.05$ and assurance at $p < 0.10$. However, there was no significant mean difference in tangible, reliability, and responsiveness among these groups of respondents because their significance value was above $p < 0.10$ (Annexure IX).

The Levene's test indicated not equal variance is assumed for reliability because the significance value of the statistic was below $p < 0.05$; and equal variance is assumed for tangible, responsiveness, assurance, and empathy for the value of the statistic was above $p < 0.05$. The t-test for equality of means portrayed no significant mean difference in all the five dimensions (i.e., tangibles, reliability, responsiveness, assurance, and empathy) among the gender respondent groups because the significance value of the statistic was above $p < 0.05$ (Annexure X).

In general, the statistical measures (ANOVA and t-test) confirmed almost the non existence of significant mean differences of perceptions in terms of the tangibles, reliability, responsiveness, and empathy and assurance among the customer groups (i.e., age, gender, education, and occupation). Therefore, the hypothesis is accepted for it is statistically validated.

H4: There is no positive significant impact of service quality dimensions on overall customers' satisfaction. (Perception)

$$S = \alpha + \beta_1 (T) + \beta_2 (RI) + \beta_3 (Rs) + \beta_4 (A) + \beta_5 (E) + e_t$$

Where S = overall satisfaction; α = Constant; β_i = Coefficient of the dimensions of quality; T = Tangible; RI = Reliability; Rs = Responsiveness; A= Assurance; E = Empathy; e_t = Error term

STEP WISE LINEAR REGRESSION ANALYSIS (Multicollinearity Testing)

TABLE 1: VARIABLES ENTERED/REMOVED

Model	Variables Entered	Variables Removed	Method
1	TOTPERAS	.	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).
2	TOTPERTA	.	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).
3	TOTPERRS	.	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).
4	TOTPEREM	.	Stepwise (Criteria: Probability-of-F-to-enter \leq .050, Probability-of-F-to-remove \geq .100).

a. Dependent Variable: Q10S

TABLE 2: MODEL SUMMARY (e)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.830(a)	.689	.685	.480
2	.863(b)	.744	.737	.438
3	.874(c)	.763	.754	.424
4	.883(d)	.779	.767	.412

- a. Predictors: (Constant), TOTPERAS
- b. Predictors: (Constant), TOTPERAS, TOTPERTA
- c. Predictors: (Constant), TOTPERAS, TOTPERTA, TOTPERRS
- d. Predictors: (Constant), TOTPERAS, TOTPERTA, TOTPERRS, TOTPEREM
- e. Dependent Variable: Q1OS

The R (0.883) in the final model 4 above (Table 2) is the correlation of the four independent variables identified as predictors, i.e., assurance, tangible, responsiveness, and empathy with the dependent variable Q1OS (i.e., the overall satisfaction), after the step wise linear regression analysis. Besides, the R² (0.779), which is the explained variance, is actually the square of the multiple R (0.883)². It means nearly 78% of the variance (R²) in the overall satisfaction has been significantly explained by these four independent quality dimensions, i.e., only about 22% variances are explained by other factors that have not been considered in this study.

TABLE 3: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.722	1	39.722	172.462	.000(a)
	Residual	17.965	78	.230		
	Total	57.688	79			
2	Regression	42.917	2	21.459	111.868	.000(b)
	Residual	14.770	77	.192		
	Total	57.688	79			
3	Regression	44.029	3	14.676	81.666	.000(c)
	Residual	13.658	76	.180		
	Total	57.688	79			
4	Regression	44.945	4	11.236	66.132	.000(d)
	Residual	12.743	75	.170		
	Total	57.688	79			

- a. Predictors: (Constant), TOTPERAS
- b. Predictors: (Constant), TOTPERAS, TOTPERTA
- c. Predictors: (Constant), TOTPERAS, TOTPERTA, TOTPERRS
- d. Predictors: (Constant), TOTPERAS, TOTPERTA, TOTPERRS, TOTPEREM
- e. Dependent Variable: Q1OS

The ANOVA table above shows the F value of 66.132 is significant at p < 0.001 level. This significant F value signifies the R² (0.779) is a significant positive impact of the four service quality dimensions that are identified as predictors (assurance, tangible, responsiveness, and empathy) on the over all customers' satisfaction; they represent nearly 78% of the variance. Thus, H₃ is rejected.

The coefficients in Table 4 below helps see which among the four independent variables identified as predictors influences most the variance in the over all satisfaction (i.e., the most important). From the standardized coefficient beta, the highest number in the beta is 0.584 for assurance, which is the significant predictor at p < 0.001. Besides, the small tolerances show that 69% - 78% of the variance in a given predictor can be explained by the other predictors. Their tolerance value is significantly higher and their VIF value is lower than the cut-off point, VIF < 10. Therefore, the coefficients (a) table below shows no evidence of a multicollinearity problem.

TABLE 4: COEFFICIENTS (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.680	.291		2.334	.022		
	TOTPERAS	.210	.016	.830	13.132	.000	1.000	1.000
2	(Constant)	.263	.285		.924	.358		
	TOTPERAS	.136	.023	.537	5.835	.000	.393	2.547
	TOTPERTA	.098	.024	.376	4.081	.000	.393	2.547
3	(Constant)	.228	.276		.827	.411		
	TOTPERAS	.176	.028	.694	6.358	.000	.261	3.825
	TOTPERTA	.123	.025	.469	4.851	.000	.334	2.996
	TOTPERRS	-.061	.025	-.274	-2.487	.015	.256	3.907
4	(Constant)	.329	.272		1.212	.229		
	TOTPERAS	.148	.029	.584	5.020	.000	.218	4.591
	TOTPERTA	.099	.027	.378	3.710	.000	.284	3.518
	TOTPERRS	-.061	.024	-.274	-2.554	.013	.256	3.907
	TOTPEREM	.040	.017	.228	2.321	.023	.306	3.264

- a. Dependent Variable: Q1OS

TABLE 5: COLLINEARITY DIAGNOSTICS

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	TOTPERAS	TOTPERTA	TOTPERRS	TOTPEREM
1	1	1.983	1.000	.01	.01			
	2	.017	10.759	.99	.99			
2	1	2.973	1.000	.00	.00	.00		
	2	.020	12.227	.99	.13	.09		
	3	.007	20.160	.00	.87	.91		
3	1	3.962	1.000	.00	.00	.00	.00	
	2	.024	12.727	.87	.02	.01	.09	
	3	.008	22.329	.08	.08	.98	.25	
4	1	.006	25.490	.05	.89	.01	.66	
	2	.029	13.083	.72	.00	.00	.02	.12
	3	.013	19.188	.08	.02	.00	.37	.57
	4	.008	25.608	.06	.19	.91	.02	.06
5	1	.005	30.688	.14	.79	.09	.59	.24
	2							

a. Dependent Variable: Q1OS

The model 4 in the collinearity diagnostics above (Table 5) confirms no significant evidence of multicollinearity problem among the four quality dimensions (assurance, tangible, responsiveness, and empathy) that are identified as the predictors of overall satisfaction since the condition index of all these dimensions is lower or equal to the 30 cut-off point and at least two variance proportions are lower than 0.50 (Arasli, Mehtap-Smadi, & Katircioglu, 2005).

Therefore, the step wise linear regression analysis proves service quality dimensions have significant impact on the overall customer satisfaction. The coefficient of determination, (i.e., R^2) indicates 78% of the variance in the overall satisfaction has been significantly explained by these four (assurance, tangible, responsiveness, and empathy) independent quality dimensions at $p < 0.001$. Therefore, the hypothesis is rejected for it is not statistically substantiated.

H5: There is no a positive significant impact of overall customer satisfaction on customers' positive word of mouth about the library.

$$PWM = \alpha + \beta_1(S) + e_t$$

Where PWM = Positive Word of Mouth

S = overall satisfaction

α = Constant

β_1 = Coefficient of the overall satisfaction

e_t = Error term

TABLE 6: CORRELATIONS

		Q1OS	Q1R
Q1OS	Pearson Correlation	1	.841(**)
	Sig. (2-tailed)	.	.000
	N	80	80
Q1R	Pearson Correlation	.841(**)	1
	Sig. (2-tailed)	.000	.
	N	80	80

** Correlation is significant at the 0.01 level (2-tailed).

The correlation Table above spells the presence of positive significant impact of overall customer satisfaction (Q1OS) on customers' positive word of mouth (Q1R) about the PU main library. There is strong positive correlation between the two variables at $p < 0.01$, i.e., the coefficient of determination (R^2) equals to nearly 0.71% (i.e., 0.841^2). So, the hypothesis is rejected because it is not statistically proved.

H6: There is no significant mean difference on the rating of importance of the tangibles, reliability, responsiveness, assurance and empathy dimensions of service quality among customer groups.

The one-way ANOVA test indicated:

1. Significant mean difference among the rating of age group of respondents at $p < 0.05$, except for tangibles (R1) and empathy (R5) (Annexure XI).
2. No significant mean difference among the rating of education group of respondents, except for empathy (R5) at $p < 0.10$ (Annexure XII).
3. No significant mean difference among the rating of occupation group of respondents, except for empathy (R5) at $p < 0.05$ (Annexure XIII).

The Levene's test indicated equal variance is assumed for tangible (R1), reliability (R2), assurance (R4) and empathy (R5) dimensions because their significance value of the statistic was above $p < 0.05$; and not equal variance is assumed for reliability (R2) because its significance value was below $p < 0.001$. Therefore, the t-test for equality of means showed no significant mean difference in all the five dimensions (Annexure XIV).

In general, the statistical measures (ANOVA and t-test) confirmed just about the non-existence of significant mean differences on the rating of importance of the tangibles, reliability, responsiveness, assurance and empathy among the customer groups (i.e., age, gender, education, and occupation). Therefore, the hypothesis is accepted for it is statistically substantiated.

Moreover, 93.8% of the respondents' ranked reliability as the most important dimension and 67.5% of respondents ranked tangible as the least important. Reliability was also rated first and tangible fifth based on the rating of importance out of 100%.

CONCLUSION AND MANAGERIAL IMPLICATIONS

This study explored the quality expectation and perception of Panjab University (PU) main library customers, their overall satisfaction level, their tendency to recommend the bank to others and the differences in relative importance they attach to the various quality dimensions using the Parasuraman et al.'s SERVQUAL survey questions (i.e., the 22-items) with 7-scale adopted to the library service. Frequency and descriptive statistics was used to feel the data; validity and reliability tests were conducted using the Pearson's correlation matrix, factor analysis and Cronbach's alpha; paired t-test, independent t-test, and ANOVA were employed to test whether significant mean differences exist among the respondent groups (age, education, occupation, and gender); multiple regression analysis was applied to measure the impact of the five quality dimensions on the overall satisfaction; and Pearson's correlation was used to test the impact of the overall satisfaction on positive word of mouth about the bank

Gaps scores were calculated by subtracting perception scores from expectation scores. Highest positive gap means lower customer perception. Like most researches done on the library service such as White (1998) and Nagata (2003), this research finding indicated there is significant mean difference (gap) between customer expectation and perception. Their expectations were higher than their perceptions in all the five service quality dimensions. This may be a common tendency of human kind to wish for more than what we have. The difference ranges from 1.8031 to 2.3425. The largest discrepancies related to the empathy (2.3425), reliability (2.2700) and assurance (2.1594). The lowest score was for tangible (1.8281) and responsiveness (1.8031).

Defining the gap between what the customers expect in library service quality and the service quality they perceive have received was intended to assist the PU main library to uncover problem areas and prioritize in taking corrective measures. The discrepancy for individual items between their expectation and perception range from 1.09 to 3.00.

Out of the twelve relatively highest gaps (i.e., ≥ 2.00) two of them are related to tangible ("has modern-looking equipments" and "physical facilities should be comfortable"); three of them are related to reliability ("when personnel promise to do something by a certain time, they should do so", "should have an appropriate collection of information resources for its customers", and "items such as books, copiers, and computers should be kept in good repair"); one of them is related to responsiveness ("returned materials should be promptly reshelved for the use of other customers"); two of them are related to assurance ("personnel should be consistently courteous to customers" and "the behavior of personnel should instill customer confidence in services"); and four of them are related to empathy ("personnel should give customers personal attention", "insure that all customers have access to information resources", "personnel should have the customers' best interest at heart", and "personnel should understand the customer's specific information needs").

Two out of four items for tangible, three out of five for reliability, one out of four for responsiveness, two out of four for assurance, and four out of five for empathy falls in these twelve largest gaps. Thus, these results spelled out customer perception was relatively, significantly affected by empathy dimension.

The one-way ANOVA and independent t-test revealed just about the non-existence of significant mean differences of expectations as well as perceptions in terms of the tangibles, reliability, responsiveness, empathy, and assurance among customer groups (i.e., age, gender, education, and occupation). Such homogeneous expectation and perception among user group is rare unless the library has been regularly educating its users to have this kind of commonness. Usually differences originate from the very characteristics of services.

Service, ceteris paribus, is characterized by intangibility, heterogeneity, and inseparability. These attributes often lead to heterogeneous expectation as well as perception among user groups. Two users of the same library can have different service expectation because their expectation depends partly on their personal experience and exposure. Likewise, they can have different service perception of the same service at the same time and same place due to partly their different expectation. It is this heterogeneity that makes service delivery and management challenging. However, this rare occurrence (i.e., homogeneity of user groups)

should be checked on regular basis and it is to the advantage of the library if it can strive to create this type of homogeneity through posters, library events, workshops, etc. Homogeneity of service minimizes the burden to manage it.

Pearson's correlation showed there is significant positive correlation between the five service quality dimensions and over all customer satisfaction at $p < 0.01$ level (2-tailed). It is also revealed that assurance (0.830) is the best predictor of quality followed by tangible (0.794), empathy (0.788), reliability (0.770), and responsiveness (0.673) respectively. Overall satisfaction has strong positive correlation with assurance and has relatively low positive correlation with responsiveness. It also has significant positive correlation with customers' recommendation to others (Q1R) (0.841), i.e., the more customers are satisfied, the more they will have positive word of mouth and are inclined to recommend the library to others.

The step-wise linear regression analysis has also identified four service quality dimensions as significant drivers of overall customer satisfaction. According to their standardized coefficient (β), assurance (0.584) is identified as the first followed by tangible (0.378), responsiveness (-0.274) and empathy (0.228) at $p < 0.001$ and $p < 0.05$, respectively. This coefficient indicates responsiveness has negative correlation. However, it is unusual. The Pearson's correlation matrix reveals responsiveness has significant positive correlation with the remaining quality dimensions and overall satisfaction. It is thus inconsistency.

In addition, Pearson's correlation disclosed the five quality dimensions as well as overall satisfaction have significant positive impact on the positive-word-of-mouth (PWM) that is propensity to recommend at $p < 0.001$ level (2-tailed). Reliability (0.878) has strong positive correlation with PWM followed by overall satisfaction (0.841), tangible (0.825), assurance (0.805), empathy (0.726), and responsiveness (0.708) respectively. Any significant change in these five quality dimensions will profit overall customer satisfaction and positive word of mouth because they have strong correlation coefficient (comparatively reliability, tangible and assurance).

Overall respondents' rating of importance out of 100% showed reliability is ranked first and tangible as the fifth (i.e., last) as well as there is no significant mean difference among respondent groups (age, education, occupation, and gender) as depicted by the one-way ANOVA and independent t-test. Moreover, the respondents' choice of "most important" and "least important" dimension portrays reliability is chosen as the most important and tangible as the least important. Therefore, this finding is consistent with the earliest research undertaken by White (1998) that the reliability is ranked first and tangible is fourth.

Zeithaml et al. (1993) suggested that poor performance by service firms is primarily due to not knowing what their customers expect from them. This exploratory study portrays there is significant mean difference/gap between expectation and perception that implies respondents' perception falls below their expectation, i.e., they are less satisfied. This leads to say PU main library is less customer oriented.

India is on the eve to wage fierce competition from international universities that are expected to come in to the country in the near future owing to the General Agreement on Trade in Services (GATS). This agreement inevitably liberalizes the education sector and attracts foreign higher institutions. Besides, the government will be compelled to strictly follow an entrepreneurial approach in funding the domestic tertiary institutions, based on users' satisfaction. This is the present-day practice in Australian higher institutions. Updated, well equipped and staffed library service is one of the major prerequisites for an excellent university. Therefore, it is advisable for the PU's main library to regularly scrutinize it to check whether or not up to its users' expectation and global standard.

PU's main library needs to redefine its image to one that emphasizes service quality by introducing standards for service excellence. This can lend a hand to refurbish its appearance and portray a more modern-day image and meet the expectations of its customers as well as stay vigilant on counterparts move. This study has already identified above twelve significant mean score gaps between user expectation and perception. Among others, customers are looking for prompt reshelving; good repair of books, copiers and computers; error-free information; courteous; and understand customer's specific needs. However, nonstop assessment is compulsory to place the library services at the forefront.

Due to an interactive nature of employee-user relationship, including input from employees as well as users on what constitutes "service excellence" will be helpful. The library also needs to reassess "what customers expect" and provide user specific services. It needs to invest on employee training programs that will provide employees with an understanding of service culture and service excellence-particularly at front line levels. Employee training programs should focus on interpersonal communication and customer care factors in order to be able to meet the customers' need for personalized service.

Employees interacting with customers in a customer centric manner able to provide their service with empathy will be able to promptly recover service failures and also ensure the service delivered is consistent with the service promised. This will help to build profitable customer relationship which in turn results in high customer satisfaction, extend the zone of customer tolerance for service failures, increase recommendations about the library to others.

REFERENCES

- Arasli, H., Mehtap-Smadi, S., and Katircioglu, S. T. (2005). Customer service quality in the Greek Cypriot banking industry. *Managing Service Quality*. Vol. 15, No. 1. pp. 41-56.
- Bedi, M. (2004). *A study of relationship between quality and customer satisfaction in selected banks in Chandigarh*. Unpublished doctoral dissertation, Panjab University, India.
- Cattell, R.B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*. pp. 245-276.
- Comrey, A. (1978). Common methodological problems in factor analyst studies. *Journal of Clinical and Consulting Psychology*. Vol. 46 No. 1. pp. 648-659.
- Crocker, L., & Algina, J. (1986). *Introduction to classical and modern test theory*. New York: Holt, Rinehart and Winston.
- Franklin, B., & Nitecki, D. (1999). *User satisfaction white paper*. DC: Washington. Association of Research Libraries.
- Gronlund, N. E., & Linn, R. L. (1990). *Measurement and evaluation in teaching* (6th ed.). New York: Macmillan.
- Gronroos, C. (1984). A service quality model and its marketing implications. *European Journal of Marketing*. Vol. 18 No. 4. pp. 36-45.
- Hernon, P. (2002). Quality: New directions in the research. *Journal of Academic Librarianship*. Vol. 28 No 4. pp.224-231.
- Hernon, P., & McClure, C.R. (1990). *Evaluation and library decision making*. NJ: Norwood. Ablex.
- Kotler, P., & Armstrong, G. (1999). *Principles of Marketing* (8th ed.). NJ: Englewood Cliffs. Prentice-Hall.
- Kwan, P. Y.K., & Ng, P. W. K. (1999). Quality indicators in higher education – comparing Hong Kong and China's students. *Managerial Auditing Journal*. Vol. 14 No 1/2. pp.20-27.
- Nagata, H., Satoh, Y., Gerrard, S., & Kytomaki, P. (2004). The dimensions that construct the evaluation of service quality in academic libraries. *Performance Measurement and Metrics*. Vol. 5 No 2. pp.53-65.
- Nimsomboon, N., & Nagata, H. (2003). *Assessment of library service quality at Thammasat University Library System*. Japan.
- Nitecki, D. A. (1996b). Changing the concept and measure of service quality in academic libraries. *The Journal of Academic Librarianship*. Vol. 22. pp.181-190.
- Parasuraman, A. (1998). Customer service in business-to-business markets: an agenda for research. *Journal of Business & Industrial Marketing*. Vol. 13 No. 4/5. pp. 309-321.
- Parasuraman, A., Berry, L.L., & Zeithaml, V.A. (1991a). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*. Vol. 67 No. 4. pp. 420-450.
- Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1988). SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*. Vol. 64 No. 1. pp. 12-40.
- Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*. Vol. 70. pp.41-50.
- Sekaran, U. (2005). *Research methods for business: A skill building approach* (4th ed.). India: Replika Press Pvt. Ltd., Kundli 131028.
- Thompson, B., & Cook, C. (2000, January 27-29). *Reliability and validity of SERVQUAL scores used to evaluate perceptions of library service quality*. Paper presented at the annual meeting of the Southwest Educational Research Association, Dallas, TX.
- White, L. S. (1998). *A service quality survey at the University of Virginia Library*. D:\Backup25\SERVQUAL\A Service Quality Survey At the University of Virginia Library.htm
- Zeithaml, V.A., Berry, L.L., & Parasuraman, A. (1993). The nature and determinants of customer expectation of service. *Journal of Academy of Marketing Science*.

ANNEXURES

ANNEXURE I: PEARSON CORRELATION MATRIX (for perception)

		Tangibility	Reliability	Responsive.	Assurance	Empathy	Q1OS	Q1R
Tangibility	Pearson Correlation	1	.827(**)	.785(**)	.779(**)	.776(**)	.794(**)	.825(**)
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
	N	80	80	80	80	80	80	80
Reliability	Pearson Correlation	.827(**)	1	.741(**)	.813(**)	.678(**)	.770(**)	.878(**)
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.000
	N	80	80	80	80	80	80	80
Responsiveness	Pearson Correlation	.785(**)	.741(**)	1	.836(**)	.717(**)	.673(**)	.708(**)
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000
	N	80	80	80	80	80	80	80
Assurance	Pearson Correlation	.779(**)	.813(**)	.836(**)	1	.794(**)	.830(**)	.805(**)
	Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000
	N	80	80	80	80	80	80	80
Empathy	Pearson Correlation	.776(**)	.678(**)	.717(**)	.794(**)	1	.788(**)	.726(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000
	N	80	80	80	80	80	80	80
Q1OS	Pearson Correlation	.794(**)	.770(**)	.673(**)	.830(**)	.788(**)	1	.841(**)
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000
	N	80	80	80	80	80	80	80
Q1R	Pearson Correlation	.825(**)	.878(**)	.708(**)	.805(**)	.726(**)	.841(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.
	N	80	80	80	80	80	80	80

** Correlation is significant at the 0.001 level (2-tailed).

ANNEXURE II: EXPECTATION - PERCEPTION

	Variables and Items (Factors)	Grand Mean Score & Gap			Paired sample test at 95%	
		(E)	(P)	E - P	t-statistic	Sig. (2-tailed)
I	Tangibles	6.2625	4.4344	1.8281	17.119	0.000*
Q1	Library should have modern-looking equipment.	6.48	4.30	2.18	14.332	0.000*
Q2	The physical facilities should be comfortable.	6.73	4.01	2.72	19.335	0.000*
Q3	Personnel should be neat-appearing	5.76	4.43	1.33	6.596	0.000*
Q4	Library materials such as handouts and statements should be easy to understand.	6.09	5.00	1.09	3.904	0.000*
II	Reliability	6.6200	4.3500	2.2700	20.506	0.000*
Q5	When personnel promise to do something by a certain date, they should do so.	6.58	4.38	2.20	18.993	0.000*
Q6	Library should have an appropriate collection of information resources for its customers.	6.84	4.40	2.44	18.502	0.000*
Q7	Personnel should provide error-free information.	6.49	4.56	1.93	10.779	0.000*
Q8	Items such as books, copiers and computers should be kept in good repair.	6.83	3.83	3.00	17.394	0.000*
Q9	Library should always have sufficient personnel to assist customers	6.38	4.59	1.79	8.963	0.000*
III	Responsiveness	6.3125	4.5094	1.8031	17.517	0.000*
Q10	Returned materials should be promptly reshelved for the use of other customers.	6.71	4.24	2.47	24.228	0.000*
Q11	Personnel should provide prompt assistance to customers.	6.16	4.64	1.52	8.661	0.000*
Q12	Personnel should promptly credit customer records when materials are returned.	6.38	4.44	1.94	15.664	0.000*
Q13	Personnel should not appear aloof or too busy to assist customers.	6.00	4.72	1.28	7.685	0.000*
IV	Assurance	6.6250	4.4656	2.1594	24.706	0.000*
Q14	Personnel should have the skills and knowledge to provide information services.	6.50	4.96	1.54	11.163	0.000*
Q15	Customers should feel safe in using the facilities and information resources.	6.76	4.90	1.86	16.402	0.000*
Q16	Personnel should be consistently courteous to customers.	6.40	3.98	2.42	18.765	0.000*
Q17	The behavior of personnel should instill customer confidence in services.	6.84	4.03	2.81	21.110	0.000*
V	Empathy	6.4775	4.1350	2.3425	23.632	0.000*
Q18	Personnel should give customers personal attention.	6.64	3.88	2.76	19.225	0.000*
Q19	Library should have operating hours convenient to all their customers.	6.23	4.97	1.26	7.228	0.000*
Q20	Library should insure that all customers have access to information resources.	6.43	4.00	2.43	16.682	0.000*
Q21	Personnel should have the customer's best interest at heart.	6.35	3.76	2.59	22.801	0.000*
Q22	Personnel should understand the customer's specific information need.	6.75	4.06	2.69	19.408	0.000*
*	Total	6.4676	4.3665	2.1011	25.191	0.000*

E= Expectation; P= Perception; * Significant mean difference at p < 0.001 (2-tailed)

ANNEXURE III: ONE-WAY ANOVA [age]

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	6.624	3	2.208	4.631	.005*
	Within Groups	36.238	76	.477		
	Total	42.862	79			
Reliability	Between Groups	.332	3	.111	.782	.508
	Within Groups	10.756	76	.142		
	Total	11.088	79			
Responsiveness	Between Groups	5.432	3	1.811	4.936	.003*
	Within Groups	27.880	76	.367		
	Total	33.313	79			
Assurance	Between Groups	.598	3	.199	1.110	.350
	Within Groups	13.652	76	.180		
	Total	14.250	79			
Empathy	Between Groups	1.165	3	.388	1.577	.202
	Within Groups	18.715	76	.246		
	Total	19.880	79			

* Significant at P < 0.05

ANNEXURE IV: ONE-WAY ANOVA [Education]

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.007	1	.007	.013	.911
	Within Groups	42.856	78	.549		
	Total	42.863	79			
Reliability	Between Groups	.138	1	.138	.985	.324
	Within Groups	10.950	78	.140		
	Total	11.088	79			
Responsiveness	Between Groups	.173	1	.173	.407	.525
	Within Groups	33.139	78	.425		
	Total	33.313	79			
Assurance	Between Groups	.896	1	.896	5.234	.025*
	Within Groups	13.354	78	.171		
	Total	14.250	79			
Empathy	Between Groups	.842	1	.842	3.448	.067**
	Within Groups	19.038	78	.244		
	Total	19.880	79			

* Significant at P < 0.05 and **P < 0.10

ANNEXURE V: ONE-WAY ANOVA [Occupation]

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.723	2	.362	.661	.519
	Within Groups	42.139	77	.547		
	Total	42.863	79			
Reliability	Between Groups	.156	2	.078	.549	.580
	Within Groups	10.932	77	.142		
	Total	11.088	79			
Responsiveness	Between Groups	.481	2	.241	.564	.571
	Within Groups	32.831	77	.426		
	Total	33.313	79			
Assurance	Between Groups	.089	2	.045	.242	.785
	Within Groups	14.161	77	.184		
	Total	14.250	79			
Empathy	Between Groups	.085	2	.043	.166	.847
	Within Groups	19.794	77	.257		
	Total	19.879	79			

ANNEXURE VI: INDEPENDENT SAMPLES TEST [Gender, t-test]

Levene's Test for Equality of Variances				t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.						Lower	Upper	
Tangibility	Equal variances assumed	7.484	.008	2.029	78	.046	.3287	.16201	.00619	.65125
	Equal variances not assumed			2.092	73.076	.040 *	.3287	.15715	.01553	.64192
Reliability	Equal variances assumed	2.496	.118	-.321	78	.749	-.0272	.08449	-.19536	-.14105
	Equal variances not assumed			-.318	72.000	.751	-.0272	.08538	-.19736	-.14305
Responsive	Equal variances assumed	.049	.826	1.015	78	.313	.1477	.14559	-.14213	.43755
	Equal variances not assumed			1.004	72.029	.319	.1477	.14711	-.14556	.44097
Assurance	Equal variances assumed	2.621	.110	.592	78	.556	.0566	.09563	-.13382	.24695
	Equal variances not assumed			.580	66.925	.564	.0566	.09754	-.13813	.25126
Empathy	Equal variances assumed	.097	.757	.504	78	.616	.0569	.11302	-.16806	.28195
	Equal variances not assumed			.501	73.931	.618	.0569	.11374	-.16968	.28357

* Significance at p < 0.05

ANNEXURE VII: ONE-WAY ANOVA [Age]

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.552	3	.184	.268	.848
	Within Groups	52.166	76	.686		
	Total	52.718	79			
Reliability	Between Groups	1.165	3	.388	.383	.766
	Within Groups	77.035	76	1.014		
	Total	78.200	79			
Responsiveness	Between Groups	.563	3	.188	.200	.896
	Within Groups	71.492	76	.941		
	Total	72.055	79			
Assurance	Between Groups	.535	3	.178	.244	.865
	Within Groups	55.558	76	.731		
	Total	56.093	79			
Empathy	Between Groups	.441	3	.147	.147	.931
	Within Groups	75.861	76	.998		
	Total	76.302	79			

ANNEXURE VIII: ONE-WAY ANOVA [Education]

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.967	1	.967	1.457	.231
	Within Groups	51.751	78	.663		
	Total	52.718	79			
Reliability	Between Groups	.161	1	.161	.161	.689
	Within Groups	78.039	78	1.000		
	Total	78.200	79			
Responsiveness	Between Groups	2.197	1	2.197	2.454	.121
	Within Groups	69.858	78	.896		
	Total	72.055	79			
Assurance	Between Groups	1.098	1	1.098	1.557	.216
	Within Groups	54.995	78	.705		
	Total	56.093	79			
Empathy	Between Groups	.849	1	.849	.878	.352
	Within Groups	75.453	78	.967		
	Total	76.302	79			

ANNEXURE IX: ONE-WAY ANOVA [Occupation]

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	.200	2	.100	.146	.864
	Within Groups	52.518	77	.682		
	Total	52.718	79			
Reliability	Between Groups	.348	2	.174	.172	.842
	Within Groups	77.852	77	1.011		
	Total	78.200	79			
Responsiveness	Between Groups	2.674	2	1.337	1.484	.233
	Within Groups	69.381	77	.901		
	Total	72.055	79			
Assurance	Between Groups	3.296	2	1.648	2.403	.097**
	Within Groups	52.797	77	.686		
	Total	56.093	79			
Empathy	Between Groups	8.374	2	4.187	4.746	.011*
	Within Groups	67.928	77	.882		
	Total	76.302	79			

* Significant at p < 0.05 and ** at p < 0.10

ANNEXURE X: INDEPENDENT SAMPLES TEST (Gender, t-test)

	Levene's Test for Equality of Variances				t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Tangibility	Equal variances assumed	.661	.419	-.429	78	.669	-.0790	.18413	-.44562	.28754
	Equal variances not assumed			-.422	68.177	.675	-.0790	.18740	-.45298	.29490
Reliability	Equal variances assumed	4.530	.036	-1.255	78	.213	-.2791	.22229	-.72162	.16348
	Equal variances not assumed			-1.231	66.889	.223	-.2791	.22674	-.73166	.17352
Responsive.	Equal variances assumed	.081	.777	-1.563	78	.122	-.3317	.21223	-.75422	.09080
	Equal variances not assumed			-1.565	76.610	.122	-.3317	.21194	-.75377	.09035
Assurance	Equal variances assumed	.106	.745	-.992	78	.324	-.1875	.18897	-.56367	.18875
	Equal variances not assumed			-.987	74.264	.327	-.1875	.19001	-.56605	.19113
Empathy	Equal variances assumed	.428	.515	-.957	78	.342	-.2109	.22049	-.64991	.22803
	Equal variances not assumed			-.942	69.665	.349	-.2109	.22382	-.65737	.23549

ANNEXURE XI: ONE-WAY ANOVA (Age)

		Sum of Squares	df	Mean Square	F	Sig.
R1	Between Groups	56.779	3	18.926	.793	.501
	Within Groups	1813.221	76	23.858		
	Total	1870.000	79			
R2	Between Groups	1260.717	3	420.239	5.129	.003*
	Within Groups	6226.471	76	81.927		
	Total	7487.187	79			
R3	Between Groups	405.746	3	135.249	4.642	.005*
	Within Groups	2214.254	76	29.135		
	Total	2620.000	79			
R4	Between Groups	185.908	3	61.969	4.157	.009*
	Within Groups	1132.842	76	14.906		
	Total	1318.750	79			
R5	Between Groups	170.260	3	56.753	1.882	.140
	Within Groups	2291.928	76	30.157		
	Total	2462.188	79			

* Significant at P < 0.05

ANNEXURE XII: ONE-WAY ANOVA (Education)

		Sum of Squares	df	Mean Square	F	Sig.
R1	Between Groups	6.373	1	6.373	.267	.607
	Within Groups	1863.627	78	23.893		
	Total	1870.000	79			
R2	Between Groups	34.752	1	34.752	.364	.548
	Within Groups	7452.436	78	95.544		
	Total	7487.188	79			
R3	Between Groups	80.105	1	80.105	2.460	.121
	Within Groups	2539.895	78	32.563		
	Total	2620.000	79			
R4	Between Groups	2.489	1	2.489	.148	.702
	Within Groups	1316.261	78	16.875		
	Total	1318.750	79			
R5	Between Groups	115.413	1	115.413	3.836	.054*
	Within Groups	2346.774	78	30.087		
	Total	2462.188	79			

* Significant at P < 0.10

ANNEXURE XIII: ONE-WAY ANOVA (Occupation)

		Sum of Squares	df	Mean Square	F	Sig.
R1	Between Groups	16.453	2	8.226	.342	.712
	Within Groups	1853.547	77	24.072		
	Total	1870.000	79			
R2	Between Groups	401.068	2	200.534	2.179	.120
	Within Groups	7086.120	77	92.028		
	Total	7487.187	79			
R3	Between Groups	6.687	2	3.344	.099	.906
	Within Groups	2613.313	77	33.939		
	Total	2620.000	79			
R4	Between Groups	12.868	2	6.434	.379	.686
	Within Groups	1305.882	77	16.960		
	Total	1318.750	79			
R5	Between Groups	279.228	2	139.614	4.925	.010*
	Within Groups	2182.959	77	28.350		
	Total	2462.187	79			

* Significant at p < 0.05

ANNEXURE XIV: INDEPENDENT SAMPLES TEST (Gender, t-test)

	Levene's Test for Equality of Variances			t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
R1	Equal variances assumed	.072	.790	-.782	78	.437	-.85	1.094	-3.032	1.323
	Equal variances not assumed			-.779	75.346	.438	-.85	1.097	-3.039	1.330
R2	Equal variances assumed	.198	.658	.082	78	.935	.18	2.197	-4.194	4.553
	Equal variances not assumed			.081	72.043	.936	.18	2.220	-4.246	4.604
R3	Equal variances assumed	16.863	.000	1.092	78	.278	1.41	1.290	-1.160	3.976
	Equal variances not assumed			1.142	63.928	.258	1.41	1.233	-1.055	3.871
R4	Equal variances assumed	1.467	.229	-.307	78	.760	-.28	.921	-2.117	1.552
	Equal variances not assumed			-.303	70.628	.763	-.28	.934	-2.145	1.579
R5	Equal variances assumed	1.795	.184	-.357	78	.722	-.45	1.259	-2.956	2.057
	Equal variances not assumed			-.347	62.120	.730	-.45	1.294	-3.036	2.137

* Significant at p < 0.001

DYNAMIC COMPENSATION SYSTEM FOR PAKISTAN

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ABSTRACT

This study investigates the theoretical relationship between different job compensation techniques and an outcome, which is in the form of job performance. Further, the role of compensation system is taken as an intervening variable between job compensation techniques and performance. First, clear traditional scenario of compensation system of Pakistani public organizations have been presented, there are many dilemmas in public sector compensation system due to that performance of employees is not outstanding. Second, the compensation policies of public and private sectors of developed nations are studied and their relation with performance of employees is checked. These techniques depict that better compensation policies are based on these system, which are working in that countries. For further clarification, case studies of public and private sector are also quoted to clear the role of these types of techniques. Propositions are developed based on given literature. Third, in the light of these techniques strategies for the Pakistani public sector has been derived. In suggestions, further dimensions are open for investigation for future research. For future viewpoint, all these variables must be empirically tested to find out their effectiveness. The impact of these techniques can be studied on the other job outcomes also. Higher authorities should try to design the effective compensation system in the light of these techniques.

KEYWORDS

Dynamic Compensation System, Esta Code of Pakistan, Expectancy Theory, Equity Theory, Broad Banding, Built in Adjustment Mechanism, Multi Skilling, National Personnel Authority.

INTRODUCTION

Compensation system is an essential and efficient approach opts by organizations to providing pecuniary benefits to their employees in exchange for work which they performed (Allen, 2010). Compensation may achieve several purposes assisting in recruitment, job performance, and job satisfaction. The designing of dynamic compensation system is an art (VS&Rajesh, 2009). Designing process starts by identifying desired outcomes and goals for organization. In this process it is essential to retain balance of direct and indirect rewards, the complexity and responsibility of roles and the candidates or employees filling it, as well as focus should be on equity also (Allen, 2010; VS&Rajesh, 2009).

As the work complexity is more than multiple measures for performance are necessary to adequately find out best compensation systems. Alignment of individuals' success with organizational success will be very help to encourage employees to exert effort to achieve organizational objectives. In such a way their personal goals are also achieved in the form of good compensation system (McPhie, 2006). Compensation system is pivotal issue in any organization. Effective compensation system is important for both, employers and employees. As this system influences key outcomes, thus, design best compensation system to align employees' performance with organizational objectives is essential. In this dynamic environment, it is essential to continuously look for better compensation management systems and redesign the existing system (VS&Rajesh, 2009).

Expectancy theory can be very helpful for policy makers to design the better compensation system. (Vroom, 1964). Expectancy theory predicts that employees in an organization will be motivated, when they believe that: exerting more effort will yield better job performance and better job performance will lead to organizational rewards. Such as an increase in salary or bonuses, promotions, time off, new and interesting assignments, recognition, intrinsic satisfaction from validating one's skills, abilities and giving recognition to employees appear in the form of organizational rewards (Porter& Lawler, 1968; Vroom, 1964).

Payment whether hourly wage or salary, is the main concern for the employees and they want equity. If an employee feels underpaid then it will result in the employees feeling resentment towards the organization and perhaps with their co-workers, which may result the employees do not perform well. This issue must be kept in mind while designing compensation system for employees (Spector, 2008). Equity theory addresses this issue, developed in 1963 by John Stacey Adams who described that employees seek to maintain equity between the inputs that they bring to a job by putting their efforts and the outcomes that they receive in the form of rewards (Adams, 1965).

Both theories contribute a lot for developing the compensation system, which should adopted for any organization. Actually, these theories favor the flexible wage rate according to the individual contribution of employee, who is putting effort level and using his various skills for the achievement of particular task, which is assigned to him or her, for that he/she should be paid accordingly without any discrimination.

The objective of this paper is to provide some suggestions to the government of Pakistan how to manage their civil services in better way and improving their performance. It does so by studying carefully the Esta Code of Pakistan (2004) and surveying successful or promising experiences in advanced and newly industrialized countries. The objective is to identify models or elements therein which, might be usefully applied and adapted for the country administration. For the improvement of government performance, the focus of our study will be the dynamic compensation system for the public sector.

Thus, the present study divided into three parts. First, it will examine the existing compensation system of the public sector of Pakistan. Second, advanced country incentive systems approaches will be discussed. Third, practical implications for the improvement of Pakistani compensation system will be suggested in the light of advanced countries experiences.

THEORETICAL BACKGROUND

COMPENSATION SYSTEM OF THE PUBLIC SECTOR OF PAKISTAN

Traditional civil services of Pakistan relied mainly on unified pay scales with automatic, fixed step increments based on seniority and determined on a service-wide basis.

The main issues to be addressed in the compensation system of Esta Code (2004) are given below:

TRADITIONAL & INFLEXIBLE SYSTEM OF COMPENSATION

Pay/compensation based on designation. Traditional classification system makes it difficult for workers to exceed their performance beyond the job descriptions; they are discouraged for creativity and initiative building. This system classifies the pay /compensation structure on the basis of designation rather than performance.

Unified salary schedule. Each group has a unified salary schedule determined by the central personnel authority, often based on traditional rules that took from historical documents, which are outdated now.

Recommendations for service-wide adjustments. Recommendations for service-wide adjustments are usually made after a long period.

Flat salary amount for each grade. Each grade has a flat salary amount and contains a number of incremental steps that based on seniority not on performance. Employees typically have guaranteed job tenure and progress through increments automatically. As the pay cannot be raised without promotion to the next

grade, a "grade creep" phenomenon occurs, which discourages the rapid promotions according to performance and capabilities of the employees (Nunberg, B, 2004).

The economic conditions of the country ignored. The economic conditions of the country do not consider during the pay packages adjustments (especially in the case of adjustment of inflation rate). Tax rate is very high for the salaried employees.

Inequity in the compensation system. Those government employees who are getting higher degrees from Pakistan getting less incentives in the form of increments as compared to those who are getting same degrees from the foreign universities/colleges. It is also the case for employees, who are performing tough assignments getting very low compensation (especially lower level employees). Compensation packages that are given to the teachers and doctors who are working in distant places are not attractive. Pension and retirement benefits, which are given to the employees, are very low. High rate of tax apply at salaried employees without doing justice how they will pay such big amount.

Lack of expertise for designing the compensation system. When the compensation system is designed for all the departments, no experts of that relevant field are consulted. The outside experts, not by managers, who are part of that particular department, design compensation system for the public sector of Pakistan and they cannot understand real line job requirements. Based on above-mentioned dilemmas it can be said that:

Proposition 1: Traditional and inflexible system of compensation will lead to poor performance of employees.

All these existing dilemmas, which are facing by the employees of public sector of Pakistan, are summarized in the table 1.

TABLE 1: ADVANCED COUNTRY APPROACHES FOR THE CIVIL SERVICE INCENTIVE SYSTEMS

1)	Pay /compensation based on designation rather than performance.	
2)	Unified salary schedule, which determined by the central personnel authority.	
3)	Recommendations for service-wide adjustments implement after a long period.	
4)	Each grade has a flat salary amount.	
5)	Economic conditions of the country do not considered during the pay packages adjustments.	
6)	Inequities in the compensation system	
	<ul style="list-style-type: none"> • those who are getting same degrees from the foreign universities/colleges • are performing tough assignments are getting very low compensation. • packages that are given to the teachers who are working in distant places are not attractive. • benefits give to retirees. • at salaried employees. 	<ul style="list-style-type: none"> More Increments for Those employees who Compensation Low Pension and low High rate of tax apply
7)	No experts of that relevant field are consulted for determining the salaries rate of employees.	

Reward structures are main constructs to performance motivation for all the employees including civil servants. Many countries are introducing modifications in traditional pay systems. These changes show an attempt to reduce the rigid standardization of pay system for the employees. This is being done through a variety of mechanisms (Nunberg, B, 2004). In France, human resource management researchers and practitioners shown consensus and established their company compensation policy on the hypothesis that flexible pay corresponds not only to the needs of organizations but also to the expectations of employees, particularly the managerial staff. Opinion polls and organizational surveys seem to support the practitioners' point of view. Flexible pay concept was introduced in France in 1980s. A wage freeze in 1982 provided a major turning point in the compensation policies of French companies. Following wage freeze, the French government succeeded into two directions. The first direction addresses to the characteristic of the 1980s. It was supporting to the development of individual pay rises to condemn the collective pay rises. This tendency is widespread for managerial staff today (Roussel & Heneman, 1997). The second, characteristic of the 1990s, was the appearance of the concept of total compensation, which aims to encourage the pay mix according to an organization's commercial and financial strategies while taking into account its corporate culture, management methods, and employee expectations (Amadiou, 1995). The pay mix is principally based on individualized salaries and the flexibility of compensation packages according to their effort level, which they put to achieve their tasks. This flexibility is obtained by increasing variable pay in the form of bonus plans, gain sharing and short and medium term deferred income profit-sharing, employee stock ownership plans, company savings plans in the total compensation package. Due to this evolution, the compensation system of French organizations is based on three principal components: fixed pay, flexible pay and miscellaneous benefits (Amadiou, 1995). If another flexible reward system is discussed then "broad-banding" is the best method, which encourages flexibility. Broad-banding means recruits enter the service in a salary range rather than at a fixed point, as was traditionally the case. Moving up the ladder, increments are neither automatic that means via seniority nor fixed. Therefore, Staff can get rewards more flexibly. Broad banding is actually classification simplification and a reduction in the number of grades and job categories (Nunberg, B, 2004). In Australia, where broad-banding is used selectively, the 1987 pay agreement with government unions replaced over 100 white-collar office classification structures with a single, broad-banded, 8-level system. This was a significant political accomplishment. In general, broad banding is thus more easily implemented at senior levels. Broad-bands are being used in Australia's new Senior Executive Service and in the Swedish higher civil service. New Zealand's civil service reform program has succeeded in instituting broad-banding for all civil service employees (Nunberg, B, 2004).

Broad banding is a type of job classification trying to classify jobs broadly without reflecting minor differences in job contents. Grades are broadly grouped into few very large occupation families, which simplify grade structure and reduce number of grades and job categories. Its flexibility bringing dramatic change to the pay structure as well as promoting performance-based pay management meet surprisingly well with modern needs in civil service reforms and was widely practiced in the past decades in many countries such as Australia, New Zealand and United States (APSC, 2003 & Nunberg, B, 2004).

Transforming a traditional salary structure into a broad banding system is prominent trend in the field of compensation. Mitsubishi Motor Sales of America, the exclusive U.S. marketer and distributor of Mitsubishi vehicles, developed and implemented a new broad banding program for their employees. Jim Covington was Mitsubishi's compensation and benefits manager gave his views about broad banding how to deliver pay through this method and why he liked to use this method.

Mitsubishi, intense industry competition required employees to act faster. Within this environment, Mitsubishi turned to broad banding due to different reasons: former grade system lacked flexibility and consistency, was an administrative burden and minimized increases for high performing high-in-range employees. Broad banding anticipated benefits included broader job design, greater ability to reward performance and expanded opportunities for professional growth, remove an unhealthy focus on grades; promote teamwork, and encourage lateral developmental moves.

To assist management in making appropriate pay decisions, Mitsubishi maintains Market Reference Points (MRPs) for all the jobs. MRPs are established by extracting market data from several reputable salary surveys. Each job in the organization is matched to a survey benchmark position or to an equally-valued internal position that is matched to a survey. In addition to the MRP, the following factors are considered when making pay decisions at Mitsubishi, which are performance level, pay of others, experience, education and job skills, and budget. Mitsubishi's equity adjustment designed to assist management in bringing pay rates into line with performance and market. Mitsubishi's job rotation program allows employees to exchange positions for broadening skills. According to them through job rotation, skill level of the employees will be enhanced. As the skill level increases more, there will be more chances for the progress. Broad banding encourages lateral movement and makes the job families. There are in-band promotions in the same band with greater responsibilities. Other is band-

to-band promotions, which moves to open positions in another band with greater responsibilities. In this case it is cleared that broad banding increase the scope of job for employees (Hrtools, 2010).

The UK Civil Service did major reform in the pay arrangements, under the conservative government 1979-1997, the impulsion was toward politically driven programme to reduce the size of government and to retain in public hands only an irreducible core. Key developments in the civil service are: each department/agency negotiates their pay system, pay levels and rank/grade structure for staff below the senior civil service, replacing national pay negotiations. These arrangements apply equally to all the 'disciplined' parts of the civil service. Job rating was done with a series of 4 to 5 pay bands. The permanent secretary of their department, judges individual progress within a pay band based on their performance and the available pay budget. Increments are given based on performance rather than on the basis of seniority they are awarded annually. The result of introducing this delegated, performance based system has been a complete division of the old rank/grade system. It has provided individual departments and agencies more flexibility to set pay arrangements to meet their particular local situations and performance requirements (United Kingdom Country Summary, 2001). Based on above-mentioned facts and case studies proposition can be derived.

Proposition 2: Classification of grades based on broad banding will lead to flexible compensation system and that flexible compensation will enhance the performance of employees.

Government of Australia wanted to motivate its employees to enhance their capabilities to cope with competitiveness, for that purpose multi skilling techniques were used to enhance their skills levels (Hosie, 1993). The Business Council of Australia (1988) supported the principle of flexible work design and went on to recommend that skill formation was 'at a premium'. The Australian Conciliation and Arbitration Commission authorized the principle of 'structural efficiency' as a basis for restructuring the federal industrial awards, which has been linked to a new national wage system. Some of the more important structural efficiency principles included in which one was multi-skilling. This initiative encourages employees to expand their skill. Pay and classification systems have been made simpler and more flexible through "Multi-skilling", in Australia increases the mobility and staff deployment flexibility for lower and middle-level jobs. Through departmental workplace reviews, tasks are redesigned to include a much wider range of skills requirements, and staff is given a broader array of training opportunities. Undertaken with extensive union consultation, multi-skilling is reputed to have increased job satisfaction and worker productivity significantly. State governments in Australia have taken this flexible pay and work condition approach further (Hosie, 1993). There is no single approach for remuneration and rewards in the Australian Public Service Commission (APSC, 2003). Agencies used considerable scope to develop approaches to suit their culture and business needs within a government policy framework that establishes the boundaries of action. This is a direct consequence of the 1996 workplace relations act, in which a centralized system for managing employment conditions in the workforce was abolished and that transferred to individual organizations through legislation for all sectors, responsibility for negotiating, within limits, agreements setting employment conditions and pay arrangements within their organizations. The results of these negotiations are called enterprise agreements or, occasionally workforce agreements. Public servants and contractors are able to choose whether they wish to join public service unions or employer associations. There was no restriction on them. Agency heads provide the consultative services to all employees, whether they are union members or not. Agencies are now recognizing that different organizational cultures require different approaches to manage the compensation systems (APSC, 2003). Both the government and agencies policy framework should raise the pay according to the employees' productivity improvements. Most of the variations appear to reflect genuine labor market requirements (to pay particular experts, or to reward top performers, for example) and reflect exactly the intent of the flexibility provided. Not surprisingly, where agencies are employing people within the same labor market, remuneration does not vary widely. While agencies may choose the level of detail in their employment agreements, they generally include those elements of their performance management system that set out how assessments of individual employee performance are linked to improvements to pay and conditions. All APS agencies link remuneration to individual performance and link these remuneration schemes with salary, rewards or bonuses, skill development and the work environment in their agency agreements. Agencies may give non-monetary rewards to individual employees in recognition of high achievement. Agencies report annually to Parliament on the level of performance payments to employees (APSC, 2003).

Most remuneration schemes would link to salary, rewards or bonuses, skill development and the work environment. The experts of compensation system may give non-monetary rewards to individual employees in recognition of high achievement when they use different skills for the improvement of performance. These rewards can be in the form of formal awards, certificates or plaques, gift certificates, development opportunities, or conference attendance. They are likely to adopt team-based reward systems where that are required (NPA, 2009).

Motorola's as a case study is taken which start its operation in Philippine in 1979. It is involving in the assembly and testing of integrated circuits. Malaysian operations, which are considerably more advanced in research and development. 100% of its production is exported back to Motorola in the U.S. Motorola is well known in the electronics sector for its high quality products and innovations in production organization and people involvement, and its human resource strategies. In Philippine its operations are consistent with the Motorola approach as worldwide. There successful strategies are based upon training and teamwork. Training is considered essential for sustaining the production quality, maintenance and parts management, trouble shooting, as well as communication and personality skills. Motorola's has compulsion for employees to receive 40hrs training per year for enhancing the multi skilling. According to that, company employees must know at least three jobs at same time according to multi skilling policy. They are promoting flexi wage system. From the employee's point of view, he or she can expect to learn one new skill every six months and after two years when their promotion is due then they are fit for the new job. In terms of teamwork, Motorola uses both structured and autonomous teams. Structured teams include straight-line teams that are part of one production line and one department, as well as interactive teams that are comprised of different people to solve different kinds of problems. Straight-line teams are consisting of both horizontal teams, in which workers do work in different shifts as well as vertical teams in which workers are working in different job hierarchies including both the supervisor and ending with a material handler. More recently fully autonomous work teams have been introduced in some departments, where the team takes full responsibility for recruitment, training, and production management, and performance appraisal. Motorola's compensation strategy and performance appraisal systems are linked to the effort of employees, which they put according to their caliber and on the basis of performance or productivity. In terms of compensation strategy, Motorola positions itself at the top of the market in terms of wages and salaries, and their pay rates. Their compensation system is flexible, with about 50% of earnings is based on performance and productivity. Wage increases are tied to both the cost of living as well as the performance of the employees and the employee's department, based on the performance appraisal system. When workers do jobs at higher skill levels, they get an additional 15% of pay for the time worked, and a performance linked mid year bonus based on plant output and quality yield. An individual can increase his or her annual earnings by as much as 30% by extra performance. Due to that flexibility, an average turnover rate is less than 2% (Kuruvilla, 1994). Multi skilling employees likely to be paid more because their specialized services for the organizations are essential and specialized schedule salaries are important for multi skilling employees (Ad Hoc.A, 1997; NPA, 2007).

Based on above given evidences it can be suggested that:

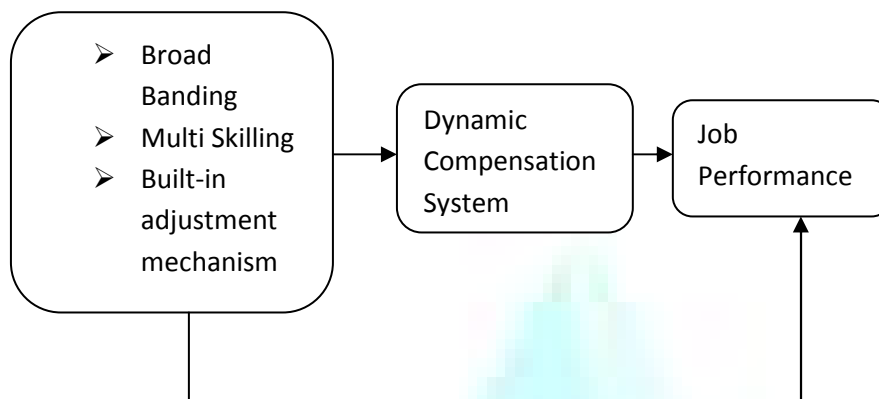
Proposition 3: Multi skilling will lead to better compensation system and that will enhance the performance of employees. National Personnel Authority (NPA) of Japan is a specialized, neutral, third-party organization for public employee management, established under the Cabinet to ensure neutrality and fairness of public employees' management and carry out compensatory functions for the promotion of labor rights. It consists of three bureaus. These bureaus work on the separate issues, in which one bureau work on the remuneration of private enterprises every year as compensatory measures and also on the national public employees and makes necessary recommendations to the Diet and the Cabinet so that the remuneration of national public employees will be adapted according to the general social conditions. It is difficult to determine national public employees remuneration levels by market mechanisms, for that purpose private sector's remuneration rates are considered, which are determined by labor-management negotiations of specific departments and accordingly to economic conditions of country. In this way gap between government pay packages and privately announced pay packages will be removed (NPA, 2009). Singapore now administers a built-in adjustment mechanism, adjusting pay with the economy's performance (Nunberg.B, 2004). Proposition four will be based on the above facts.

Proposition 4: Built in adjustment mechanism will give a better compensation system for employees of public sector and due to attractive compensation,

employee job performance will be positively affected.

Based on above discussion a model is derived which depict what type of coping strategies should be opted by government of Pakistan to make their compensation system more dynamic.

MODEL



PRACTICAL IMPLICATIONS

STRATEGIES PAKISTAN FOLLOWS IN LIGHT OF ADVANCED COUNTRY EXPERIENCE

STAFF PERFORMANCE ASSESSMENTS AND LINKED TO PAY AND PROMOTION

These, all strategies are based on flexible wage system. Broad banding, multi skilling and built in adjustment mechanism. All these techniques have focused on the performance improvement through putting effort level and skills enhancement. These techniques are following expectancy and equity theory for adjustments of pays of employees.

Employees' performance-linked advancement

In Pakistan, the employees' performance-linked advancement is required, through which a base salary increases for satisfactory or higher performance, usually in terms of either incremental progression through pay points or through a percentage increase (APSC 2003&Amadiou, 1995).

Performance-linked bonus. Usually one-off bonus payment would give in the recognition of higher than satisfactory performance. These bonuses are likely to be bifurcated in to two categories:

Department base bonuses. These bonuses shall be given to the employees according to the performance of relevant department. Every department shall make a criterion according to the nature of the job.

If there is services department then performance will be checked by establishing the standards how specific services are provided through appropriate manner in minimum period of time by managing the labor and capital cost more effectively and efficiently (APSC, 2003).

In manufacturing departments, bonuses would also be based on the performance/output. The criteria for the bonuses would set by higher authorities in which periodic standards will meet by reducing the company cost. Profit maximization is likely to be achieved by utilizing the human capital and other physical resources in minimum tenure most efficiently and effectively. In manufacturing concerns, multi skilling is required for completion of task well in time. For the enhancement of employees' skills for the better performance is required in organizations (APSC 2003; Kuruvilla, 1994)).

Individual base bonuses. These bonuses can give according to the performance of employees and their level of efforts that they put for achievements of tasks (Roussel & Heneman, 1997).

Non-monetary rewards. Most remuneration schemes would be linked to salary, rewards or bonuses, skill development and the work environment. The experts of compensation system may give non-monetary rewards to individual employees in recognition of high achievement, such as formal awards, certificates or plaques, gift certificates, development opportunities, or conference attendance. They should adopted team-based reward systems where that are required. Flexible wage system including broad banding and multi skilling promote these types of rewards (APSC, 2003; Hosie, 1993).

MOVE-OVER / PROMOTION POLICIES

Move over is the method of promotion of employees from one position to another position either his/her performance is satisfactory or not (Esta Code of Pakistan, 2004).Hence technique of broad banding can be used for the promotion of employees in the next grade. Increments or promotions should be given based on performance not based on seniority, which are awarded annually. The result of introducing this delegated, performance based system has been a complete division of the old rank/grade system. It has provided individual departments and agencies more flexibility to set pay arrangements to meet their particular local situations and performance requirements (United Kingdom Country Summary, 2001).

The existing condition of the period of stay of three years at the maximum for the non-technical, non-professional, technical and professional categories e.g. doctors, engineers, educationists, economists, management accountants, scientists, archaeologists, geologists, meteorologists, experts of agriculture, animal husbandry and forestry would be reduced and it would be adjustable according to the performance of employees. If their performance is satisfactory, they would be promoted more rapidly. For enhancing their capabilities time to time training programs are essential for them. These trainings will enhance their productivity level (Kuruvilla, 1994).

Move-over or in other words promotion would allow in those cases where an employee, who is otherwise considered, fit for promotion to higher post, should not be promoted for want of a vacancy. If the employee performance is satisfactory and he/she is performing his/her duties by putting the best effort level then he/she should be promoted accordingly (APSC 2003; United Kingdom Country Summary, 2001).

THE SPECIALIZED STAFF SALARY SCHEDULE

That shall be created to provide an environment for introducing human resource management based on multiple career-paths, aimed at utilizing highly-specialized knowledge and experience accumulated by public employees to respond to diversification, complexity and sophistication of public administration, as well as amending the tendency toward early retirement and responding to lengthened periods in service (NPA,2007).

The demand for high-quality services and reduced costs has caused employers to seek and value professionals who can provide a multiplicity of services. Some situations require transdisciplinary skills and treatment approaches in order to maximize rehabilitation results. Therefore, it is essential to occupy multi skilled practitioners who possess other-discipline expertise to address clients' needs (Ad Hoc.A, 1997). Therefore special additional allowance would be awarded on the basis of their specialized skills.

Thus, in the light of above instructions the employees of Pakistani public sector shall be awarded by special additional allowance according to their performance, especially people who are performing the duties that are very difficult to perform and having the technical nature would be awarded more. These allowances should not be based upon the designation/rank. This can be done by making slight amendments in the Esta code of Pakistan (Ontario's Public Sector Salary Disclosure, 2006&NPA, 2007).

a) These allowances will not be subject to income tax.

b) It will not be treated as part of emoluments for the purposes of calculation of pension and recovery of house rent.

Specialized staff salary schedule shall also applied to public employees specified in the rules of Esta Code of Pakistan who engage in support duties for policymaking and planning etc. through surveys, research and information analysis, etc. that are using highly-specialized knowledge and experience in specific

fields of administration.

ACCOMMODATION OF BUDGETARY UNCERTAINTIES

Salary policy in Pakistan shall intentionally retain allowances over the basic wage as a built-in adjustment mechanism, which accommodates budgetary uncertainties. This mechanism is adopted from the Civil Service Reform Lessons from Advanced Industrialized Countries, which was given by Barbara Nunberg (Nunberg.B, 2004).

FURTHER SUGGESTIONS

Reports to Parliaments. The experts of Compensation system shall require reporting annually to Parliament on the level of performance payments to employees without infringing on the privacy and confidentiality of individuals (NPA, 2007).

Open and accountable system. The open and accountable system of government shall be implemented. It lets taxpayers compare the performance of an organization with the compensation given to the people running it. It also provides taxpayers with more details on how their tax rupees are spent. Tax shall be implemented in the sectors according to the profit generation of organizations. Extra burden on the employees should abolish (Ontario's Public Sector Salary Disclosure, 2006).

Salary disclosure in annual reports. Employers are now relieved from having to include salary disclosure with their annual reports if that disclosure is made available on a public website (a corporate website or the Ministry of Finance website). This change reduces red tape and eliminates the duplication of reporting obligations. In this manner, the information remains readily available to the public while decreasing costs for employers in preparing the annual reports (Ontario's Public Sector Salary Disclosure, 2006).

Private sector's remuneration rates. The most reasonable method for the determination of remuneration is to follow the private sector's remuneration rates, which can determine by labor-management negotiations and reflect the current economic and employment situation. In this way gap between government pay packages and privately announced pay packages will be removed (NPA, 2007).

Policies for the ad hoc basis or temporary employees. The policy makers should make efforts to ascertain actual remuneration for part-time/ad hoc basis employees and will consider measures needed to provide appropriate remuneration based on their duties. The issue of part-time employees needs further consideration, including issues concerning their status (NPA, 2007).

Dearness allowance, local compensatory allowance and leave travel concession and rest and recreation allowance. All these allowances shall be provided to all the employees without any discrimination. If the big city allowance and the other benefits are given in the big cities, same type of attractive packages should be given in the under developed areas. The existing rules and orders regulating the grant of House Rent Allowance, Conveyance Allowance and Washing Allowance shall not be continued and all the benefits shall be calculated in the salary of employees. This "**Locality Pay**" system is prevailing in U.K, Sweden, and Japan (Nunberg.B, 2004).

Non-practicing allowance. The existing rates of Non-Practicing Allowance shall be revised. Non-Practicing Allowance shall be admissible in all cases where a doctor is not allowed private practice. Doctors posted in rural areas below Town Committee level, and not allowed private practice, shall be given a Practice Compensatory Allowance at the rate, which is doubled to the salary for the employees who are working in districts.

Teaching allowance. Teaching Allowance shall be based on the qualification of employees cum at their posting place. If they are posted at the far off places should be compensated more as compared to those who are working in the big cities and at their home stations.

Advance increments to teachers, technical and professional categories on possessing/acquiring higher qualifications. The teachers who are getting higher qualification from the any recognized institution /university of Pakistan or any other country shall be awarded on equity basis. Discrimination shall be based on performance not based on their respective institutions from where they have the degrees.

Doctors, Engineers, Educationists, Economists, Management Accountant, Scientists, Geologists, Meteorologists, Archaeologists, and Experts in Agriculture, Animal Husbandry and Forestry working in Universities, Colleges, Research institutions or technical departments shall be allowed advance increments on possessing/ acquiring higher qualifications from any recognized institution/university of Pakistan or from any recognized foreign institution shall be treated on the equity basis. No extra benefits shall be given to a person who is foreign qualified.

In case a technical/professional employee of the above category possesses Ph.D. degree from a foreign university/Local recognized university of Pakistan, he shall be allowed equal increments on entry into service and increment should be given without any discrimination.

FUTURE RESEARCH DIRECTIONS

A theoretical framework has been built in this research where it is mentioned what kind of different techniques can be used for the improving the compensation system. Here a link is created between different techniques for structuring a dynamic compensation system and that techniques help in the improvement of performance and compensation is taken as a mediator between them. This model is not empirically tested; therefore, these techniques can be empirically tested. Only performance as an outcome is shown which is improving due to these techniques. Impact of these techniques can be checked on the satisfaction, motivation and turnover intention of the employees also who are working in the public sector organization. In the suggestion section, which suggestions are mentioned also can be verified by applying the empirical analysis.

CONCLUSION

This research is pure on the theoretical basis. Problems of Pakistani public sector compensation system are highlighted. Then those techniques and policies are highlighted which are used by the developed nations for running their compensation system. Based on those techniques problems of Pakistani public sector are trying to resolve. Case studies are also discussed which are on the public and private sector of developed nations which are giving the guidance how that system work in Pakistan successfully. For the researchers there is new avenue to do research on the improvement of public sector employees' performance and further research can be done on employees' satisfaction, motivation and turnover intentions. Actually, focus is not toward private sector organization because the researchers are already focusing on the private sector enterprises. Empirical verification can help in the further improvement of this system and it will clear, which technique is more effective.

REFERENCES

- Allen, K.L. (2010). Workers' Compensation System. *Web MD Professionals*.
- An Australian Public Service Commission (2003). The Australian experience of public sector reforms. *An Australian Public Service Commission Publication: 67-69*.
- Adams, J.S. (1965). Inequity in social exchange. *Adv. Exp. Soc. Psychol.* 62:335-343.
- Amadiou, J. F. (1995). *Le Management des Salaries*, Economica, Paris.
- Appendix E - United Kingdom Country Summary (2001). The Government Context.
- Business Council of Australia (1988). Editorial. *Business Council Bulletin*, Nov Dec, 4-11.
- Department of Finance Australia (1990). *Australian Public Service Statistical Bulletin B: 1989-90*. Canberra.
- Department of Industrial Relations Australia (1990) Second Report on Administrative Service Officer Structure: Progress Achieved in Agencies on Work Organization and Job Redesign. *Canberra*.
- Estacode (2004). Civil Establishment Code. *Pakistan Public Administration Research Centre Management Services Wing, Establishment Division Islamabad*.
- Hosie, J.P. (1993). Technologically mediated learning: The future of training in Australia. *Australian Journal of Educational Technology*: 9(1), 69-86.
- Hrtools (2010) Compensation & Benefits. *Build a better Business*.

- Kuruville.S (1994)National Industrialization Strategies and Firm Level IR/HR Practices:Case Studies in Malaysia and Philippines. *Center for Advanced Human Resource Studies (CAHRS)*.
- McPhie,N.A.G.(2006). Designing an Effective Pay for Performance Compensation System. *U.S. Merit Systems Protection Boar*, 1-56.
- Ontario's Public Sector Salary Disclosure (2006).
<http://www.fin.gov.on.ca/english/publications/salarydisclosure/2006/index.html>.
- Outline of NPA (2009) National Personnel Authority Japan. *Remuneration Recommendation*.
- Outline of NPA (2007) National Personnel Authority Japan. *Remuneration Recommendation*.
- Porter, L. W., & Lawler, E. E. (1968). *Managerial Attitudes and Performance*. Homewood, IL: Richard D. Irwin, Inc.
- Roussel, P. and Heneman, R. L. (1997). 'Individual reward systems emerge in France. *ACA News*, July/August, 18-19.
- Spector, P.E. (2008). *Industrial and Organizational Behavior* (5th ed.). Wiley: Hoboken, NJ.
- VS,M.& Rajesh,CNB.(2009). *Competency Based Compensation System - As a strategic HR Technique*.
- Vroom, V. H. (1964). *Work and Motivation*. New York: McGraw Hill.



DESIGN AND IMPLEMENTATION OF EXAMPLE BASED ENGLISH-HINDI MACHINE TRANSLATION SYSTEM

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ABSTRACT

A Machine Translation (MT) is the fast automatic translating tool that a sentence of source language has been translated to sentence of target language with same meaning and similar construction. Normally, in every MT system there are preprocessing phase, core MT phase and post-processing phase. In the preprocessing phase, source sentence has been normalized, parsed and chunked into noun chunks and verb chunks. Using example based in core MT phase, tagged chunked source language has been matched, selected and extracted best generalized target example. In these phase grammar of source language has also been analyzed and grammar of target language using source language grammar has been extracted. In post-processing phase, chunked machine translated target sentences has been adapted using target language grammar and arranged according to target language structure. An Example-Based MT system has been designed and developed for English-Hindi language pair. Experimental results of proposed system have also been compared with popular MT such as Google MTS, TSS MTS and Anusaarka MTS and observed its quality is better than other available MT systems. In this paper, a road-map of implementation of English-Hindi Example-Based MTS has been described.

KEYWORDS

Sentence Segmentation, Chunking Sentence, Best Example Extractor, Retrieving Target Language, Adapting Target Language.

INTRODUCTION

Now a day, Machine Translation (MT) is growing to use in online chatting, email, translating e-books etc. MT is a system used to translate sentences written in one language to other language automatically (Jurafsky D. et al., 2009; Gupta D. 2005) for example Google Translate, SYSTRAN, Anusaarka, etc.

MT systems are usually implemented using either rule based (RBMT) (Jurafsky D. et al., 2009), statistical method based (SBMT) (Jurafsky D. et al., 2009; Ney et al., 2000; Knight, 1997; Brown et al., 1990), example based (EBMT) (Gupta D. 2005; Nagao M. 1981; Sadler V. 1989; Sato and Nagao 1990; Sumita E. and Iida H., 1991; Kitano H. 1993; Furuse et al. 1994; Watanabe H. and Maruyama H., 1994; Cranias et al. 1994; Jones 1996; Veale T. and Way A., 1997; Carl, M. 1999, Andriamanakasina T. et al. 1999, Brown, 2000) or hybrid based (HBMT) approach.

EBMT is popular (Nirenburg S. C. et al., 1994) and advantageous (Gupta D., 2001) than other MT approaches with respect to accuracy, flexibility and portability. Since EBMT uses examples, translator's skill has been involved and also examples have been updated and changed according to source language (SL) - target language (TL).

Normally in every approaches of MT, there are three phases: pre-processing, core-processing and post-processing. In pre-processing, input sentences are normalizing, tagging and chunking. Usually chunking is helpful in MT in cases compound and complex sentences. In core-processing, chunks are translated using example based (Bojar O. et al., 2010; Chunyu K. et al., 2002; Mostafa A. et al., 1995; Grishman et al., 1992. The order of subject (S), object (O) and verb (V) of SL is different than the TL. In post-processing, translated chunks are merged in order of target language.

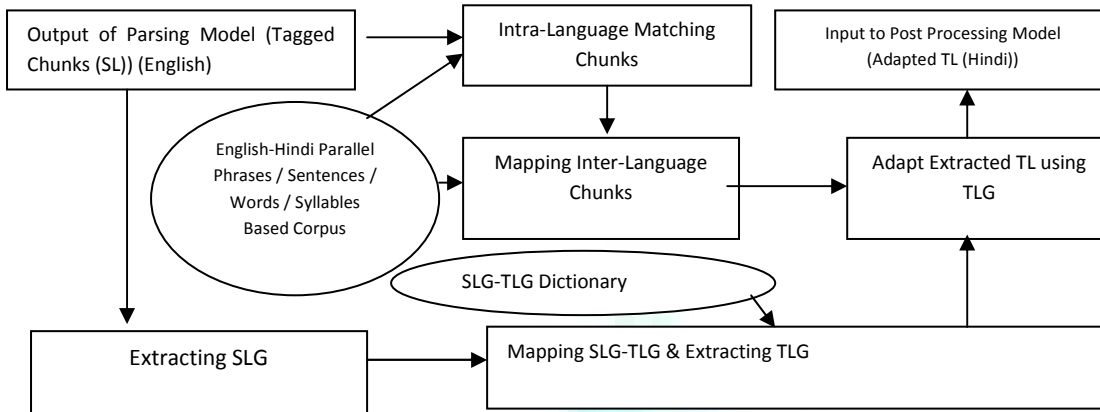
An proposed Example-Based MT system has been designed and developed for English-Hindi language pair. In this paper, core module of MT system has been described. Next sections brief the organization of core machine translation system, explore implementation & result and last section concludes the paper.

ORGANIZATION OF EXAMPLE BASED MACHINE TRANSLATION SYSTEM

In general, an example is a pair of text in English-Hindi language that is a translation of each other Eiichiro S. et al. (1991). Examples are in the form of chunks (Klein E., 2004) as sentences or phrases or words. There are basically three steps as shown in figure 1: Intra-Language Matching Chunks & Extraction of SL Grammar (Nirenburg S. C. et al., 1994), Mapping Inter-Language Chunks & Mapping SL-TL (Grammar Elita N. et al., 2005) and Rule-Driven Adaptation of TL (Takao D. et al., 2003; Guvenir H.A. et al., 1998; Nirenburg S.C., 1995).

Initially, intra-language matching chunks unit finds suitable matches for input tagged chunks using SL corpus and also fixes shortest best match of SL and simultaneously extraction of SL grammar unit extracts grammar of input tagged chunks called as source language grammar (SLG). Secondly, mapping inter-language chunks unit maps SL corpus to parallel aligned TL corpus and finds TL and simultaneously mapping SL-TL grammar maps SLG to TL grammar (TLG) and finds TLG. Lastly, rule-driven adaptation unit adapts TL using TLG (Takao D. et al., 2003).

FIGURE 1: ORGANIZATION OF CORE MACHINE TRANSLATION



IMPLEMENTATION AND RESULT

INTRA-LANGUAGE MATCHING CHUNKS UNIT: In this unit, there are two inputs: Tagged Chunks and English-Hindi parallel aligned corpus. There is an output as list of similar examples. There are three process steps: select examples, sort selected examples based on searched factor and extract best example. Similarly in this unit, grammar of input has also been extracted. The intra-language matching process has been illustrated in table 1-2 for input “I am going to school” and Retrieval of SL Grammar of Chunks has been illustrated in table 3

TABLE 1: ILLUSTRATION OF INTRA-LANGUAGE MATCHING PROCESS

SN / Wt	Retrieved Example Base						
s5/26	Ram	and	Rajesh	are	going	to	school
s1/18	I	am	a	Student	-	-	-
s3/17	She	is	going	to	college	-	-
s4/16	I	used	to	go	to	school	-
s2/7	He	loves	his	school	-	-	-

TABLE 2: INPUT-SL EXAMPLE MAPPED TABLE

Input (Word)	W1(I)	W2(am)	W3(going)	W4(to)	W5(school)
SL (Sentence Number)	S1	S1	S5	S5	S5
SL (Word Number)	1	2	5	6	7

TABLE 3: ILLUSTRATION OF RETRIEVAL OF SL GRAMMAR OF CHUNKS

Chunks	SL Grammar
NX→He/PRP	He
VX→He/PRP is/VBZ	He_VBZ
NX→a/DT student/NN	DT_NN
VX→He/PRP has/VBZ been/VBN working/VBG	He_has_been_VBG

MAPPING INTER-LANGUAGE CHUNKS UNIT: There are two inputs in this unit: Best Example and English-Hindi corpus. There is an output as chunked TL. Similarly in this unit, grammar of TL has also been extracted using SLG. The organization of English-Hindi Corpus has been shown in table 4 and SL-TL mapping process has been illustrated in table 5.

TABLE 4: ENGLISH-HINDI CORPUS

English Tagged Chunks	Hindi Chunks	Mapping Eng:Hin Words
She/PRP is/VBZ a/DT beautiful/JJ girl/NN	वह{स्त्री/लड़की}% + (एक) सुन्दर लड़की&	1:1 2:2 3:3 4:4 5:5 6:6
They/PRP are/VBP playing/VBG football/NN	वे% + <1>>~खेल+ फुटबॉल	1:1 2:2 3:3 4:4

TABLE 5: SL-TL MAPPED TABLE

Input (Word)	W1(I)	W2(am)	W3(going)	W4(to)	W5(school)
SL (Sentence Number)	S1	S1	S5	S5	S5
SL (Word Number)	1	2	5	6	7
TL (Word)	मैं	+	जा+	-	विद्यालय

RULE-DRIVEN ADAPTATION UNIT: In the last process rule-driven adaptation, there are two inputs: Target chunk and TLG. There is an output as adapted target chunk. The adaptation process has been illustrated in table 6.

TABLE 6: ILLUSTRATE ADAPTATION PROCESS

Translation Word	T1(I)	T2(am)	T3(going)	T4(to)	T5(school)
Sentence Number / word Number	S1/W1	S1/W2	S5/W5	S5/W6	S5/W7
SL	I	am	going	to	school
TL	मैं	+	जा+	-	विद्यालय
SL Grammar	-	-	I am VBG	-	-
TL grammar			+ रहा + हूँ		
Final TL	मैं	-	जा रहा हूँ		विद्यालय

CONCLUSION

In this paper, general and adaptable core processing phase of EBMT has been explained step-by-step using examples and experimentally explored units: Intra-language matching chunks unit, Mapping inter-language chunks unit and Rule-driven adaptation unit. However prototype is languages independent. It can be used for any pair of languages. Also prototype has been tested over 500 unknown sentences.

REFERENCES

- Andriamanakasina, T., Araki, K., Tochinai, T. (1999), "Example-based Machine Translation of Part-of-Speech Tagged sentences by recursive Division", Proceedings of MT SUMMIT VII, Singapore.
- Bojar O., Straňák P., Zeman D. (2010), "Data Issues in English-to-Hindi Machine Translation", Proceedings of the Seventh conference on International Language Resources and Evaluation (LREC'10).
- Brown, R. D. (2000), "Automated generalization of translation examples", Proceedings of the Eighteenth International Conference on Computational Linguistics, pp. 125-131.
- Brown, P. F., Cocke J., Pietra, S. A. D., Pietra, V. J. D., Jelinek, F., Lefferty, J. D., Mercer, R. L., Roossin P. S. (1990), "A Statistical Approach to Machine Translation", Computational Linguistics, 16, pp. 79-85.
- Carl M. (1999), "Inducing Translation Templates for Example-Based Machine Translation", Proc. of MT-Summit VII.
- Chunyu, K., Haihua, P., Jonathan J. W. (2002), "Example-Based Machine Translation: A New Paradigm", In S.W. Chan (ed.), Translation and Information Technology, pp.57-78.
- Cranias, L., Papageorgion, H. and Piperidis, S. (1994), "A Matching Technique in Example-Based Machine Translation", Institute for Language and Speech Processing, Greece. Paper Presented to Computation and Language.
- Eiichiro S., Hitoshi I. (1991), "Experiments and Prospects of Example-Based Machine Translation", Proc. of ACL-91, pp. 185-192.
- Furuse, O., Sumita, E., Iida, H. (1994), "Transfer-Driven Machine Translation Utilizing Empirical Knowledge", Translations of IPSJ, Vol. 35, No. 3, pp. 414-425
- Grishman, R., Kosaka, M. (1992), "Combining Ration list and Empiricist Approaches to MT", Proceedings of TMI-92, Monntreal, pp. 263-274.
- Gupta, D. (2005), "Contributions to English to Hindi Machine Translation using Example-Based Approach", Ph.D. Thesis, Dept. of Mathematics, IIT Delhi.
- Gupta, D., Chatterjee, N. (2001), "A Systematic Adaptation Scheme for English-Hindi Example-Based Machine Translation", Proc. STRANS-2001, IIT Kanpur, pp 132-140.
- Guvénir, H. A., Cicekli, (1998), "Learning Translation Templates from Examples", Elsevier Science Ltd.
- Jones, D. (1996), "Analogical Natural language Processing", UCL Press. London, pp. 155.
- Jurafsky D., Chang, Pi-Chuan, Christopher, D. (2009), "Manning: Disambiguating DE for Chinese-English Machine Translation", Proceedings of the Fourth Workshop on Statistical Machine Translation, Athens, Greece, 30-31 March 2009, pp. 215-223.
- Kitano H. (1993), "A Comprehensive and Practical Model of Memory-based machine Translation", Proc. of IJCAI-93. pp. 1276-1282.
- Klein, E. (2004), "Introduction to Computational Linguistics Chunking and Partial Parsing", ICL Week 5, Lecture 2, 21st October.
- Knight, K. (1997), "Automating Knowledge Acquisition for Machine Translation", AI Magazine, 18/4.
- Mostafa, A., Muhammed, A., Husni, A. (1995), "English To Arabic Machine Translation: A Critical Review and Suggestions For Development", The Fourth Saudi Engineering Conference, Nov. 1995, Volume III.
- Nagao, M. A. Elithorn and R. Banerji (1981), "A framework of a Mechanical Translation between Japanese and English by Analogy Principle, in Artificial and Human Intelligence", 9eds.) North-Holland, pp. 173-180.
- Ney, H., Och, F.J., Vogel, S. (2000), "Statistical Translation of Spoken Dialogues in the Vermobil System", MSC2000, pp. 69-74.
- Nirenburg, S., Beale, S. Domashnev, C. (1994), "A Full-Text Experiment in Example-Based Machine Translation", Int'l Conf. on New Methods in Language Processing, pp. 78-87, Manchester.
- Nirenburg, S.C. (1995), "The PANGLOSS Mark III Machine Translation System", (Tech. Rep. No. CMU-CMT-95-145), Pittsburgh: Carnegie Mellon University.
- Sadler, V. (1989), "Working with Analogical semantics", Foris Publications, pp. 256.
- Sato, S., Nagao, M. (1990), "Towards Memory-Based Translation", In the proceedings of the International Conference on Computational Linguistics, COLONG-90, Helsinki, Finland, August 1990.
- Sumita, E. and Iida, H. (1991), "Experiments and Prospects of Example-Based Machine Translation", Proceedings of the 29th Annual Meeting of the Association for Computational Linguistics, Berkeley, California, USA, pp. 85-192.
- Takao, D., Eiichiro, S., Hirofumi, Y. (2003), "Adaptation Using Out-of-Domain Corpus within EBMT", HLT-NAACL 2003.
- Veale, T., Way, A. (1997), "Gaijin: A template-driven bootstrapping approach to Example-Based Machine Translation", International Conference, Recent Advances in Natural Language Processing, Tzgov Chark, Bulgaria, pp. 239-244.
- Watanabe, H., Maruyama, H. (1994), "A transfer System Using Example-based Approach", IEICE Transactions on Information and Systems, Vol. E77-D, No.-2, pp. 247-257.

INDIAN TELECOMMUNICATION SECTOR: A PARADIGM SHIFT

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ABSTRACT

This paper discusses the characteristics and formation of recent trends in the telecommunications industry and undergoing significant changes in telecommunications sector. Paper focus on telecommunication sector from pre deregulated economy times to the current in the light of technical and infra structural growth in the same segment and also envisages the future platform.

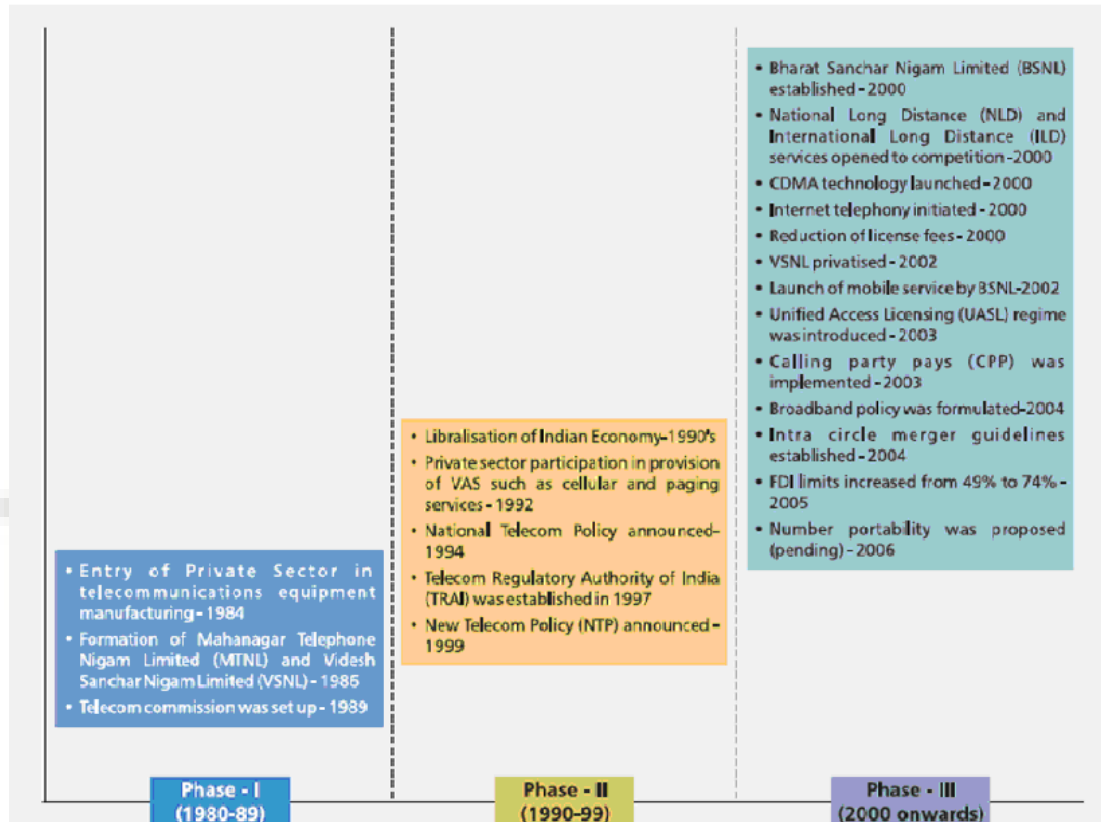
KEYWORDS

Indian telecommunication sector, I.T.

INTRODUCTION: EVOLUTION OF TELECOMMUNICATION SECTOR IN INDIA

Indian telecom sector is more than 165 years old. Telecommunications was first introduced in India in 1851 when the first operational land lines were laid by the government near Kolkata (then Calcutta), although telephone services were formally introduced in India much later in 1881. Further, in 1883, telephone services were merged with the postal system. In 1947, after India attained independence, all foreign telecommunication companies were nationalised to form the Posts, Telephone and Telegraph (PTT), a body that was governed by the Ministry of Communication. The Indian telecom sector was entirely under government ownership until 1984, when the private sector was allowed in telecommunication equipment manufacturing only. The government concretised its earlier efforts towards developing R&D in the sector by setting up an autonomous body – Centre for Development of Telematics (C-DOT) in 1984 to develop state-of-the-art telecommunication technology to meet the growing needs of the Indian telecommunication network. The actual evolution of the industry started after the Government separated the Department of Post and Telegraph in 1985 by setting up the Department of Posts and the Department of Telecommunications (DoT).

The entire evolution of the telecom industry can be classified into three distinct phases as exhibited in the following figure.



(Source www.dotindia.com)

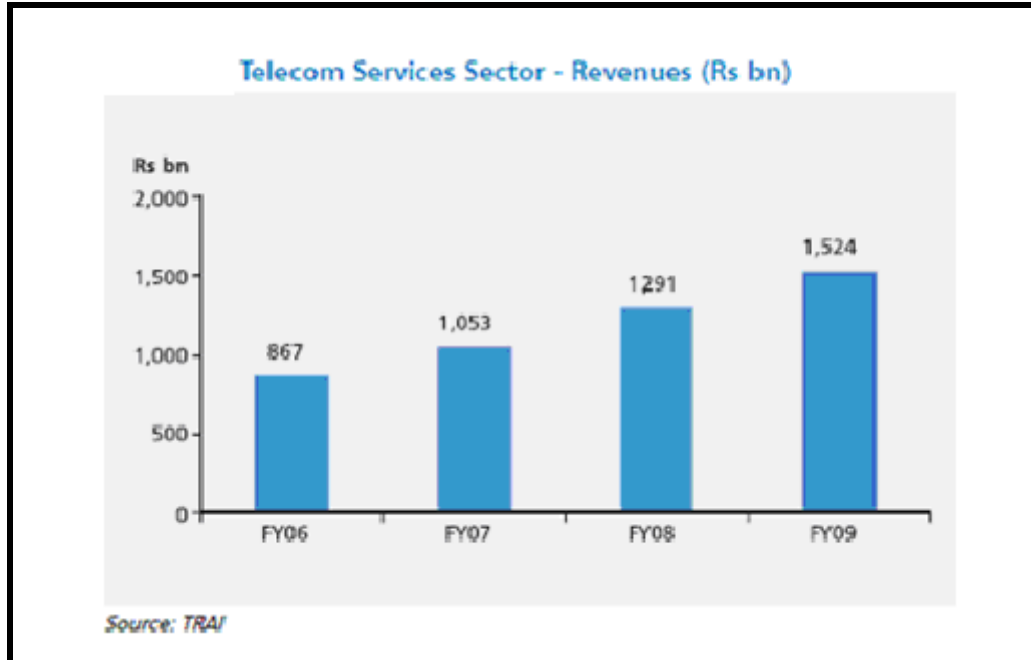
Until the industry was liberalised in the early nineties, it was a heavily government-controlled and small-sized market, Government policies have played a key role in shaping the structure and size of the Telecom industry in India. As a result, the Indian telecom market is one of the most liberalised markets in the world with private participation in almost all of its segments.

STATUS OF TELECOM SECTOR

In today's information age, the telecommunication industry has a vital role to play. Considered as the backbone of industrial and economic development, the industry has been aiding delivery of voice and data services at rapidly increasing speeds, and thus, has been revolutionising human communication.

The Indian Telecommunications network with 621 million connections (as on March 2010) is the third largest in the world. The sector is growing at a speed of 45% during the recent years. This rapid growth is possible due to various proactive and positive decisions of the Government and contribution of both by the public and the private sectors. The rapid strides in the telecom sector have been facilitated by liberal policies of the Government that provides easy market access for telecom equipment and a fair regulatory framework for offering telecom services to the Indian consumers at affordable prices. Presently, all the telecom services have been opened for private participation.

According to the TRAI, the total gross revenue of the Indian telecom services industry was Rs. 1,524 bn in FY09 up from Rs 1,291 bn in FY08 registering a growth of 18.03% over FY08 and its subscriber base grew by 43% over FY08 to touch 429.70 mn subscribers in FY09.



However, much of this growth can be attributed to the unprecedented growth in mobile telephony as the number of mobile subscribers grew at an astounding rate from 10 million in 2002 to 392 million in 2009. Besides, the growth in the service and IT and ITeS sector also increased the prominence of the telecom industry in India. Telecom has emerged as a key infrastructure for economic and consumer growth because of its multiplier effect and the fact that it is beneficial to trade in other industries. The contribution of the sector to GDP has been increasing gradually (its contribution in GDP has more than doubled to 2.83% in FY07 from 1.0% in FY92).

The government had set a target of 500 million telecom connections by 2010 the total subscriber base (wireless and wireline) in the industry crossed the 500-mn-mark and reached 509.03 mn by the end of September 2009, which took India to the second position in terms of wireless network in the world next only to China.

Prior to liberalisation, the telecom sector was monopolised by the public sector and recorded marginal growth; in fact, during 1948-1998, the incremental teledensity in the country was just 1.92%.

- The introduction of NTP'99 accelerated the growth of the sector and the teledensity increased from 2.33 in 1999 to 36.98 in 2009
- Growth was brought by the NTP-99 policy changes such as migration from fixed license fee to revenue sharing regime and cost-oriented telecom tariffs.
- 2003 onwards the government has taken certain initiatives such as unified access licensing regime, reduced access deficit, introduction of calling party pays (CPP) and revenue sharing regime in ADC that has provided further impetus to the sector.

The Indian telecom industry is characterised with intense competition, and continuous price wars. Currently, there are around a dozen telecom service providers who operate in the wired and wireless segment. The government has been periodically implementing suitable fiscal and promotional policies to boost domestic demand and to create volumes for the industry.

The Indian telecom industry has immense growth potential as the teledensity in the country is just 36 as compared with 60 in the US, 102 in the UK and 58 in Canada. The wireless segment growth has played a dominant role in taking the teledensity to the current levels. In the next few years, the industry is poised to grow further; in fact, it has already entered a consolidation phase as foreign players are struggling to acquire a pie in this dynamic industry.

FACTORS FACILITATING GROWTH OF THE SECTOR

The phenomenal growth in the Indian telecom industry was brought about by the wireless revolution that began in the nineties. Besides this, the following factors also aided the growth of the industry.

LIBERALIZATION

The process of liberalization in the country began in the right earnest with the announcement of the New Economic Policy in July 1991. Telecom equipment manufacturing was delicensed in 1991 and value added services were declared open to the private sector in 1992, following which radio paging, cellular mobile and other value added services were opened gradually to the private sector. This has resulted in large number of manufacturing units been set up in the country. As a result most of the equipment used in telecom area is being manufactured within the country. A major breakthrough was the clear enunciation of the government's intention of liberalizing the telecom sector in the National Telecom Policy resolution of 13th May 1994.

NATIONAL TELECOM POLICY 1994

In 1994, the Government announced the National Telecom Policy which defined certain important objectives, including availability of telephone on demand, provision of world class services at reasonable prices, improving India's competitiveness in global market and promoting exports, attractive FDI and stimulating domestic investment, ensuring India's emergence as major manufacturing / export base of telecom equipment and universal availability of basic telecom services to all villages. It also announced a series of specific targets to be achieved by 1997.

TELECOM REGULATORY AUTHORITY OF INDIA (TRAI)

The entry of private service providers brought with it the inevitable need for independent regulation. The Telecom Regulatory Authority of India (TRAI) was, thus, established with effect from 20th February 1997 by an Act of Parliament, called the Telecom Regulatory Authority of India Act, 1997, to regulate telecom

services, including fixation/revision of tariffs for telecom services which were earlier vested in the Central Government.

TRAI's mission is to Create and nurture conditions for growth of telecommunications in the country in manner and at a pace, which will enable India to play a leading role in emerging global information society.

To provide a fair and transparent policy environment, this promotes a level playing field and facilitates fair competition.

The TRAI Act was amended by an ordinance, effective from 24 January 2000, establishing a Telecommunications Dispute Settlement and Appellate Tribunal (TDSAT) to take over the adjudicatory and disputes functions from TRAI. TDSAT was set up to adjudicate any dispute between a licensor and a licensee, between two or more service providers, between a service provider and a group of consumers, and to hear and dispose of appeals against any direction, decision or order of TRAI.

NEW TELECOM POLICY 1999

The most important milestone and instrument of telecom reforms in India is the New Telecom Policy 1999 (NTP 99). The New Telecom Policy, 1999 (NTP-99) was approved on 26th March 1999, to become effective from 1st April 1999. NTP-99 laid down a clear roadmap for future reforms, contemplating the opening up of all the segments of the telecom sector for private sector participation

Key features of the NTP 99 include:

- Strengthening of Regulator.
- National long distance services opened to private operators.
- International Long Distance Services opened to private sectors.
- Private telecom operators licensed on a revenue sharing basis, plus a one-time entry fee.
- Resolution of problems of existing operators envisaged.
- Direct interconnectivity and sharing of network with other telecom operators within the service area was permitted.
- Department of Telecommunication Services (DTS) corporatised in 2000.
- Spectrum Management made transparent and more efficient.

All the commitments made under NTP 99 have been fulfilled; each one of them, in letter and spirit, some even ahead of schedule, and the reform process is now complete with all the sectors in telecommunications opened for private competition.

NATIONAL LONG DISTANCE

National Long Distance opened for private participation. The Government announced on 13.08.2000 the guidelines for entry of private sector in National Long Distance Services without any restriction on the number of operators. The DOT guidelines of license for the National Long Distance operations were also issued.

INTERNATIONAL LONG DISTANCE

In the field of international telephony, India had agreed under the GATS to review its opening up in 2004. However, open competition in this sector was allowed with effect from April 2002 itself. There is now no limit on the number of service providers in this sector. The licence for ILD service is issued initially for a period of 20 years, with automatic extension of the license by a period of 5 years.

At present 24 ILD service providers (22 Private and 2 Public Sector Undertaking) are there. As per current roll out obligations under ILD license, the licensee undertakes to fulfill the minimum network roll out obligations for installing at least one Gateway Switch having appropriate interconnections with at least one National Long Distance service licensee. There is no bar in setting up of Point of Presence (PoP) or Gateway switches in remaining location of Level I Tax's. Preferably, these PoPs should conform to Open Network Architecture (ONA) i.e. should be based on internationally accepted standards to ensure seamless working with other Carrier's Network.

UNIVERSAL SERVICE OBLIGATION FUND

Another major step was to set up the Universal Service Obligation Fund with effect from April 1, 2002. An administrator was appointed for this purpose. Subsequently, the Indian Telegraph (Amendment) Act, 2003 giving statutory status to the Universal Service Obligation Fund (USOF) was passed by both Houses of Parliament in December 2003. The Fund is to be utilized exclusively for meeting the Universal Service Obligation and the balance to the credit of the Fund will not lapse at the end of the financial year. Credits to the Fund shall be through Parliamentary approvals. The Rules for administration of the Fund known as Indian Telegraph (Amendment) Rules, 2004 were notified on 26.03.2004.

The resources for implementation of USO are raised through a Universal Service Levy (USL) which has presently been fixed at 5% of the Adjusted Gross Revenue (AGR) of all Telecom Service Providers except the pure value added service providers like Internet, Voice Mail, E-Mail service providers etc. In addition, the Central Govt. may also give grants and loans.

An Ordinance was promulgated on 30.10.2006 as the Indian Telegraph (Amendment) Ordinance 2006 to amend the Indian Telegraph Act, 1885 in order to enable support for mobile services, broadband connectivity, general infrastructure and pilot project for new technological developments in rural and remote areas of the country. Subsequently, an Act has been passed on 29.12.2006 as the Indian Telegraph (Amendment) Act 2006 to amend the Indian Telegraph Act, 1885.

USFO has initiated action to bring mobile services within the ambit of Universal Service Obligation Fund (USOF) activities. Under this initiative, 7387 mobile infrastructure sites are being rolled out, in the first phase, across 500 districts and 27 states of India. This scheme will provide mobile services to approximately 0.2 million villages which were hitherto deprived of the same. As on 30th June 2010, 7183 shared towers have been set up under the First Phase of the scheme. The USOF of DOT has proposed to set up about 10,128 additional towers in order to extend the mobile coverage in other uncovered areas under the Second Phase of the Scheme.

UNIFIED ACCESS SERVICES

Unified access license regime was introduced in November'2003. Unified Access Services operators are free to provide, within their area of operation, services, which cover collection, carriage, transmission and delivery of voice and/or non-voice messages over Licensee's network by deploying circuit, and/or packet switched equipment. Further, the Licensee can also provide Voice Mail, Audiotelex services, Video Conferencing, Videotex, E-Mail, Closed User Group (CUG) as Value Added Services over its network to the subscribers falling within its service area on non-discriminatory basis.

The country is divided into 23 Service Areas consisting of 19 Telecom Circle and 4 Metro Service Areas for providing Unified Access Services (UAS). The licence for Unified Access Services is issued on non-exclusive basis, for a period of 20 years, extendable by 10 years at one time within the territorial jurisdiction of a licensed Service Area. Revenue and the fee/royalty for the use of spectrum and possession of wireless telegraphy equipment are payable separately. The frequencies are assigned by WPC wing of the Department of Telecommunications from the frequency bands earmarked in the applicable National Frequency Allocation Plan and in coordination with various users subject to availability of scarce spectrum.

INTERNET SERVICE PROVIDERS (ISPs)

Internet service was opened for private participation in 1998 with a view to encourage growth of Internet and increase its penetration. The sector has seen tremendous technological advancement for a period of time and has necessitated taking steps to facilitate technological ingenuity and provision of various services. The Government in the public interest in general, and consumer interest in particular, and for proper conduct of telegraph and telecom services has decided to issue the new guidelines for grant of licence of Internet services on non-exclusive basis. Any Indian company with a maximum foreign equity of 74% is eligible for grant of licence.

BROADBAND POLICY 2004

Recognizing the potential of ubiquitous Broadband service in growth of GDP and enhancement in quality of life through societal applications including tele-education, tele-medicine, e-governance, entertainment as well as employment generation by way of high-speed access to information and web based communication; Government has announced Broadband Policy in October 2004. The main emphasis is on the creation of infrastructure through various technologies that can contribute to the growth of broadband services. These technologies include optical fibre, Asymmetric Digital Subscriber Lines (ADSL), cable

TV network; DTH etc. Broadband connectivity has been defined as "Always On" with the minimum speed of 256 kbps. It is estimated that the number of broadband subscribers would be 20 million by 2010. With a view to encourage Broadband Connectivity, both outdoor and indoor usage of low power Wi-Fi and Wi-Max systems in 2.4 GHz-2.4835 GHz band has been delicensed. The use of low power indoor systems in 5.15-5.35 GHz and 5.725-5.875 GHz bands has also been delicensed in January 05. The SACFA/WPC clearance has been simplified. The setting up of National Internet Exchange of India (NIXI) would enable bringing down the international bandwidth cost substantially, thus making the broadband connectivity more affordable.

The prime consideration guiding the Policy includes affordability and reliability of Broadband services, incentives for creation of additional infrastructure, employment opportunities, induction of latest technologies, national security and brings in competitive environment so as to reduce regulatory interventions.

By this new policy, the Government intends to make available transponder capacity for VSAT services at competitive rates after taking into consideration the security requirements. The service providers permitted to enter into franchisee agreement with cable TV network operators. However, the Licensee shall be responsible for compliance of the terms and conditions of the licence. Further in the case of DTH services, the service providers permitted to provide Receive-Only-Internet Service. The role of other facilitators such as electricity authorities, Departments of ITs of various State Governments, Departments of Local Self Governments, Panchayats, Departments of Health and Family Welfare, Departments of Education is very important to carry the advantage of broadband services to the users particularly in rural areas.

Target has been set for 20 million broadband connections by 2010 and providing Broadband connectivity to all secondary and higher secondary schools, public health institutions and panchayats by 2010.

In rural areas, connectivity of 512 KBPS with ADSL 2 plus technology (on wire) will be provided from about 20,000 existing exchanges in rural areas having optical fibre connectivity. Community Service Centres, secondary schools, banks, health centres, Panchayats, police stations etc. can be provided with this connectivity in the vicinity of above-mentioned 20,000 exchanges in rural areas. DOT will be subsidizing the infrastructure cost of Broadband network through support from USO Fund to ensure that Broadband services are available to users at affordable tariffs.

TARIFF CHANGES

The Indian Telecom Sector has witnessed major changes in the tariff structure. The Telecommunication Tariff Order (TTO) 1999, issued by regulator (TRAI), had begun the process of tariff balancing with a view to bring them closer to the costs. This supplemented by Calling Party Pay (CPP), reduction in ADC and the increased competition, has resulted in a dramatic fall in the tariffs. ADC has been abolished for all calls w.e.f. 1st October 2008.

- The peak National Long Distance tariff for above 1000 Kms. in 2000 has come down from US\$ 0.67 per minute to US\$ 0.02 per minute in 2009.
- The International Long Distance tariff from US\$ 1.36 per minute in 2000 to US\$ 0.16 per minute in 2009 for USA, Canada & UK.
- The mobile tariff for local calls has reduced from US\$0.36 per minute in 1999 to US\$ 0.009 - US\$ 0.04 per minute in 2009.
- The Average Revenue Per User of mobile is between US\$ 5.06 - US\$ 7.82 per month

FOREIGN DIRECT INVESTMENT (FDI)

- In Basic, Cellular Mobile, Paging and Value Added Service, and Global Mobile Personal Communications by Satellite, Composite FDI permitted is 74% (49% under automatic route) subject to grant of license from Department of Telecommunications subject to security and license conditions. (para 5.38.1 to 5.38.4 of consolidate FDI Policy circular 1/2010 of DIPP)
- FDI upto 74% (49% under automatic route) is also permitted for the following: -
 - Radio Paging Service
 - Internet Service Providers (ISP's)
- FDI upto 100% permitted in respect of the following telecom services: -
 - Infrastructure Providers providing dark fibre (IP Category I);
 - Electronic Mail; and
 - Voice Mail
 - Subject to the conditions that such companies would divest 26% of their equity in favor of Indian public in 5 years, if these companies were listed in other parts of the world.
- In telecom manufacturing sector 100% FDI is permitted under automatic route.
- The Government has modified method of calculation of Direct and Indirect Foreign Investment in sector with caps (para 4.1 of consolidate FDI Policy circular 1/2010 of DIPP) and have also issued guidelines on downstream investment by Indian Companies. (para 4.6 of consolidate FDI Policy circular 1/2010 of DIPP)
- Guidelines for transfer of ownership or control of Indian companies in sectors with caps from resident Indian citizens to non-resident entities have been issued_ (para 4.2.3 of consolidate FDI Policy circular 1/2010 of DIPP)

INVESTMENT OPPORTUNITIES AND INCENTIVES

An attractive trade and investment policy and lucrative incentives for foreign collaborations have made India one of the world's most attractive markets for the telecom equipment suppliers and service providers.

- No industrial license required for setting up manufacturing units for telecom equipment.
- 100% Foreign Direct Investment (FDI) is allowed through automatic route for manufacturing of telecom equipments.
- Payments for royalty, lump sum fee for transfer of technology and payments for use of trademark/brand name on the automatic route.
- Foreign equity of 74% (49 % under automatic route) permitted for telecom services - basic, cellular mobile, paging, value added services, NLD, ILD, ISPs - and global mobile personal communications by satellite.
- Full repatriability of dividend income and capital invested in the telecom sector.

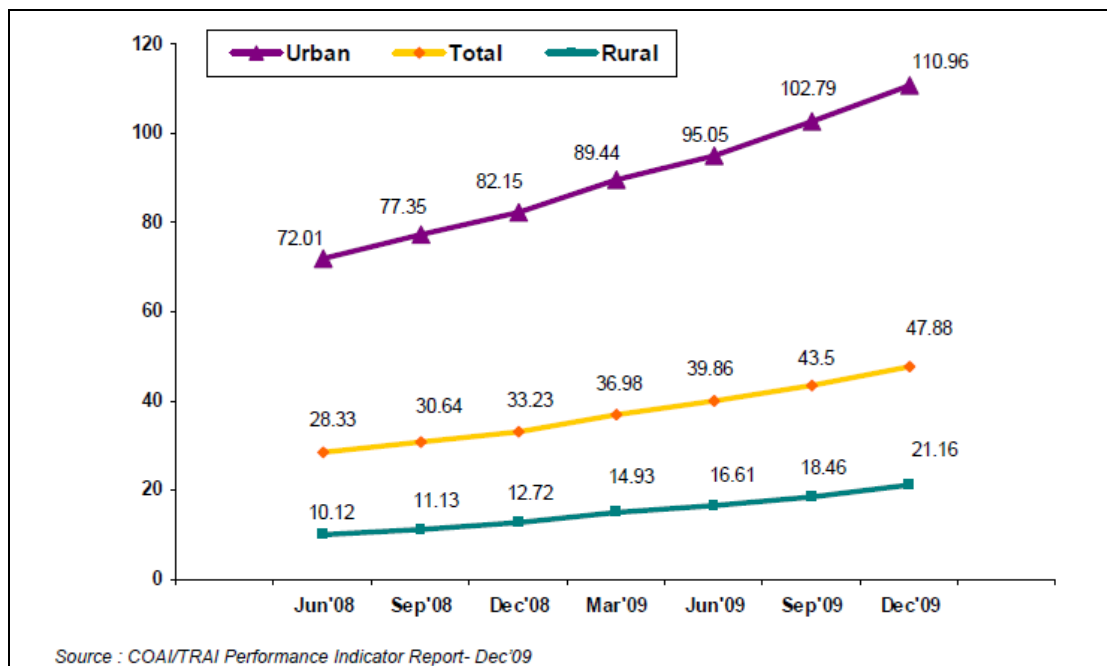
NETWORK EXPANSION

The telecom sector has shown robust growth during the past few years. It has also undergone a substantial change in terms of mobile versus fixed phones and public versus private participation. The following table shows the growth trend of telecom sector from last five years:

- The number of telephones has increased from 54.63 million as on 31.03.2003 to 621.28 million as on 31.03.2010.
- Wireless subscribers increased from 13.3 million as on 31.03.2003 to 584.32 million as on 31.03.2010.
- The fixed line subscribers decreased from 41.33 million in 31.03.2003 to 36.95 million in 31.03.2010
- The broadband subscribers grew from a meager 0.18 million to 8.76 million as on 31.03.2010.

TREND IN TELE-DENSITY

Tele-density in the country increased from 5.11% in 2003 to 52.74 % in March 2010. In the rural area teledensity increased from 1.49% in Mar 2003 to 24.31% in March 2010 and in the urban areas it is increased from 14.32% in Mar 2003 to 119.45% in March 2010. This indicates a rising trend of Indian telecom subscribers.



RURAL TELEPHONY

Apart from the 200.77million fixed and WLL connections on March 2010 provided in the rural areas, 570000 uncovered VPTs have been provided as on March 2010. Thus, 96% of the villages in India have been covered by the VPTs. More than 3 lakh PCOs are also providing community access in the rural areas. Further, Mobile Gramin Sanchar Sewak Scheme (GSS) – a mobile Public Call Office (PCO) service is provided at the doorstep of villagers. At present, 2772 GSSs are covering 12043 villages. Also, to provide Internet service, Sanchar Dhabas (Internet Kiosks) have been provided in more than 3500 Block Headquarters out of the total 6337 Blocks in the country. The target of 80 million rural connections by 2010 have already met during year 2008 itself. USOF subsidy support scheme is also being utilized for sharing wireless infrastructure in rural areas with about 19,000 towers by 2010.

INTRODUCTION OF CALLING PARTY PAYS (CPP)

The CPP regime was introduced in India in 2003 and under this regime, the calling party who initiated the call was to bear the entire cost of the call. This regime came to be applicable for mobile to mobile calls as well as fixed line to mobile calls. So far India had followed the Receiving Party Pays (RPP) system where the subscriber used to pay for incoming calls from both mobile as well as fixedline networks. Shifting to the CPP system has greatly fuelled the subscriber growth in the sector.

CHANGING DEMOGRAPHIC PROFILE

The changing demographic profile of India has also played an important role in subscriber growth. The changed profile is characterised by a large young population, a burgeoning middle class with growing disposable income, urbanisation, increasing literacy levels and higher adaptability to technology. These new features have multiplied the need to be connected always and to own a wireless phone and therefore, in present times mobiles are perceived as a utility rather than a luxury.

OUTLOOK

The cut-throat competition and intense tariff wars have had a negative impact on the revenue of players. Despite the challenges, the Indian telecom industry will thrive because of the immense potential in terms of new users. India is one of the most-attractive telecom markets because it is still one of the lowest penetrated markets. The government is keen on developing rural telecom infrastructure and is also set to roll out next generation or 3G services in the country. Operators are on an expansion mode and are investing heavily on telecom infrastructure. Foreign telecom companies are acquiring considerable stakes in Indian companies. Burgeoning middle class and increasing spending power, the government's thrust on increasing rural telecom coverage, favourable investment climate and positive reforms will ensure that India's high potential is indeed realised.

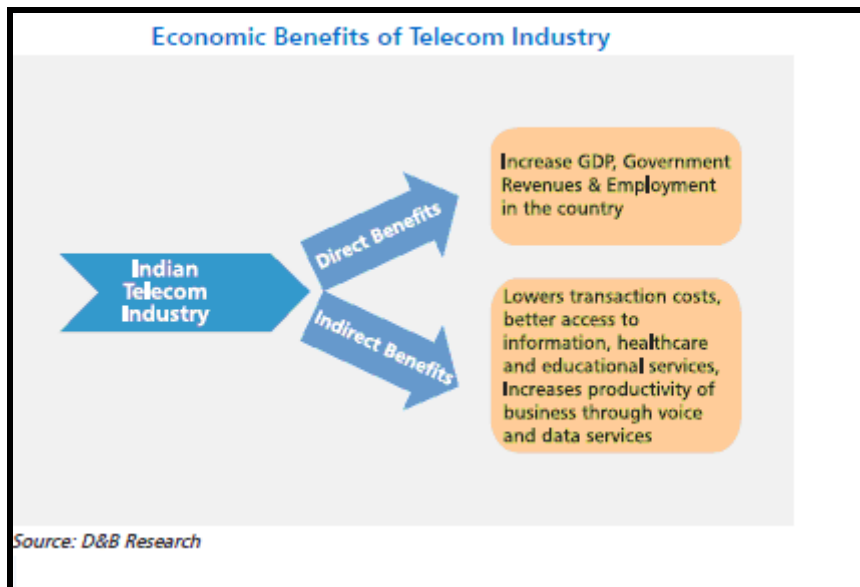
ROLE OF TELECOMMUNICATION IN INDIA'S DEVELOPMENT

CONTRIBUTION TO GDP

According to the UNCTAD, there is a direct correlation between the growth in mobile teledensity and the growth in GDP per capita in developing countries, which tend to have a high percentage of rural population. The share of the telecom services industry in the total GDP has been rising over the past few years (the telecom sector contribution in GDP went up from 2.52% in FY05 to 2.83% in FY07).

	2004-05 (Rs bn)	2005-06 (Rs bn)	2006-07 (Rs bn)
Gross Domestic Product (at factor cost) at Current prices	28439	32006	37175
Total Telecom Revenue	716	867	1053
Contribution of Telecom sector to GDP (%)	2.52	2.71	2.83

Source: TRAI (PIR – 2006, 2007). As per latest available data



EMPLOYMENT

The Indian telecommunication industry employs over 400,000 direct employees and about 85% of these employees are from government-owned companies. The ratio of number of subscribers to employees, an indication of efficiency and profitability, is much higher for private companies than for government companies.

Employment in the Indian Telecom Industry

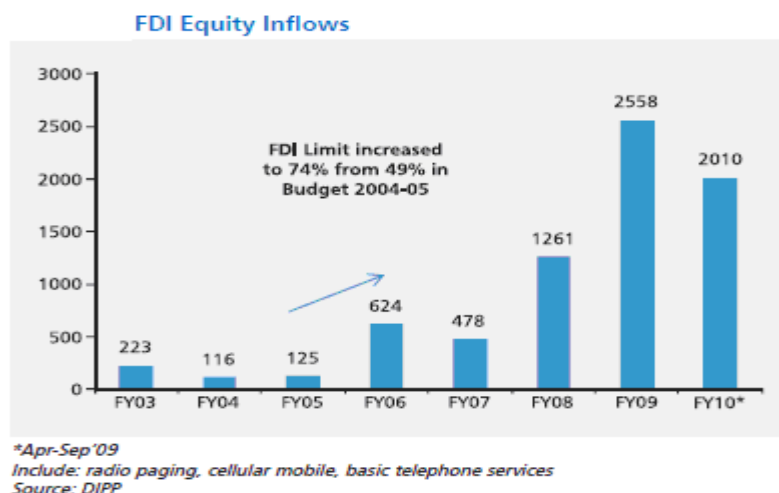
Subscribers (mn)		FY05	FY06	FY07
	Government companies	52.08	60.45	71.39
	Private companies	46.33	79.87	134.47
	Total	98.41	140.32	205.86
Employees				
	Government companies	394,334	382,105	369,035
	Private companies	42,557	47,295	63,736
	Total	436,891	429,400	432,771
Subscribers per Employee				
	Government companies	132	158	193
	Private companies	1,089	1,678	2,110

Source: Department of Telecom, TRAI, As per latest available data with TRAI

FOREIGN DIRECT INVESTMENT (FDI)

Foreign direct investment has been one of the major contributors in the growth of the Indian economy, and therefore, the need for higher FDI is felt across sectors in the Indian economy. The telecom sector has played a crucial role in attracting FDI in India. The share of telecom sector in the total FDI inflows in India has gone up to 10% in FY09 as compared with just 3% in FY05.

The telecom sector requires huge investments for its expansion as it is capital-intensive and FDI plays a vital role in meeting the fund requirements for expansion of the telecom sector. Telecom accounts for almost 10% of the total FDI inflows in the country and has been the third-largest sector to attract FDI in India in the post-liberalisation era



The Indian telecom industry has been an attractive avenue for foreign investors over the years. As per DIPP figures, the cumulative FDI inflow during August 1991 to June 2009 period, in the telecommunication sector amounted to US\$ 113 bn. FDI calculation takes into account radio paging, cellular mobile and basic

telephone services in the telecommunication sector.

In the 2004-05 Budget, the government raised the FDI limit from 49% to 74% in the telecom services segment subject to retention of local management control. According to the new norms, 26% share out of the 74% should be held by an Indian company or an Indian citizen with Indian management. Further, 100% FDI is permitted in telecom manufacturing, category I infrastructure providers, ISPs without gateway, call centres and IT-enabled services. Further, direct or indirect FDI up to 74% is permitted subject to licensing and security requirements for ISPs with gateways, radio paging operators and category II infrastructure providers. The relaxation in FDI norms has attracted many foreign telecom majors to the sector. The presence of foreign players has not only encouraged faster infrastructure development and upgradation but also has opened up the domestic industry to foreign competition. The inflow of FDI has provided tremendous impetus to the sector in the past few years and the attractiveness of the sector has kept the FDI inflows growing steadily.

During FY09 the FDI in the telecom sector at US\$ 2,558 mn was 103% higher than that seen in FY08 at US\$ 1,261 mn. Further, the FDI in the sector has already reached US\$ 2010 mn for a six month period of FY10 (Apr-Sep 09) and is expected to surpass the total FDI for FY09.

The government's liberalised FDI policies have resulted in several foreign companies entering into the Indian markets. The influx of foreign players in the Indian telecom industry has led to capacity creation, and better infrastructure, which in turn has bettered the network quality. The rise in FDI has also enabled technology transfer, market access and has improved organisational skills; going forward, FDI could be used for providing telecom services to rural areas, where teledensity is still very low.

The change in FDI policy that has raised the FDI limit from 49% to 74% for the sector has made it more attractive for foreign players. In the long run the growth prospects of telecom players that have foreign partners will improve and other players will get new avenues to raise capital.

GROWTH OF IT-ITES AND FINANCIAL SECTOR

India has entered the league of countries with the most-advanced telecommunication infrastructure after the industry was deregulated. Furthermore, deregulation has stimulated India's economic growth through industry growth and through rise in investments. It is evident that a well-developed communication sector improves access to social networks, lowers transaction costs, increases economic opportunities, widens markets, and provides better access to information, healthcare and educational services. The growth in Indian telecom sector has been concomitant with overall growth in GDP, government revenue, employment et al. Besides, telecommunication has increased efficiency, reduced transaction costs, attracted investments and has created new opportunities for business and employment.

The NTP-99 was particularly helpful for the ITeS-BPO industry as it ended the government monopoly in international calling by introducing IP telephony. After the introduction of IP telephony, there was rapid growth in the number of data processing centres and inbound/outbound call centres, which ultimately led to the outsourcing revolution in India.

The telecom sector has been instrumental in creating jobs for a vast pool of talented and knowledge professionals in the IT and ITeS-BPO industry, which thrives on reliable telecommunication infrastructure. India has become an important outsourcing destination for the world and the boom in this sector also has transformed India's economic dynamics. The evolution of telecom sector has brought about a revolutionary change in the way some businesses operate.

Another beneficiary of the telecom revolution is the financial services industry, which has been on a growth trajectory. The progress and quality of the financial sector has been a key factor that has driven the pace and diversity of the real economy. India has an extensive and well-developed financial sector with wide and sophisticated banking network. Banking in India has become service-oriented, and has matured greatly from the days of walk-in customers to the present situation when banks have migrated to a 24-hour banking platform to attract customers; however, this disintermediation in the business has led banks to be extremely prudent in terms of their internal operations and has led them to adopt newer products and delivery channels. Further, with introduction of internet & mobile banking the long queues at the banks are slowly becoming a thing of the past.

Both the financial and the IT-ITeS segments rely on good domestic as well as international network connectivity; therefore, there is a need for a sound telecommunication network.

PERFORMANCE OF TELECOM EQUIPMENT MANUFACTURING SECTOR

As a result of Government policy, progress has been achieved in the manufacturing of telecom equipment in the country. There is a significant telecom equipment-manufacturing base in the country and there has been steady growth of the manufacturing sector during the past few years. The figures for production and export of telecom equipment are shown in table given below:

(Rs. in crore)		
Year	Production	Export
2002-03	14400	402
2003-04	14000	250
2004-05	16090	400
2005-06	17833	1500
2006-07	23656	1898
2007-08	41270	8131
2008-09	48800	11000
2009-10	50000	13500
	(projected @ 18%)	(projected @ 25%)

Rising demand for a wide range of telecom equipment, particularly in the area of mobile telecommunication, has provided excellent opportunities to domestic and foreign investors in the manufacturing sector. The last two years saw many renowned telecom companies setting up their manufacturing base in India. Ericsson set up GSM Radio Base Station Manufacturing facility in Jaipur. Elcoteq set up handset manufacturing facilities in Bangalore. Nokia and Nokia Siemens Networks have set up their manufacturing plant in Chennai. LG Electronics set up plant of manufacturing GSM mobile phones near Pune. Ericsson launched their R&D Centre in Chennai. Flextronics set up an SEZ in Chennai. Other major companies like Foxconn, Aspcorn, Solectron etc have decided to set up their manufacturing bases in India.

The Government has already set up Telecom Equipment and Services Export Promotion Council and Telecom Testing and Security Certification Centre (TETC). A large number of companies like Alcatel, Cisco have also shown interest in setting up their R&D centers in India. With above initiatives India is expected to be a manufacturing hub for the telecom equipment.

OPPORTUNITIES

India offers an unprecedented opportunity for telecom service operators, infrastructure vendors, manufacturers and associated services companies. A host of factors are contributing to enlarged opportunities for growth and investment in telecom sector:

- An expanding Indian economy with increased focus on the services sector
- Population mix moving favourably towards a younger age profile
- Urbanization with increasing incomes

Investors can look to capture the gains of the Indian telecom boom and diversify their operations outside developed economies that are marked by saturated telecom markets and lower GDP growth rates.

Inflow of FDI into India's telecom sector during April 2000 to Feb. 2010 was about Rs 405,460 million. Also, more than 8 per cent of the approved FDI in the country is related to the telecom sector.

RESEARCH & DEVELOPMENT

India has proven its dominance as a technology solution provider. Efforts are being continuously made to develop affordable technology for masses, as also

comprehensive security infrastructure for telecom network. Research is on for the preparation of tested infrastructure for enabling interoperability in Next Generation Network. It is expected that the telecom equipment R & D shall be doubled by 2010 from present level of 15%. Modern technologies inductions are being promoted. Pilot projects on the existing and emerging technologies have been undertaken including WiMax, 3G etc. Emphasis is being given to technologies having potential to improve rural connectivity. Also to beef up R&D infrastructure in the telecom sector and bridge the digital divide, cellular operators, top academic institutes and the Government of India together set up the Telecom Centres of Excellence (COEs). The main objectives of the COEs are as follows:

- Achieve Telecom Vision 2010 that stipulates a definite growth model and take it beyond.
- Secure Information Infrastructure that is vital for country's security.
- Capacity Building through Knowledge for a sustained growth.
- Support Planned Predictive Growth for stability.
- Reduce Rural Urban Digital Divide to reach out to masses.

Utilize available talent pool and create environment for innovation.

- Management of National Information Infrastructure (NII) during Disaster
- Cater the requirement of South East Asia as Regional Telecom Leader

To achieve these objectives 7 Centre of Excellences in various field of Telecom have been set up with the support of Government and the participation of private/public telecom operators as sponsors, at the selected academic institutions of India. The details of COEs are enumerated below: -

TCOES CENTRES

Sr. No.	Associate Institute	Sponsor	Work Assigned
1	IIT Kharagpur	Vodafone Essar & Texas Instruments	Next Generation Network (NGN) & Network Technology
2	IIT Delhi	Bharti Airtel	Telecom Technology & Management
3	IISc (Indian Institute of Science), Bangalore	Aircel & Texas instrument	Information Security & Disaster Management of Infrastructure
4	IIT Kanpur	BSNL & Alphion	Technology Integration, Multimedia & Computational Mathematics
5	IIT Chennai	Reliance Communication	Telecom Infrastructure & Energy
6	IIT Mumbai	Tata Teleservices	Rural Applications
7	IIM Ahmedabad	Idea Cellular	Policy, Regulation, Governance, Customer care & Marketing

3G & BROADBAND WIRELESS SERVICES (BWA)

The government has in a pioneering decision, decided to auction 3G & BWA spectrum. The broad policy guidelines for 3G & BWA have already been issued on 1st August 2008 and allotment of spectrum has been planned through simultaneously ascending e-auction process by a specialized agency. The 3G will allow telecom companies to offer additional value added services such as high resolution video and multi media services in addition to voice, fax and conventional data services with high data rate transmission capabilities. BWA will become a predominant platform for broadband roll out services. It is also an effective tool for undertaking social initiatives of the Government such as e-education, telemedicine, e-health and e-Governance. Providing affordable broadband, especially to the suburban and rural communities is the next focus area of the Department.

BSNL & MTNL have already been allotted 3G & BWA spectrum with a view to ensuring early roll out of 3G & WiMax services in the country. They will pay the same price for the spectrum as discovered through the auction. While, Hon'ble Prime Minister launched the MTNL's 3G mobile services on the inaugural function of 'India Telecom 2008' held on 11th December 2008, BSNL launched its countrywide 3G services from Chennai, in the southern Tamil Nadu state on 22nd February 2009.

The Department of Telecommunications (DoT), started allocating 3G spectrum to telecom operators, giving relief to all the seven companies that emerged successful in the intense bidding process that took place in May this year. But DoT has made some changes in the licence terms to ensure speedy roll-out of 3G networks and also efficient use of scarce spectrum.

DoT has said that operators were authorised to use the spectrum for 20 years from September 1, 2010, even if their telecom licences expired before that period. DoT has also imposed roll-out obligation under which the operators will have to cover at least 90 per cent of the service areas in the metro circles and at least 50 per cent in most of the other circles within the next five years.

Besides State-owned BSNL and MTNL, seven private operators:

Bharti Airtel, Vodafone Essar, Reliance Communications, Tata Teleservices, Idea Cellular, Aircel and STel have got 3G spectrum.

In the two metros Delhi and Mumbai, three operators, Bharti Airtel, Vodafone and Reliance Communications, had emerged winners, while no operator could bag pan-India spectrum in the auction.

MOBILE NUMBER PORTABILITY (MNP)

Mobile Number Portability (MNP) allows subscribers to retain their existing telephone number when they switch from one access service provider to another irrespective of mobile technology or from one technology to another of the same or any other access service provider. The Government has announced the guidelines for Mobile Number Portability (MNP) Service Licence in the country on 1st August 2008 and has issued a separate Licence for MNP service w.e.f. 20.03.2009. The Department of Telecommunication (DoT) has already issued licences to two global companies (M/s Syniverse Technologies Pvt. Ltd. and M/s MNP Interconnection Telecom Solutions India Pvt. Ltd.) for implementing the service. MNP is to be implemented in whole country in one go by 31.10.2010.

CONCLUSION

Indian telecom is world's fastest growing telecom. Tremendous strides in this industry have been facilitated by the supportive and liberal policies of the Government. Especially the Telecom Policy of 1994 which opened the doors of the sector for private players. Rising demand for a wide range of telecom equipment has provided excellent opportunities for investors in the manufacturing sector.

Provision of telecom services to the rural areas in India has been recognized as another thrust area by govt. which also helps for the enormous opportunities in this sector. Therefore telecom sector in India is one of the fastest growing sectors in the country and has been zooming up the growth curve at a feverish pace in the past few years. And even the Indian Wireless Market is booming which has plenty of room for growth.

One notable break with the past is that with opening up of the developing economies and widespread sectoral reforms, catching up process has become faster. Developing countries with liberal policies have much better opportunity to leapfrog than before. Mobile experience of the low-income countries bears testimony to this process. India is a participant in this global process. There is tremendous appetite to absorb new technology. At the higher end of the market, India will mimic the most sophisticated telecom technology of the world and face all types of uncertainties that are associated with any new technology anywhere in the world. It will take time for the market for new technologies to consolidate. 'Market maturing' will be a continuous process at some of the segments of telecom sector. This holds good even today. Today's market does not guarantee 'reliable revenue stream' to investors in new technology like VoIP, broadband and 3G since they lack an existing client base. Side by side, a process of diffusion will continue unhindered in respect of established technology in the mass market.

If past trend were any guide, it would be reasonable to hope that India would complete transition into digital switching and transmission, VoIP, broadband and 3G. Though there would be always a small niche market in India, which would catch up with the cutting age of the technology, consolidation and expansion of evolving technologies across the length and the breadth of the country will follow with a lag.

Future vision of telecom is a vision of IT. Telecom will be the springboard of future expansion of IT heralding in an information society. ICT will spread among the masses and will spur innovation, entrepreneurship and growth. An expanding domestic market will deepen the synergy between the domestic and the export market and strengthen India's presence in the high-value segment of the global trade and investment. ICT benefits will spread among all, the rich and the poor,

the young and the old, the men and the women, the organized and the unorganized and the government and the governed.

REFERENCES

- Annual Report, 2001-2002 and (ii) Indian Telecommunication Statistics 2002 (Policy Framework, Status and Trends), both published by the Department of Telecommunications, Ministry of Communications & IT, Government of India
- TRAI (March 20, 2006), Recommendation on issues relating to broadcasting and distribution.
- Economic Survey Annual Report of the department of Telecommunications, Ministry of communications and Technology and the Telecom Regulatory Authority of India.
- Department of Telecommunications "Indian Telecommunication Statistics: Policy Framework, Status and Trends", Economic Research Unit, Ministry of Communication, New Delhi.
- Panagariya, Arvind "India in the 1980sand 1990s: A Truimph of Reforms".
- <http://www.dotindia.com/annualreport.PDF>
- <http://www.traigov.in/>
- <http://www.indiaonline.com>
- <http://www.coai.in/docs/COAI%20Annual%20Report%202009-10.pdf>
- R. Santhanam: *Milestone of India - DoT allocates 3G with amended licence rules.*

A STUDY ON CONSTRUCTION OF EQUITY PORTFOLIO (OIL, IT, STEEL AND BANKING STOCKS) WITH REFERENCE TO THE SHARPE INDEX MODEL

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ABSTRACT

This research aims at constructing an optimal portfolio that maximizes the overall return and minimizes the risk associated with the individual stocks using the Sharpe Single Index Model. The study includes 25 stocks from five different sectors. Only the secondary data for the past five years (2005-2006 to 2009-2010) are used in the study. The final portfolio thus constructed includes stocks from more than one sector. Thus even if some of the sectors do not perform well as expected, it will be compensated by the excess returns from the other sectors that exceed the expectation. This is how risk is diversified. This method of construction of optimal portfolio is very effective and convenient as revision of the optimal portfolio can be an ongoing exercise. The existence of a cut-off rate is also extremely useful because most new stocks that have an excess return-to beta ratio above the cut-off rate can be included in the optimal portfolio. Thus this study helps the investors to minimize risk and maximize the return of their investment.

KEYWORDS

Stock, Capital Market, Sharpe Index Model, Companies.

INTRODUCTION

An investment portfolio in general context implies a combination of securities, bonds and money market instruments blended together to obtain optimal return with minimum risk. But in the context of investment in securities market itself we generally go for portfolio construction. This is because a portfolio of single security would lead to higher risk and lesser return or even loss. A diversification of investments helps to spread risk over many assets. Similarly a diversification of securities gives the assurance of obtaining the anticipated return on the portfolio with minimum risk.

APPROACHES IN PORTFOLIO CONSTRUCTION

Commonly there are two approaches in the construction of portfolio of securities viz. traditional approach and Modern Approach. In the traditional approach, investor's needs in terms of income and capital appreciation are evaluated and appropriate securities are selected to meet the need of the investor. In the modern approach, portfolios are constructed to maximize the expected return for a given level of risk. It views portfolio construction in terms of the expected return and the risk associated with obtaining the expected return.

THE SHARPE INDEX MODEL

As we saw in the early discussions regarding investment, the investor always like to purchase a combination of stocks that provides the highest return and has the lowest risk. He wants to maintain a satisfactory reward to risk ratio. Traditionally analyst paid more attention to the return aspect of the stocks. Now a days risk has received increased attention and analyst are providing estimates of risk as well as return.

Thus Sharpe Single Index Model sheds light on both risk and return of stocks and helps to formulate an optimal portfolio with maximum return and minimum risk as much as possible. The co-movement of stock price with market index is given as beta of shares. This co-movement indicates that there is an underlying factor that affects market index as well as stock prices. Stock prices are related to market index and this relationship could be used to estimate the return on stock.

$$R_i = \alpha_i + \beta_i R_m + e_i$$

Where,

R_i = Expected return on security i

α_i = intercept of the straight line or alpha co-efficient

β_i = slope of the straight line or beta co-efficient

R_m = the rate of return on market index

e_i = error term

According to the equation, the return of a stock can be divided into two components, the return due to market and return independent of the market. β_i indicates the sensitiveness of the stock return to the changes in the market return

Need for the Study

Investing in individual securities is associated with high risk, where as investing in a portfolio of securities helped to spread the risk over many securities and thus reducing overall risk involved. Portfolios, which are combinations of securities, tend to spread risk over many securities and thus help to reduce the overall risk involved. This is called diversification of investments which helps to spread risk over many assets. This method of construction of optimal portfolio is very effective and convenient as revision of the optimal portfolio can be an ongoing exercise. A diversification of securities gives the assurance of obtaining the anticipated return on the portfolio. In a diversified portfolio, some securities may not perform as expected, but others may exceed the expectation and making the actual return of the portfolio reasonably close to the anticipated one.

OBJECTIVES OF THE STUDY

PRIMARY OBJECTIVE

- To construct an optimum portfolio of stocks from the selected companies using Sharpe Single Index Model, that maximizes the return and minimizes the risk associated with the individual stocks.

SECONDARY OBJECTIVES

- To calculate the returns for each of the securities for a period of 5 years.
- To analyze the variability of returns associated with the security more formally.
- To rank the securities based on their excess return to systematic risk.
- To calculate the market variance and the market return.
- To understand the role of beta and standard deviation in measuring the relevant risk of security.
- To know the proportions to invest in each security, through cut-off point, through Sharpe index model.

SCOPE OF THE STUDY

- To compare the performances of the 25 selected companies of the five different sectors.
- The application of the Sharpe Index model to do the risk and return analysis.
- It provides information to the investors about the risk and return associated with each of the selected companies.

LIMITATIONS OF THE STUDY

- The time duration of the study is limited which is about 2 months.
- The data restricted to the past five years (2005-2006 to 2009-2010).
- The study is limited to 25 companies from 5 sectors, hence cannot be generalized.

THEROTECIAL FRAMEWORK

BK Stone 1967, says that in two index model of return generating process, return on a security is adjusted with Beta. It includes market responsiveness, volatility, systematic risk and more commonly the market risk. It is the best measure of non-diversifiable risk. Many stock index series now use them. **WF Sharpe, 1963**. A simplified model of relationship among securities for practical application is developed. As very less information is needed to be sacrificed to make this model, there is only a low cost involved. This also is in confirmation with the past evidence. **Nancy L Jacob, 1954**, According to this study, an optimum portfolio should consist of a large number of stocks across different sectors and different companies but the proportion of each security is kept to the minimum. So due to this diversification risk is reduced and is an optimum selection model for small investors who do not have good market exposure. **Bruce F, 1965 Tracking errors in index fund is very difficult**. The difficulties may range from complex technical analysis to common errors. But these difficulties are minimum in mutual funds. This may be mainly due to market function. But still index funds have however outperformed mutual funds. **Kalman J. Cohen & Jerry A. Pogue, 1967**, Ex post performance of multi index models is not superior to that of single index formulation. This indicates the secondary importance of industry consideration for common stock portfolios. **Cheol S Eun & Bruse**, In spite of developing complex and innovative correlation structure of international share prices, there is no empirical evidence that a certain method is the most accurate. But, the best method to be relied upon so that only few errors occur is the National Mean Model which is supported by empirical evidence. **San Nan Chen & Stephen J. Brown, 1983**, In portfolio analysis methods, the estimation risk is not at all calculated or if calculated it is not accurate in many cases. So due to this error of estimation error it can lead to investors selecting sub optimal portfolios. **William F Sharpe, 1966**, Predictive ability of returns of portfolio is compared with the empirical evidence of the returns so earned. Based on this explicit relationships are developed between securities and the funds. **William F Sharpe, 1967**, In selecting the best portfolio, a mutual fund manager faces a lot of risks. Only less evidence shows the efficiency in terms of predictive ability of the fund manager and the standard deviation of the stock returns. However, with linear programming algorithm, along with certain modifications help them to make better selections. **Chow, G. (1995)**, recognized that many investors evaluate performance relative to a benchmark and evaluate portfolio selection based on return and relative risk. For many investors, both these approaches fail to yield satisfactory results. A utility function that measures return, variance, and tracking error is more appropriate. Analysis of this utility function shows that its set of efficient portfolios includes the mean-variance efficient set, the mean-tracking-error efficient set, and all convex combinations of these two sets. Optimizations with this utility function may find solutions that investors will actually use. **Goldfarb, D. & Iyengar, G. (2003)**, have shown how to formulate and solve robust portfolio selection problems with modeling errors in the estimates of the relevant market parameters. Uncertainty structures for the market parameters are introduced and computation for them involves highly complex calculations these uncertainty structures correspond to confidence regions associated with the statistical procedures employed to estimate the market parameters. **Craig, MacKinlay A & Pastor, L. (1999)**, have analyzed that in the presence of model mispricing due to a missing risk factor, the mispricing and the residual covariance matrix are linked together. The identity matrix effectively links the expected returns to the covariances, whereas using the true covariance matrix does not. **Ghazi F. Momani (2008)**, "Simple Techniques for Determining the Optimal Portfolio Case Study: Investment in Banks Sector in Amman Stock Market, Jordan" The aim of this study is to gain knowledge of if the stock of commercial banks in Jordan eligible to be included in the optimal portfolio or not. In addition, the relation of the location of these banks in the optimal portfolio and its variables which are the share turnover ratio, the earning per share dividend, the payout ratio, and the price earnings ratio by using simple regression analysis. Also, examinations were conducted on banks sector because of the high prices of stocks of this sector in Amman's stock market and the increase in trade of these stocks in the stock exchange compared to other sectors. The result of this research was that the Arab bank was the only bank to be included in the optimal portfolio and is the largest bank in Jordan with respect to capital volume and number of branches inside and outside of Jordan. As for the rest of the banks, they were not eligible to be included in the optimal portfolio, but very close to be included. Also the result of the analysis was that a statistical indication did not exist between the location of the bank in the portfolio and the factors that were inspected in this study. Also, the correlation and correlation of coefficient were weak in all the previously mentioned variables which indicate the inefficiency of Amman's stock exchange in applying the model. **Ferhan Salman (2002)**, "Risk-return-volume relationship in an emerging stock market" This paper aims to provide empirical evidence for the risk-return-volume relationship in the Istanbul Stock Exchange (ISE) for the period of January 2, 1992 - May 29, 1998. The Generalised Autoregressive Conditional Heteroscedasticity-in-Mean (GARCH-M) specification reveals that daily return volatility is time-varying and highly persistent. In addition, return is positively associated with risk, i.e. the estimate of the conditional standard deviation. Contemporaneous changes in volume have a positive effect on returns. The previous day's change in volume affects positively conditional volatility of returns. **Anton Abdulbasah Kamil, Adli Mustafa and Khlipah Ibrahim (2009)**, "Stochastic Optimization for Portfolio Selection Problem with Mean Absolute Negative Deviation Measure" The most important character within optimization problem is the uncertainty of the future returns. To handle such problems, in this paper the authors have utilized probabilistic methods alongside with optimization techniques. They developed single stage and two stage stochastic programming with recourse. The models were developed for risk adverse investors and the objective of the stochastic programming models is to minimize the maximum downside semi deviation. They used an approach called "Here-and-Now" approach where the decision-maker makes decision "now" before observing the actual outcome for the stochastic parameter. They compared the optimal portfolios between the single stage and two stage models with the incorporation of the deviation measure. The models were applied to the optimal selection of stocks listed in Bursa Malaysia and the return of the optimal portfolio was compared between the two stochastic models. The results showed that the two stage model outperforms the single stage model in the optimal and in-sample analysis

RESEARCH METHODOLOGY

RESEARCH DESIGN

This is a descriptive study on the construction of portfolio of stocks with reference to Sharpe’s single index model.

UNIT OF ANALYSIS

Since the study is aimed at analyzing the risk and return associated with individual stocks, the unit of analysis is ‘individual’.

TIME HORIZON

The study is conducted with the past five years data from 2005-2006 to 2009-2010.

METHOD OF DATA COLLECTION

The study uses the secondary data collected from various sources such as NSE website and the RBI website.

POPULATION

All the stocks that are listed in the National Stock Exchange comprise the population of the study.

SAMPLING TECHNIQUE

The sampling technique adopted is ‘purposive sampling’. Sampling is done with the purpose of evaluating the risk and return variations and constructing a portfolio thereby.

SAMPLE SIZE

The sample size is 25 consisting of stocks from five different sectors namely Oil & Gas, IT, Banking, Steel and Communication sector selected based on their market capitalization.

LIST OF COMPANIES UNDER STUDY

TELECOMMUNICATION	OIL & GAS	IT	STEEL	BANKING
Airtel	RIL	I-flex	Bhushan	Bank of Baroda
Reliance Comm.	Cairn	TCS	TATA	ICICI
Idea Mobile	IOC	Infosys	Jindal	HDFC
Tata Comm.	GAIL	HCL	JSW	SBI
GTL	ONGC	Wipro	SAIL	Canara Bank

All of the companies under study are listed in the National Stock Exchange.

TOOLS FOR ANALYSIS

Beta Coefficient

It is an index of the degree of movement of an asset’s return in response to a change in the market’s return. Beta coefficient is the relative measure of systematic risk

$$Beta, \beta = Correlation * \frac{\sigma(Y)}{\sigma(X)}$$

Where, $\sigma(Y)$ = Standard Deviation of Individual Stock
 $\sigma(X)$ = Standard Deviation of Market

RETURN

The total gain or loss experienced on an investment over a given period of time, calculated by dividing the asset’s cash distributions during the period, plus change in value, by its beginning-of-period investment value is termed as return.

$$Return = \frac{Today's\ market\ price - Yesterday's\ market\ price}{Yesterday's\ market\ price}$$

CORRELATION

A statistical measure of the relationship between any two series of numbers representing data of any kind is known as correlation. This is done in Excel without depending on manual formula

MARKET RETURN

Market Return is the return on the market portfolio of all traded securities. In this study Nifty return is taken as the market return.

RISK-FREE RATE OF RETURN (RF)

Risk-free rate of return is the required return on a risk free asset, typically a three month treasury bill.

$$Excess\ Return - Beta\ Ratio = \frac{R_i - R_f}{\beta_i}$$

Where, R_i = the expected return on stock i
 R_f = the return on a riskless asset

β_i = the expected change in the rate of return on stock associated with one unit change in the market return.

$$C_i = \frac{\sigma_m^2 \sum_{i=1}^N \frac{(R_i - R_f)\beta_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{i=1}^N \frac{\beta_i^2}{\sigma_{ei}^2}}$$

Where, σ_m^2 = variance of the market index

σ_{ei}^2 = variance of a stock's movement that is not associated with the movement of market index i.e. stock's unsystematic risk.

$$X_i = \frac{Z_i}{\sum_{i=1}^N Z_i}$$

$$Z_i = \frac{\beta_i}{\sigma_{ei}^2} \left(\frac{R_i - R_f}{\beta_i} - C^* \right)$$

Where, C^* = the cut-off point.

ANALYSIS AND DISCUSSIONS

**COMPARISON OF INDEX RETURN AND STOCK RETURN
EXCESS RETURN TO BATA RATIO**

TABLE 2.1: CALCULATION OF EXCESS RETURN TO BETA RATIO

STOCKS	MEAN RETURN R_i	EXCESS RETURN $R_i - R_f$	BETA β	UNSYSTEMATIC RISK σ_{ei}^2	EXCESS RETURN TO BETA $\frac{R_i - R_f}{\beta_i}$	RANK
GTL	35.37	29.44	0.49	5.35	59.61	1
BHUSHAN	57.86	51.93	0.95	12.76	54.56	2
Bank of Baroda	47.89	41.96	1.00	10.37	42.6	3
CAIRN	31.27	25.34	0.73	9.21	36.1	4
HDFC	33.93	27.99	0.81	6.07	35.7	5
JINDAL	49.63	43.69	1.33	21.42	33.7	6
SBI	32.12	26.19	0.88	6.84	31.07	7
SAIL	45.09	39.16	1.39	12.62	28.73	8
JSW	39.39	33.46	1.23	14.17	28.26	9
Canara Bank	30.74	24.81	0.97	6.97	26.77	10
IFLEX	27.67	21.74	0.86	9.65	26.33	11
ICICI	30.68	24.75	1.12	10	23.12	12
RIL	25.04	19.11	0.95	8.99	21.14	13
GAIL	22.41	16.48	0.85	7.3	20.52	14
TATA STL.	25.39	19.46	1.12	11.52	18.2	15
AIRTEL	21.08	15.15	0.91	8.24	17.58	16
TATACOM	20.26	14.33	1.15	10.96	13.22	17
HCL	16.78	10.85	1.00	11.34	11.73	18
WIPRO	16.06	10.13	1.00	8.66	10.95	19
INFOSYS	12.92	6.99	0.75	6.57	10.54	20
ONGC	13.17	7.24	0.93	6.56	8.74	21
IDEA	5.12	-0.81	0.95	10.16	0.12	22
TCS	4.57	-1.36	0.75	9.7	-0.58	23
RCOM	2.99	-2.94	1.01	12.59	-1.99	24
IOC	3.36	-2.57	0.62	8.14	-2.64	25

DATA REQUIRED FOR CALCULATION

- Riskless Rate of Interest, $R_f = 5.9$
- Variance of the Market Index, $\sigma_m^2 = 3.5$

CUT-OFF POINT

TABLE 2.2: CALCULATION OF CUT-OFF POINT

STOCKS	$\frac{R_i - R_f}{\beta_i}$	$\frac{(R_i - R_f) * \beta_i}{\sigma_{ei}^2}$	$\sum_{i=1}^N \frac{(R_i - R_f) * \beta_i}{\sigma_{ei}^2}$	$\frac{\beta_i^2}{\sigma_{ei}^2}$	$\sum_{i=1}^N \frac{\beta_i^2}{\sigma_{ei}^2}$	C_i
GTL	59.61	2.717	2.717	0.045	0.045	8.222
BHUSHAN	54.56	3.873	6.590	0.070	0.116	16.41
Bank of Baroda	42.6	4.068	10.659	0.097	0.214	21.36
CAIRN	36.1	1.998	12.658	0.057	0.271	22.75
HDFC	35.7	3.730	16.388	0.107	0.379	24.67
JINDAL	33.7	2.694	19.082	0.081	0.460	25.59
SBI	31.07	3.341	22.423	0.111	0.571	26.16
SAIL	28.73	4.329	26.752	0.154	0.726	26.45
JSW	28.26	2.873	29.626	0.104	0.830	26.55
Canara Bank	26.77	3.421	33.048	0.132	0.963	26.47
IFLEX	26.33	1.939	34.987	0.076	1.040	26.40
ICICI	23.12	2.761	37.749	0.124	1.164	26.04
RIL	21.14	2.014	39.763	0.099	1.264	25.66
GAIL	20.52	1.915	41.679	0.098	1.363	25.29
TATA STL.	18.2	1.891	43.571	0.108	1.471	24.80
AIRTEL	17.58	1.681	45.252	0.101	1.573	24.35
TATACOM	13.22	1.508	46.760	0.121	1.694	23.61
HCL	11.73	0.960	47.720	0.088	1.783	23.06
WIPRO	10.95	1.181	48.901	0.117	1.901	22.36
INFOSYS	10.54	0.798	49.700	0.085	1.987	21.87
ONGC	8.74	1.030	50.731	0.132	2.120	21.09
IDEA	0.12	-0.075	50.655	0.088	2.209	20.31
TCS	-0.58	-0.103	50.552	0.055	2.264	19.82
RCOM	-1.99	-0.234	50.317	0.080	2.345	19.13
IOC	-2.64	-0.195	50.122	0.047	2.392	18.72

The highest value of C_i is taken as the cut-off point i.e. C^* . Here the cut-off rate is $C^*= 26.55$.

CONSTRUCTION OF OPTIMAL PORTFOLIO

From the C_i values, the investment is made in the following stocks:

TABLE 2.3: STOCKS TO BE INCLUDED IN THE PORTFOLIO

STOCKS	CUT-OFF POINT
GTL	8.222
BHUSHAN	16.416
BANK OF BARODA	21.362
CAIRN	22.755
HDFC	24.678

PROPORTION OF INVESTMENT

TABLE 2.4: CALCULATION OF PROPORTION OF FUNDS TO BE INVESTED IN EACH STOCK

STOCKS	Z_i	X_i
GTL	3.05	0.35
BHUSHAN	2.08	0.24
BANK OF BARODA	1.55	0.18
CAIRN	0.76	0.09
HDFC	1.22	0.14

In the table, Z_i shows the relative investment in each stock. X_i indicates the weights on each security and they sum up to one.

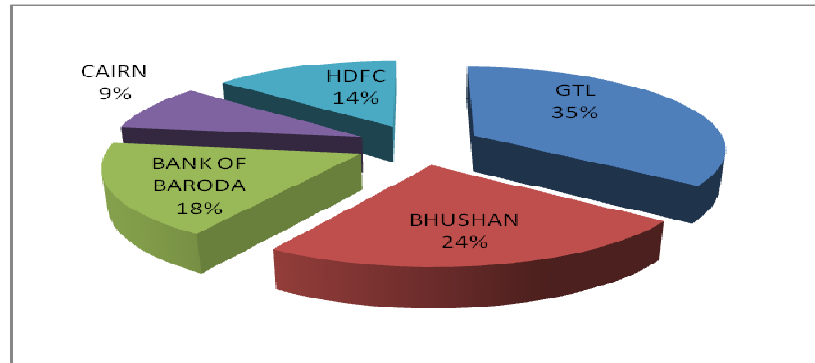
PORTFOLIO OF STOCKS

TABLE 2.5: PORTFOLIO OF STOCKS

COMPANY	PROPORTION OF INVESTMENT (%)
GTL	35
BHUSHAN	24
BANK OF BARODA	18
CAIRN	9
HDFC	14

From the above table, it can be inferred that maximum investment of 35.197% has to be invested in GTL Ltd. The two banks BANK OF BARODA and HDFC pave way for around 17.953% and 14.065% respectively. 24.097% has to be invested in Bhushan Steel Ltd. and the least of around 8 % is preferred for Cairn India Ltd.

FIGURE 1.1 CALCULATION OF PROPORTION OF FUNDS TO BE INVESTED IN EACH STOCK



FINDINGS AND SUGGESTIONS

- Risk and return are directly proportional to each other. Higher the risk, higher the return of the stocks.
- The excess return to beta is positive for all the stocks included in the portfolio.
- The beta of the stocks included in the portfolio have relatively lower beta compared to the other stocks that are not included. Stocks included in the portfolio have a beta coefficient less than 1. The stocks rejected have a beta of more than 1.
- The risk associated with the individual stocks is not the same for all the years. It differs from time to time.
- In the study, all the steel stocks have higher β and yield higher returns compared to other stocks.
- The excess return to beta ratio of all the steel companies included in the study is positive and the four companies except Tata steel are ranked below 10.
- Banks have also performed well in the last five years compared to other sectors with respect to their share prices and excess return.
- The stocks with systematic risk β greater than 1 are riskier since, for 1% change in market return, the change in stock return is greater than 1%.
- The results show that the steel sector is the most aggressive sector whereas Oil & Gas sector IT sector seems to be moderately riskier.
- The greatest proportion of investment of about 35% is made in GTL Ltd. which has the lowest beta value of 0.4938 among all the stocks included in the portfolio.
- The portfolio is diversified as the stocks belong to companies of different types. An optimum investment is thus made in Oil and Gas, Banking, Steel, IT and Telecommunications

SUGGESTIONS

- The maximum proportion of about 35% of the total investment has to be made in GTL Ltd.
- The beta, variance of the stocks keeps changing every now and then. So, the market should be analysed continuously.
- Investment should be made in stocks that have relatively lower beta and higher returns. This is because investors are rational.
- The proportion of the investment in each of the securities can change from time to time. The optimum portfolio is subject to change.
- Market analysis should be made regularly so that we can keep a check on losses.
- Investment advice should be got from technical experts regularly. Apart from this market watch is also recommended.
- The stocks have to be continuously analyzed and the portfolio has to be updated periodically.

CONCLUSION

Investing in individual securities is associated with high risk, where as investing in a portfolio of securities helped to spread the risk over many securities and thus reducing overall risk involved. Portfolios, which are combinations of securities, tend to spread risk over many securities and thus help to reduce the overall risk involved. This method of construction of optimal portfolio is very effective and convenient as revision of the optimal portfolio can be an ongoing exercise. The existence of a cut-off rate is also extremely useful because most new securities that have an excess return-to beta ratio above the cut-off rate can be included in the optimal portfolio. Thus this study helps the investors to minimize their overall risk and maximize the return of their investment over any period of time. The optimal portfolio thus developed proved to be the best investment option in NSE, but the daily market fluctuation based on international financial queues and emotions resulted in security price fluctuations beyond the predicted risk levels.

REFERENCES

JOURNALS

- Adli Mustafa, Anton Abdulbasah Kamil & Khlipah Ibrahim (2009). Stochastic Optimization for Portfolio Selection Problem with Mean Absolute Negative Deviation Measure. *Journal of Mathematics and Statistics*, 5 (4), 379-386
- BK Stone, "Systematic interest rate risk in 2 index model of return" *Journal of Finance*, Volume 38, Pg. 709.
- Bruce F, "Tracking S&P 500 Index, *Journal of Portfolio Management*, Volume 28, No.1, Pages 44-55. Kalman J. Cohen & Jerry A. Pogue, 1967, "An empirical evidence of alternative portfolio selection models", *Journal of Business*, Pg 166.
- Chow, G. (1995). "Portfolio selection based on return, risk, and relative performance." *Financial Analysts Journal*, Vol.51, Issue 2, Pg. 54-6.
- Cheol S Eun & Bruse, "Estimating the correlation Structure of International Prices", *Journal of Finance* Vol 39, No.5, Pg 1311.
- Craig, MacKinlay A & Pastor, L. (1999). "Asset pricing models: implications for expected returns and portfolio selection." NBER Working Papers 7162, National Bureau of Economic Research.
- Ferhan Salman (2002). Risk-Return-Volume Relationship in an emerging Stock Market. *Applied Economics Letter*, 9 (8), 549-552.
- Ghazi F. Momani (2008). Simple Techniques for Determining the Optimal Portfolio Case Study: Investment in Banks Sector in Amman Stock Market_ Jordan. *International Research Journal of Finance and Economics*, (9), 21-33.
- Goldfarb, D. & Iyengar, G. (2003). "Robust portfolio selection problems." *Mathematics of Operations Research*. Vol.28, Issue 1, Pg. 1-38.
- Kalman J. Cohen & Jerry A. Pogue, 1967, "An empirical evidence of alternative portfolio selection models", *Journal of Business*, Pg 166.
- Nancy L Jacob, "A limited diversification portfolio selection model for small investors", *Journal of Finance*.
- San Nan Chen & Stephen J. Brown, 1983, "Estimation Risk and simple rules for optimal portfolio selection", *Journal of Finance*, Vol 38, No 4, Pg 1087.
- William F Sharpe, 1966, "Mutual Fund Performance", *Journal of Business*, Pg 119.
- William F Sharpe, 1967, "A Linear Programming Algorithm for Mutual Fund Portfolio Selection", *Management Science*, Vol 13, Pg 123.
- Universitat Pompeu Fabra. (2007). *Portfolio Choice beyond the Traditional Approach* (Discussion Paper No. 587). Catalonia, Spain: Francisco Penaranda
- WF Sharpe, 1963, "A simplified model for portfolio analysis", *Management Science*.

A STUDY ON ECONOMIC EMPOWERMENT OF WOMEN THROUGH SELF HELP GROUPS IN MAHABUBNAGAR DISTRICT OF ANDHRA PRADESH

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ABSTRACT

Women comprise of half the country's Population yet they have limited control over income. Most women remain confined to a narrow range of female low-income activities resulting in gender discrimination. Several initiatives are taken by the government both at central and state level to improve the status of women. The micro finance and self help group model is playing a vital role in the empowerment of women. This paper explores the role of self help groups in economic empowerment of women. The present study is conducted in Mahabubnagar district of Andhra Pradesh. The study results that economic empowerment can be achieved through self help group model, as a member of self help group it was found that there is an increase in the income and the savings level among the members of the group.

KEYWORDS

Self Help Group, Economic Empowerment, Income, Savings.

INTRODUCTION

The micro finance institutions are playing a dominant role in empowerment of women. The expansion of micro finance through self help group model is high in south India and it has been largest in Andhra Pradesh. Empowerment (Bashin & Dhar, 1998) is an ongoing and dynamic process, which enhances women's and any other marginalized and alienated group abilities to change the structures and ideologies that keep them subordinate. It is the process of making present power structures more inclusive, including all women and men, senior citizen, dalits, indigenous people and people with disabilities. Empowerment is therefore clearly concerned with power and particularly with the power relations and distribution of power between individuals and groups

There are different SHG Models:

1. Banks deal directly with SHG, providing financial assistance for on-lending to individual members.
2. Banks give direct assistance to the SHG while the NGO provides training and guidance to the SHG for effective functioning.
3. The NGO can be financial intermediary between the bank and a number of SHGs with the NGO accepting the contractual responsibility for loan repayment to the bank and the linkage between bank and the SHG is indirect.
4. Banks give loans directly to individual SHG members on recommendations of the SHG and NGO. The NGO assists the bank in monitoring, supervising and recovery of loan.

REVIEW OF LITERATURE

Aruna M and Rema Jyothirmayi(2011) in their study on "The role of microfinance in women empowerment; A study on the SHG Bank Linkage Program in Hyderabad (Andhra Pradesh), the main objective of their study is to study and analyze the relationship between (Self Help Group) SHG-Bank Linkage programme participation and women empowerment. The study comprises of 150 female participants of SHG who availed microfinance loan and another 150 female participants of self help group who were not availed any micro finance loan. Woman Empowerment Index (WEI) is constructed for the purpose of comparison and understanding impact of micro finance on participants. The study reveals that self help group participation improved the income level of the respondents. Asset position of women has a significant impact on their empowerment level. Women empowerment is the process that allows one to gain the knowledge, skill-sets and attitude needed to cope with the changing world and the circumstances in which one lives. The women empowerment index is calculated by averaging of four standardized indices; economic score, knowledge, decision making and self worthiness. Their results shows that women empowerment level is significantly improved by availing proper utilization of micro finance loans. Their analysis indicates that microfinance activities and self help group participation has a positive impact on the income, assets, occupation, savings, access to loans, bank connectivity, knowledge, self worthiness and decision making level of the participants.

Dhavamani P (2010) a study on "Empowerment of Rural Women through SHG in Sattur Taluk of Virudhunagar District", the main objectives of her study is to enumerate the growth of SHG and to analyze the empowerment of women through SHGs. The study has been conducted in Sattur Taluk, tools such as percentages; mean, Z test and Garrett's ranking technique were used for the purpose of the study. From the study it has been observed that there is a significant difference in the family income, bank savings and loan received by the members of the SHG before and after joining the groups. The study concludes that the respondents mainly get loan to educate their children, start business, to meet medical expenses, to meet marriage expenses, redeem other loans, to maintain house expenses and to meet festival expenses respectively. The study concludes that SHG model paves the way for the empowerment of women and builds confidence in them to stand on their feet. Thus the concept of SHG moulds women as responsible citizens of the country achieving social and economic status.

Lakshmi Ramachandar and Perti J Pelto(2009) their study on “Self Help Groups in Bellary: Micro finance and Women’s empowerment”, their study concentrates on (i) the family planning and population policies can make little headway unless there is significant improvement in women’s economic and social status within the national socio-cultural system and (ii) that development of women’s empowerment through micro finance and income generating projects can have important positive effects on health programme and other improvements in the quality of life in rural areas. The study was conducted in Bellary district of Karnataka. The data was collected through in depth interviews with groups. The study resulted that SHGs have benefitted women, their family and the communities in which they live in more than one way. The increased access to money, ability to buy consumer goods, release from the dependence on daily wage labour and improved housing have show a positive effects on the women’s lives.

Purna Chandra Parida & Anushree Sinha their study on “Performance and Sustainability of Self Help Groups in India: A Gender Perspective”, The existing literature on self-help group (SHG) bank linkage programs portrays them as an effective tool being used in various countries to approach a range of socioeconomic issues. This paper explores the performance and sustainability of this type of program in India at the group level. Because income-generating activities and other characteristics vary with the gender composition of self-help groups, their performance and sustainability vary. The analysis in this study is based on data from a survey carried out in six states in India. Overall, the performance analysis reveals that all-female SHGs perform best. The female SHGs are doing particularly well in terms of recovery of loans and per capita saving. The econometrics results indicate that only all-female SHGs are sustainable. The factors that determine the sustainability include recovery of loans, per capita savings, and linkage with an SHG federation.

OBJECTIVES OF THE STUDY

1. To analyze the impact of self help groups on economic empowerment of women.
2. To study the changes in the income level and savings of the women as a member of self help group.
3. To study and analyze the factors that influences the economic empowerment of women.

SCOPE OF THE STUDY

The study is confined to economic empowerment relating to women in mahabubnagar district of Andhra Pradesh.

METHODOLOGY

The study has been conducted using a questionnaire. A sample of 147 members of the Self help group were selected for the purpose of the study. The data has been analyzed using SPSS 17.0; tools like Percentages, paired t test and Factory analysis were used for the purpose of analysis of the data.

PROFILE OF MAHABUBNAGAR DISTRICT

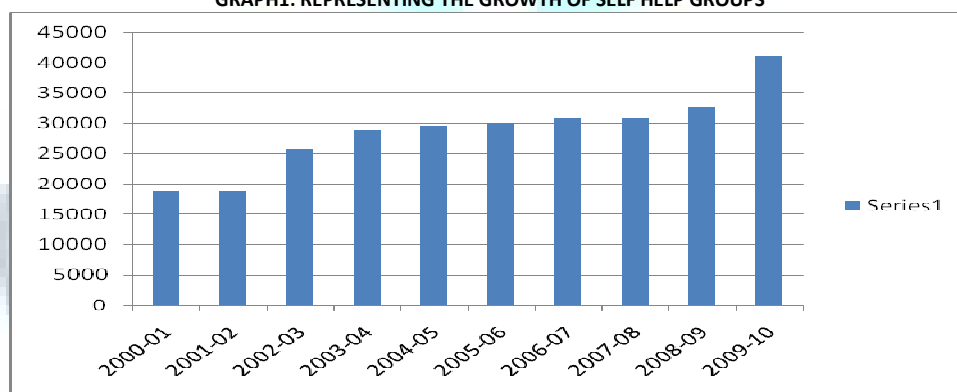
The district derived its name mahabubnagar from the Nawab Mir Mahabub Ali Khan, the VI Nizam of Hyderabad. There are four municipalities in the district namely mahabubnagar, Gadwal, Wanaparthy and Narayanpet. The district is broadly classified into five revenue divisions namely Mahabubnagar, Narayanpet, Nagarkurnool, Gadwal and Wanaparthy.

TABLE1: TABLE REPRESENTING THE NUMBER OF SELF HELP GROUPS IN MAHABUBNAGAR DISTRICT

Year	No of SHGs
2000-01	18785
2001-02	18785
2002-03	25720
2003-04	28870
2004-05	29507
2005-06	29981
2006-07	30789
2007-08	30789
2008-09	32706
2009-10	41015

Source: SERP, Andhra Pradesh

GRAPH1: REPRESENTING THE GROWTH OF SELF HELP GROUPS



DEMOGRAPHICS OF THE SAMPLE RESPONDENTS

TABLE 2: TABLE REPRESENTING THE AGE OF THE SAMPLE RESPONDENTS

Age of the respondents	Frequency	Percentage
Less than 20	1	0.7
20 and less than 30	31	21.1
30 and less than 40	99	67.3
40 and above	16	10.9
Total	147	100

Source: Primary Data

From table2, it is observed that majority of the respondents i.e., 67.3% of the respondents are in the age group of 30 and less than 40.

TABLE 3: TABLE REPRESENTING THE EDUCATIONAL LEVEL OF SAMPLE RESPONDENTS

Educational Qualification	Frequency	Percentage
Illiterate	82	55.8
Primary Education	47	32.0
Secondary Education	11	7.5
Intermediate	05	3.4
Adult Education	02	1.4
Total	147	100

Source: Primary Data

From the above table 3, it is found that a vast number of respondents i.e., 55.8 % of the sample respondents are illiterates and 32% of the sample respondents have pursued primary education.

TABLE 4: TABLE REPRESENTING THE MARITAL STATUS OF THE SAMPLE RESPONDENTS

Marital Status	Frequency	Percentage
Unmarried	08	5.4
Married	120	81.6
Widow	19	12.9
Divorced	00	0
Total	147	100

Source: Primary Data

It is observed from table4, that the large number of sample respondents i.e., 81.6 % of the sample respondents is married.

TABLE 5: TABLE REPRESENTING THE OCCUPATIONAL OF THE SAMPLE RESPONDENTS

Occupation	Frequency	Percentage
Agriculture (Self)	42	28.6
Agriculture (lease)	04	2.7
Agriculture (daily labour)	47	32.0
Self Employed	12	8.2
Daily Labour (non agri)	33	22.4
Traditional work	06	4.1
Others	03	2.0
Total	147	147

Source: Primary Data

The above table states the occupation level of the sample respondents, it is evident from the above that 32% of the sample respondents are daily labour in agricultural sector followed by the respondents who are involved in the agriculture i.e 28.6%.

H₀₁: There is no significant difference in the income of the members of the self help group before and after joining the group.

TABLE 6: PAIRED SAMPLES STATISTICS OF MAHABUBNAGAR DISTRICT

	Mean	N	Std. Deviation	Std. Error Mean
Income Before	1303.74	147	1156.312	95.371
Income After	2067.41	147	1547.833	127.663

Table 6, column 2 represents the mean income of respondents before and after joining the group. The mean income before joining the group was Rs.1308 and after joining the group is Rs. 2597.

TABLE 7: PAIRED SAMPLES CORRELATIONS OF MAHABUBNAGAR DISTRICT

	N	Correlation	Sig.
Income Before and Income After	147	.774	.000

TABLE 8 PAIRED SAMPLES TEST OF MAHABUBNAGAR DISTRICT

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Income Before and Income after	-763.673	980.996	80.911	-923.582	-603.765	-9.438	146	.000

From table 8 and last column the 2-tailed significance value is 0.000, this is the 'p' value, and it is less than the level of 0.05 (the significance value which the researcher had set). If the 'p' value is less than 0.05 we reject our null hypothesis. Therefore we reject our null hypothesis and conclude that there is a significant difference between the savings level of the respondent before and after joining the group.

H₀₂: There is no significant difference in the savings of the members of the self help group before and after joining the group.

TABLE 9: PAIRED SAMPLES STATISTICS OF MAHABUBNAGAR DISTRICT

	Mean	N	Std. Deviation	Std. Error Mean
Savings Before	203.20	147	223.668	18.448
Savings After	384.15	147	336.531	27.757

Table 9, column 2 represents the mean savings of respondents before and after joining the group. The mean savings before joining the group was Rs.203 and after joining the group is Rs. 384.

TABLE 10: PAIRED SAMPLES CORRELATIONS OF MAHABUBNAGAR DISTRICT

	N	Correlation	Sig.
Savings Before and Savings After	147	.821	.000

TABLE 11: PAIRED SAMPLES TEST OF MAHABUBNAGAR DISTRICT

	Paired Differences					t	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Savings Before and After	-180.952	199.284	16.437	-213.437	-148.468	-11.009	146	.000

From table 11 and last column the 2-tailed significance value is 0.000, this is the 'p' value, and it is less than the level of 0.05 (the significance value which the researcher had set). If the 'p' value is less than 0.05 we reject our null hypothesis. Therefore we reject our null hypothesis and conclude that there is a significant difference between the savings level of the respondent before and after joining the group

FACTOR ANALYSIS

Factor analysis is a very useful method of reducing data complexity by reducing the number of variables being studied. The researcher has identified 20 variables that would be determining the economic empowerment of women and the researcher has conducted a factor analysis to determine the major factors that would be affecting the economic empowerment of women.

KMO and Bartlett's Test: KMO and Bartlett's test is used in factor analysis. This is used for the initial estimation of the factor analysis. If the KMO and Bartlett's test is greater than 0.6 it is said to be good model. From table 12 below, it was clear to the researcher that the samples taken were absolutely accurate and sampling accuracy was 0.823.

TABLE 12: KMO AND BARTLETT'S TEST – MAHABUBNAGAR DISTRICT

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.823
Bartlett's Test of Sphericity	Approx. Chi-Square	1923.520
	Df	190
	Sig.	.000

Cronbach's Alpha: To test the reliability of the data the cronbach's alpha can be used. If the Cronbach's Alpha is greater than 0.7 it is said to be highly reliable. The cronbach's alpha for the purpose of the study has resulted 0.914 which means it is highly reliable.

TABLE 13: RELIABILITY STATISTICS – MAHABUBNAGAR DISTRICT

Cronbach's Alpha	N of Items
0.914	20

TABLE 14: TOTAL VARIANCE EXPLAINED

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.944	39.721	39.721	7.944	39.721	39.721	4.267	21.335	21.335
2	2.761	13.803	53.523	2.761	13.803	53.523	3.498	17.489	38.823
3	1.622	8.108	61.631	1.622	8.108	61.631	2.947	14.734	53.557
4	1.150	5.749	67.380	1.150	5.749	67.380	2.764	13.822	67.380
5	.962	4.811	72.191						
6	.783	3.913	76.104						
7	.683	3.417	79.521						
8	.631	3.153	82.673						
9	.588	2.941	85.615						
10	.459	2.296	87.911						
11	.409	2.043	89.954						
12	.394	1.969	91.923						
13	.311	1.555	93.478						
14	.281	1.403	94.882						
15	.256	1.279	96.161						
16	.216	1.080	97.241						
17	.190	.948	98.188						
18	.155	.776	98.964						
19	.125	.624	99.589						
20	.082	.411	100.000						

Extraction Method: Principal Component Analysis.

The first step in factor analysis is the factor extraction process. The main objective of this test is to identify how many factors will be extracted from the data. The factor extraction process can be done using the Principal Component Analysis method. Factors will be extracted based on Eigen value. The higher the Eigen

value of a factor, the higher is the amount of variance explained by the factor. A thumb rule is followed for factor extraction using the Eigen value, we retain all the those variables whose Eigen value is greater than one. From table 14 we can conclude that the twenty variables can be reduced to four factors. The four factors extracted together account for 67.3 % of total variance.

GRAPH 2: SCREE PLOT DIAGRAM

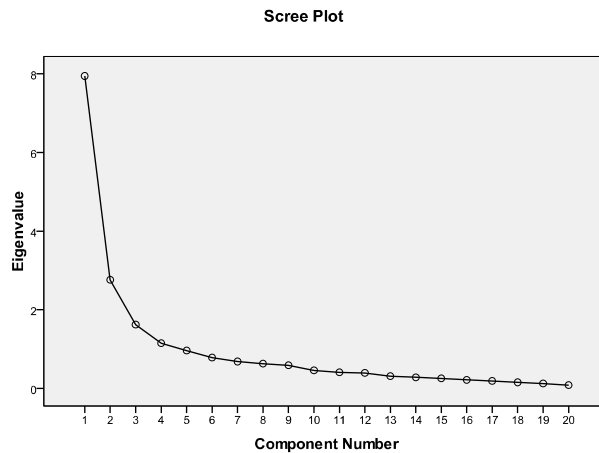


TABLE 15: ROTATED COMPONENT MATRIX

	Component			
	1	2	3	4
I feel the standard of my family has increased	.289	.296	.325	.559
I am able to purchase the assets (Fan, Radio, TV, Refrigerator)	.261	.245	.013	.724
I am able to increase the land holdings	.174	.094	.030	.810
I am able to involve myself in financial decision making	.088	.382	.410	.596
I am aware of loan disbursement system	.470	.216	.496	.266
I am aware of interest rate on my loan	.210	.162	.756	-.129
I am aware of loan repayment procedure	.023	.178	.808	.030
I am aware of schemes available to self help group members	-.022	-.086	.781	.355
I am aware of insurance schemes available to members of SHG	.201	-.316	.659	.438
I am able to spend money for my children’s education	.790	.029	.176	.131
I am able to spend money for festivals	.606	.327	.114	.287
I am able pay for the conveyance for mobility	.817	.330	.116	.160
I am able to buy the provisions required for my house	.833	.247	-.027	.127
I am able to increase the credit access	.405	.578	-.072	.298
I am able to buy the requirements of the children	.604	.623	.088	.156
I am able to buy the clothes for myself	.452	.686	-.058	.223
I am able to spend the money for Health & Hospital	.318	.657	.078	.161
I am able to increase the bargaining power	-.006	.574	.504	.259
I am able to help others in case of need (Money)	.297	.664	.167	.234
I am able to repay the loan on time	-.012	.589	.536	-.211

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 13 iterations.

The next step in factor analysis is Principal Component Factor Analysis with varimax rotation. The researcher has conducted the principal component factor analysis with varimax rotation to group the variables. The principal component analysis along with varimax rotation is used for grouping the variables, variables with a factor loading greater than or equal to 0.5 are grouped under a factor (Component). A factor loading is the correlation between the original variables of specific factor and the key to understand the nature of that particular factor. From table 15 the factor 1 was loaded with the variables like ability to spend money for children’s education, festivals, conveyance for mobility, able to buy provisions required for my houses. All the variables which are loaded under factor 1 can be termed as ‘purchase power’. Factor 2 is loaded with variables like able to increase credit access, buy requirements for children, buy clothes for myself, able to spend money for health and hospital, able to increase bargaining power, help others in case of need and able to repay the loan on time. All the variables which are loaded on factor 2 can be termed as ‘increased credit access’. Factor 3 is loaded with the variables like loan disbursement system, interest rate of loan, repayment procedure and awareness of schemes of SHG. All the variables loaded on factor 3 can be termed as ‘Loans of SHG’. Fourth factor is loaded with the variables like standard of living, increase in assets, increase in land holding and able to involve in financial decisions. The variables loaded on factor 4 can be termed as ‘Standard of Living’.

FINDINGS & CONCLUSION

The self help group model is playing a vital role for the economic empowerment of the women. It is been observed that there is an increase in the income level and savings among the members of the self help group after joining the group. As a member of self help group she is able to able to increase purchase power,

credit access, she is able to know about the loans available to SHG members and her standard of living has increased. As a member of self help group, women are able to increase their income, savings and standard of living. Thus we can conclude that being a member of self help group women is economically empowered.

REFERENCES

1. Aruna M and Rema Jyothirmayi (2011) "The role of microfinance in women empowerment; A study on the SHG Bank Linkage Program in Hyderabad (Andhra Pradesh), Indian Journal of Commerce and Management Studies, Vol-II, Issue-4, May 2011, PP 77-95.
2. Dhavamani P (2010) "Empowerment of Rural Women through SHG in Sattur Taluk of Virudhunagar District", Journal for bloomers of Research, Vol 2, No: 2, February 2010, pp 191-195.
3. Lakshmi Ramachandar and Pertti J Pelto (2009) "Self Help Groups in Bellary: Micro finance and Women's empowerment", The Journal of Family Welfare, Vol 55, No.2, December 2009, pp 1-16.
4. Purna Chandra Parida & Anushree Sinha "Performance and Sustainability of Self Help Groups in India: A Gender Perspective", Asian Development Review, Vol 27, No 1, pp 80-103.
5. Rajendra Nargundkar, Marketing Research Text and cases 2nd Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi.
6. Bashin & Dhar (1998) "Joining Hands to Develop Women Power", a report of South Asian Workshop on Gender and Sustainable Development, Koitta, Bangladesh.
7. Prasad B V, Pdala S R and Neduri Suryanarayana (2011), "Women Economic Empowerment through Self Help Group: A Study in Andhra Pradesh", International Journal of Research in Computer Application & Management, Vol No.1, Issue I (March), pp 19-26.
8. Sreeramulu G, "Empowerment of Women Through Self Help Group", Kalpaz Publications, Delhi.

A STUDY ON THE RELATIONSHIP BETWEEN GOLD, SILVER AND NIFTY

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ABSTRACT

The study has attempted to analyze the need and importance of commodity market and the current position of the bullion in the stock exchange. The study is fully based on the secondary data from records and values of the bullion commodity in the exchange. From the analysis the value of data were collected and the collection of data were tabulated and presented in the appropriate places of various chapters. Besides the strategies was evaluated by analyzing and interpreting the values with the help of various technical ratios. Investor understands the basic elements of commodities market investing and their fund affect on the potential value of the investments over the years. The past performance is used as an important tool. Investors have to look for consistency, though it is known that new investments flow into top performing funds, based on performance ranking. The researchers suggested that the investors can take decision based on these results. Techniques and tools used helps to analyze the investment opportunities in the market. The research hopes that the suggestions will be implemented for the betterment of the investors and also for the general public to get an idea about the investment in a profitable manner.

KEYWORDS

Gold, Silver and Nifty, Commodities, Stock Exchange, Risk, Return.

INTRODUCTION

The study examines the impact of few economic indicators like gold and silver prices. The Commodity market plays a vital role in promoting economic growth through the mobilization of long-term savings and the savings get invested in the economy for production purpose. This study analysis the performance of the gold, silver & nifty to understand the concept and importance of the commodity market. Basically gold is an inflation hedge. If inflation of any country increases, investors will buy gold to balance their portfolio and the price of gold will move up. So during inflation the gold price rises and the stock market falls.

In an economy all the savings are not invested in the stock market. Certain portion of the money is invested as bank deposits. When people invest money directly in the stock market they have to bear the risk involved. Investing in stock market may give more return than the risk less return, but it also involves high risk. When money is deposited in Banks, the bank takes responsibility of the risk involved. Bank charge higher interest and gives guaranteed return to the investors. Since banks take the responsibility of risk, it charges high interest rate to the companies and pays less interest to deposits. It clearly shows that the proper and protected investment is of investing in the commodity market.

To accomplish the goal of earning a relatively high return in commodity market, an essential task for investors to develop investment objectives. So informed decision can be made regarding risk and return trade-off. There is some indirect relationship between these three things (i.e. gold, silver and nifty). So to assess the relationship between these three things the following study is carried out.

STATEMENT OF PROBLEM

To find out the overall information for investors, in which time to invest the money in commodities market and what is the movement of price in commodities market. It also helps to analyze when the trend will reverse and also to find out the best way to invest in the markets for the investors.

OBJECTIVES OF THE STUDY

- To study about the performance of the gold, silver and nifty during the period.
- To study the impact of gold, silver BSE SENSEX.
- To understand the concept and importance of the commodities market.
- To analyze the risk involved in the gold and silver prices.
- To rank the gold, silver based on their performance.
- To analyze the general trend in the bullion market.
- To understand the up and down movement of price in bullion market.
- To know the time to invest money in bullion commodity market by investors.

SCOPE OF THE STUDY

A better understanding of the commodity market trend will facilitate allocation of financial resources to the most profitable investment opportunity. The study also helps the customers to ascertain the risk and return of the commodities. This will help the investor viz, individuals, FIIS in identifying the commodity which would yield them higher return and lesser risk.

The result of this study indicates short-term relationship of specific macroeconomic elements to the Bombay stock exchange. Investors can predict the volatility of the stock market due to the changes in economic indicators.

LIMITATIONS OF THE STUDY

All the projects are hindered in their smooth flow by some problems. The problems arise in the form of constrains by time and scope of the study. The current project was also faced by certain problem. Some of the problems faced in the course of the project are as follows:

- Period of study is restricted to past half Year so the conclusion based on this report is limited to that extent.
- The tools used for analysis is subject to inherent limitations.
- External factors which affect the price movement of the market.
- It cannot allow for good forecasting or determination of price objectives.
- Using of Secondary data.

RESEARCH METHODOLOGY

Research methodology is a way of systematically solving the research problem. Research Methodology deals with the research design used and other methods used to present the study. Here researcher describes the statement of the problem, objectives of the study.

TYPE OF RESEARCH

The descriptive method of research type employed in the study portrays the performance of the different prices of Gold, Silver were taken under study. Since descriptive research studies are concerned with describing the characteristics of a particular individual, or of a group, the same is used for studying the performance of the different prices in the market.

SOURCES OF DATA

The data was collected with secondary data collection method. Secondary data is the data collected from secondary sources. In this research it is collected through various journals, magazines and websites.

For the purpose of this study, the price movements are computed and studied. The risk free rate which is the rate of return of the 90 – day’s Treasury bill is obtained from the websites. The return values of the different markets, the standard deviation values used in the calculation of the Sharpe ratio, and the beta value used for the calculation of the Treynor ratio are manually calculated from the closing prices of Gold, Silver.

TOOLS AND TECHNIQUES USED

The two ways in which the analysis is done are Risk - adjusted performance evaluation by

- Beta
- Mean
- Standard deviation
- Sharpe ratio
- Treynor ratio
- Correlation

BETA

The degrees to which different portfolios are affected by these systematic risks as compared to the effect on the market as a whole is measured by Beta. The Beta factor describes the movement in a stock’s or portfolio’s returns in relation to that of the market return.

The main purpose of using slope or beta is to predict the change in the market. Beta is a measure of the market or non-diversible risk associated with any given security in the market. The formula for predicting Beta is as follows:

$$\text{Returns} = (P_1 - P_0 / P_0) * 100$$

Where,

P_1 today’s close

P_0 previous close

$$\text{Beta} = \text{Cov}(x,y) / \text{var}(x)$$

MEAN

A measure of the central tendency of a data set, the mean is the average value in a data set. It is determined by adding all the values and dividing the sum by the number of values in the data set.

$$\text{Mean} = \frac{\sum X_i}{n}$$

where, $i = 1, 2, 3, \dots, n$

n = number of samples (or) number of values

STANDARD DEVIATION

The standard deviation is less affected than the range by extreme and untypical values. It is a very accurate measurement for showing how closely the values in the list cluster around or diverge from the average. The standard deviation is lower if the values cluster closely around the mean and becomes higher the more they diverge from it. For the mathematically inclined, the standard deviation is defined as the square root of the variance, or

$$\text{Standard deviation} = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

SHARPE RATIO

William Sharpe created a metric for fund performance, which enables the ranking of funds on a risk – adjusted basis. This measure is based on the comparison of “Excess return” per unit of risk, risk being measured by standard deviation. The standard deviation measures what is the average dispersion of the returns around the average value. If the standard deviation is high, the risk inherent in the returns of the mutual fund is high. Excess return is defined as the actual return of the fund less the risk free rate. The return on the 90-day treasury bill of the government is taken as the risk-free rate. This ratio is referred as reward to variability ratio (RVAR). It is expressed as:

$$\text{Sharpe ratio} = (R_p - R_f) / \sigma_p$$

Where,

R_p is the average return of the fund

R_f is average risk free return

σ_p is total risk of the fund

TREYNOR RATIO

In the Sharpe ratio, we measure return per unit of standard deviation. Instead if we measured return per unit of beta, we have the Treynor measure of the performance. Treynor measure uses the market risk to rank funds, while Sharpe measure uses total return to rank funds. This ratio is referred as reward to volatility ratio (RVOL)

It is expressed as:

$$\text{Treynor's ratio} = (R_p - R_f) / \beta$$

Where,

R_p is the average return of the fund
 R_f is average risk free return
 β is total risk of the fund

CORRELATION

The correlation is one of the most common and most useful statistics. A correlation is a single number that describes the degree of relationship between two variables. The correlation coefficient may take on any value between plus and minus one.

$$-1.00 < r < +1.00$$

The sign of the correlation coefficient (+, -) defines the direction of the relationship, either positive or negative. A positive correlation coefficient means that as the value of one variable increases, the value of the other variable increases; as one decreases the other decreases. A negative correlation coefficient indicates that as one variable increases, the other decreases, and vice-versa. Taking the absolute value of the correlation coefficient measures the strength of the relationship. It is expressed as,

$$r = \frac{\sum xy - (\sum x \sum y) / n}{\sqrt{(\sum x^2 - (\sum x)^2 / n) (\sum y^2 - (\sum y)^2 / n)}}$$

DATA ANALYSIS AND INTERPRETATION

In this chapter the average return, volatility, variability in returns and risk parameters of the commodity are analysed. The analysis is given in the form of tables and charts.

Risk arises out of the fact that returns do not remain constant or unchanged. Every change in return is a situation of risk for the investor. The simplest way to measure risk is to find out, over a period of time, the performance of the commodity in relation to the market indices

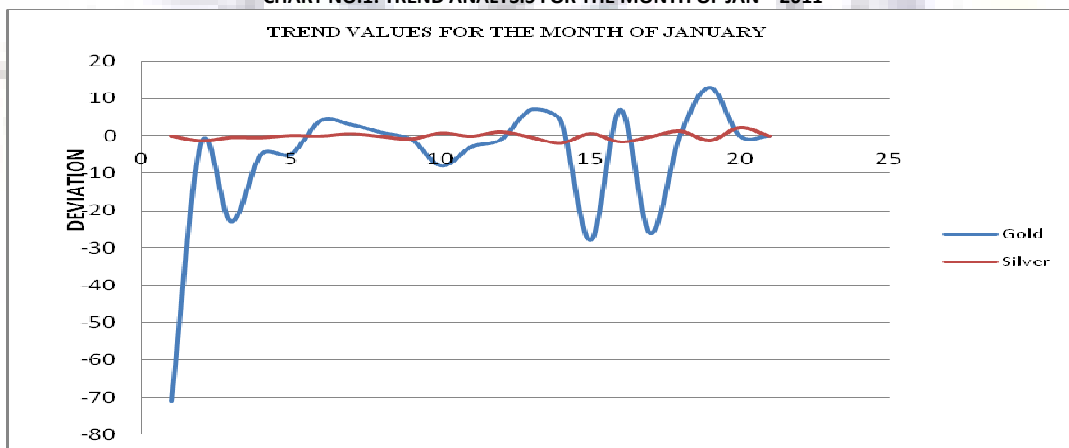
Since we know that mutual funds cannot be expected to deliver a pre-specified price, the measures of risk and return make little sense, unless we are able to say something about their adequacy. If the fund made 20% return in one period and 8% in another, we will not be able to say if 20% is too high or not high enough, or if 8% is too low. Therefore, we should be able to define what we can expect from the fund, in terms of risk and return.

TABLE NO.1: TREND ANALYSIS FOR THE MONTH OF JAN – 2011

Days	Gold	Deviation	Silver	Deviation
3/1/11	2,000	-71	50	-0.2
4/1/11	1,929	-2.0	49.8	-1.35
5/1/11	1,927	-23	48.45	-0.4
6/1/11	1,904	-5	48.05	-0.45
7/1/11	1,899	-5	47.60	0.15
10/1/11	1,894	4.00	47.75	0
11/1/11	1,898	3.00	47.75	0.6
12/1/11	1,901	1.00	48.35	-0.1
13/1/11	1,902	-1.00	48.25	-0.8
14/1/11	1,901	-8.00	47.45	0.8
17/1/11	1,893	-3.00	46.65	-0.05
18/1/11	1,890	-1.00	46.60	1.15
19/1/11	1,889	7.00	47.75	-0.35
20/1/11	1,896	4.00	47.40	-2.0
21/1/11	1,900	-28.00	45.40	0.65
24/1/11	1,872	7.00	46.05	-1.65
25/1/11	1,879	-26.00	44.40	-0.2
26/1/11	1,853	0	44.20	1.35
27/1/11	1,853	13.00	45.55	-1.2
28/1/11	1,866	0	44.35	2.30
31/1/11	1,866	0	46.65	0
Average		-113.3		-1.55

Source: research data

CHART NO.1: TREND ANALYSIS FOR THE MONTH OF JAN – 2011



INTERPRETATION

The above table shows that both the value of gold and silver price is in decreasing trend with -113.3 and -1.55. This shows that price of gold & silver increases in the beginning and decreases in the end of the month

TABLE NO.2: RELATIONSHIP BETWEEN THE GOLD, SILVER AND NIFTY IN THE MONTH OF JAN 2011

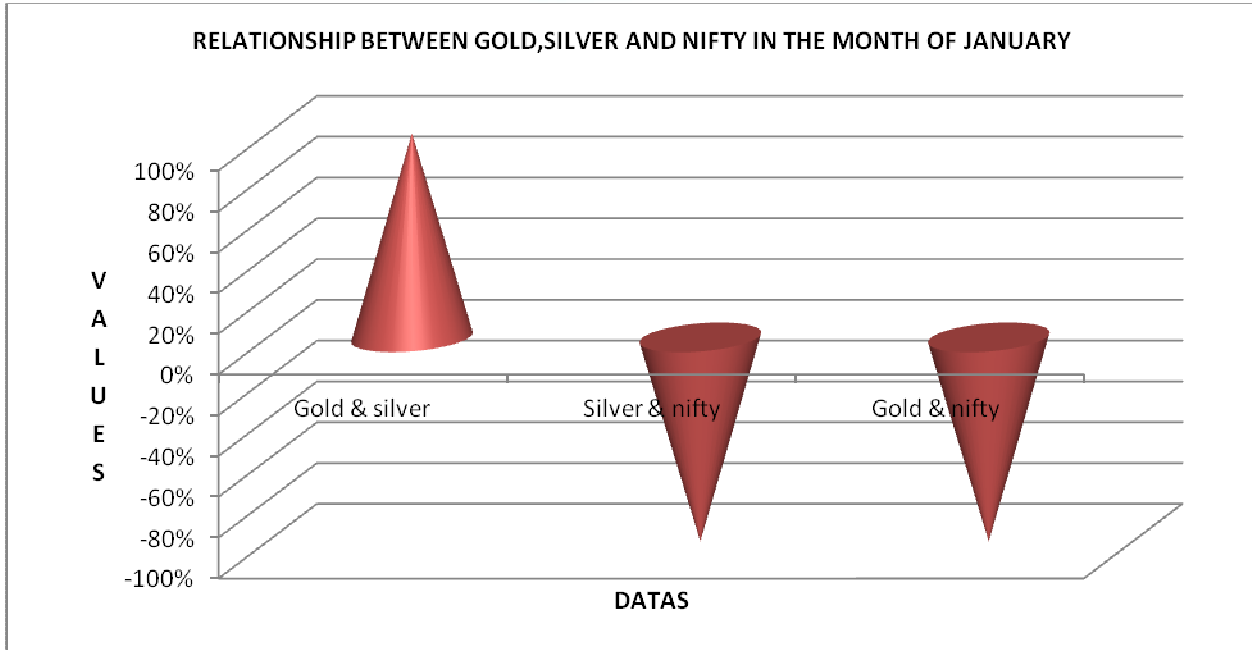
Null hypothesis (H0): There is no relationship between gold, silver and nifty in the month of January.

Alternative hypothesis (H1): There is relationship between gold, silver and nifty in the month of January.

Data	GOLD & SILVER
Gold & silver	0.943831
Silver & nifty	-0.63036
Gold & nifty	-0.56015

Source: research data

CHART NO.2: RELATIONSHIP BETWEEN THE GOLD & SILVER IN THE MONTH OF JAN – 2011



INTERPRETATION

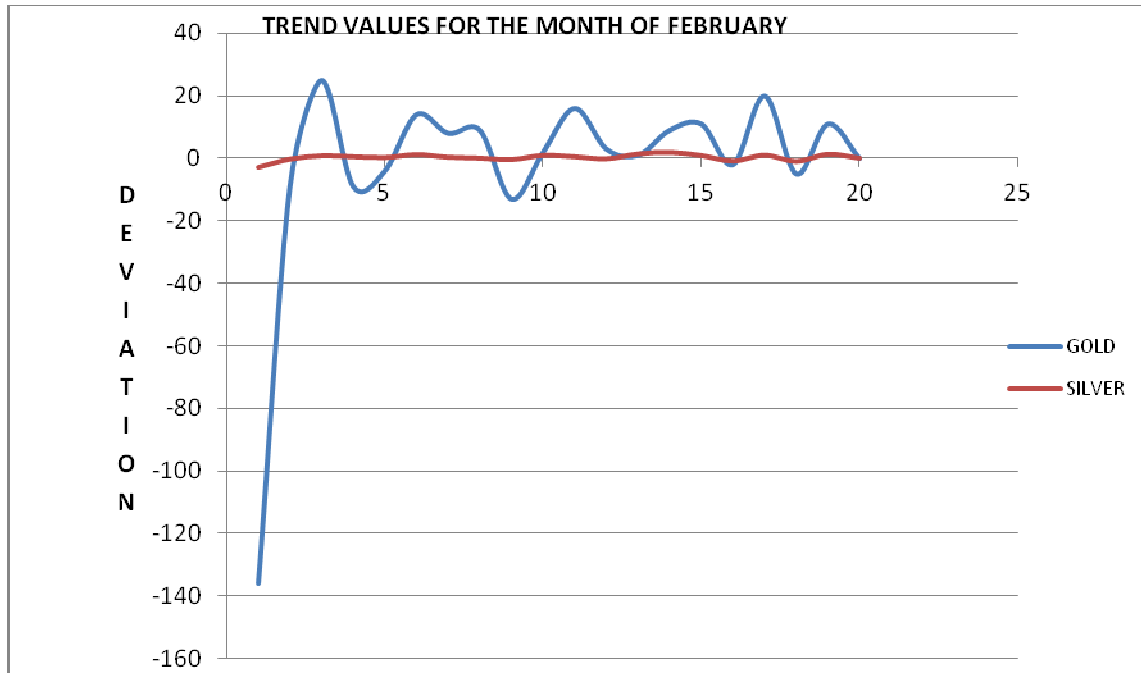
The gold & silver with the value of 0.943831 and shows that there is positive relationship between them because silver is the by-product of gold. The silver & nifty has negative relationship because the value decreases with -0.63036. The gold & nifty also shows negative relationship with -0.56015 where it's value is less than one.

TABLE NO.3: TREND ANALYSIS FOR THE MONTH OF FEBRUARY - 2011

Days	Gold	Deviation	Silver	Deviation
1/2/11	2000	-136	50	-2.90
2/2/11	1,864	-9.0	47.10	-0.30
3/2/11	1,855	25.0	46.80	0.75
4/2/11	1,880	-9.0	47.55	0.45
7/2/11	1,871	-4.0	48.00	0.20
8/2/11	1,867	14.0	48.20	1.15
9/2/11	1,881	8.0	49.35	0.30
10/2/11	1,889	9.0	49.65	0
11/2/11	1,898	-13.0	49.65	-0.45
14/2/11	1,885	2.0	49.20	0.90
15/2/11	1,887	16.0	50.10	0.45
16/2/11	1,903	3.0	50.55	-0.20
17/2/11	1,906	1.0	50.35	1.35
18/2/11	1,907	9.0	51.70	1.85
21/2/11	1,916	11.0	53.55	0.85
22/2/11	1,927	-2.0	54.40	-0.90
23/2/11	1,925	20.0	53.50	0.95
24/2/11	1,945	-5.0	54.45	-1.0
25/2/11	1,940	11.0	53.45	1.25
28/2/11	1,951	0	54.70	0
Average		-49.0		4.7

Source: research data

CHART NO.3: TREND ANALYSIS FOR THE MONTH OF FEBRUARY – 2011



INTERPRETATION

The above table shows that, the gold is in decreasing trend with the value of -49 and the silver is in increasing trend with the value of 4.7. This shows that gold price decreases continuously in this month.

TABLE .4: RELATIONSHIP BETWEEN THE GOLD, SILVER AND NIFTY IN THE MONTH OF FEBRUARY – 2011

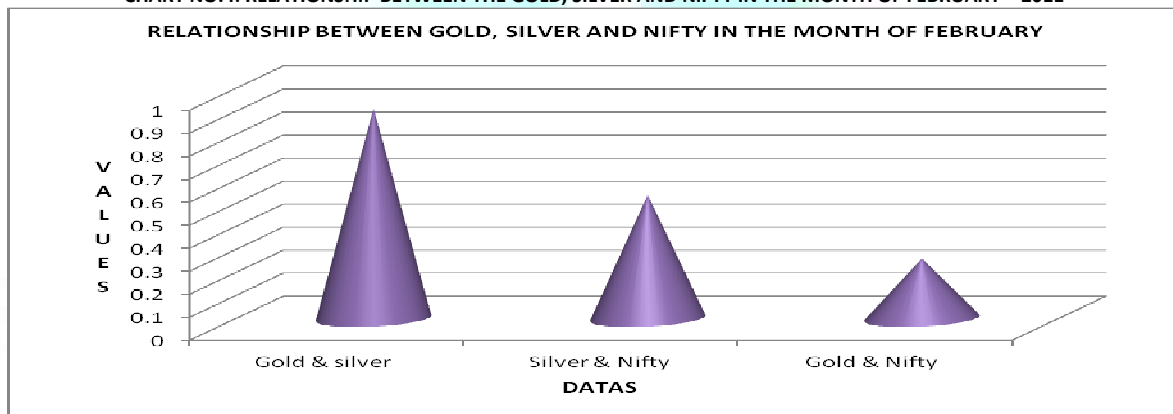
Null hypothesis (H0): There is no relationship between gold, silver and nifty in the month of February.

Alternative hypothesis (H1): There is relationship between gold, silver and nifty in the month of February.

Data	GOLD & SILVER
Gold & silver	0.9101
Silver & Nifty	0.5355
Gold & Nifty	0.2597

Source: research data

CHART NO.4: RELATIONSHIP BETWEEN THE GOLD, SILVER AND NIFTY IN THE MONTH OF FEBRUARY – 2011



INTERPRETATION

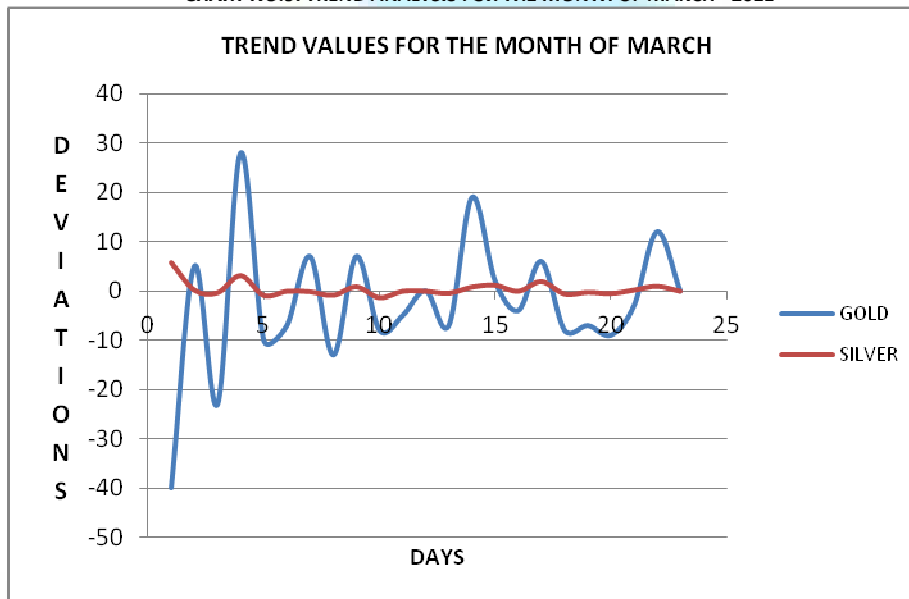
The gold & silver with the value of 0.9101 and shows that there is positive relationship between them because silver is the by-product of gold. The silver & nifty and gold & nifty has strong relationship because with the value of 0.5355 & 0.2597 respectively. This table shows that there is strong relationship between the gold, silver and nifty.

TABLE NO.5: TREND ANALYSIS FOR THE MONTH OF MARCH - 2011

Days	Gold	Deviation	Silver	Deviation
1/3/11	2000	-40.0	50	5.75
2/3/11	1,960	5.0	55.75	0.25
3/3/11	1,965	-23.0	56.00	-0.30
4/3/11	1,942	28.0	55.70	3.15
7/3/11	1,970	-10.0	58.85	-0.85
8/3/11	1,960	-7.0	58.00	0
9/3/11	1,953	7.0	58.00	-0.10
10/3/11	1,960	-13.0	57.90	-0.80
11/3/11	1,947	7.0	57.10	0.90
14/3/11	1,954	-8.0	58.00	-1.30
15/3/11	1,946	-5.0	56.70	0
16/3/11	1,941	0	56.70	0
17/3/11	1,941	-7.0	56.70	-0.40
18/3/11	1,934	19.0	56.30	0.85
21/3/11	1,953	2.0	57.15	1.20
22/3/11	1,955	-4.0	58.35	0
23/3/11	1,951	6.0	58.35	1.95
24/3/11	1,957	-8.0	60.30	-0.55
25/3/11	1,949	-7.0	59.75	-0.20
28/3/11	1,942	-9.0	59.55	-0.45
29/3/11	1,933	-3.0	59.10	0.25
30/3/11	1,930	12.0	59.35	1.0
31/3/11	1,942	0	60.35	0
Average		-58.0		10.35

Source: research data

CHART NO.5: TREND ANALYSIS FOR THE MONTH OF MARCH - 2011



INTERPRETATION

The above table shows that the gold prices is in decreasing trend with the values of-58.0. The silver prices increased by 10.35. The gold price decreases when the silver price increases in its value continuously.TABLE .6

RELATIONSHIP BETWEEN THE GOLD, SILVER AND NIFTY IN THE MONTH OF MARCH 2011

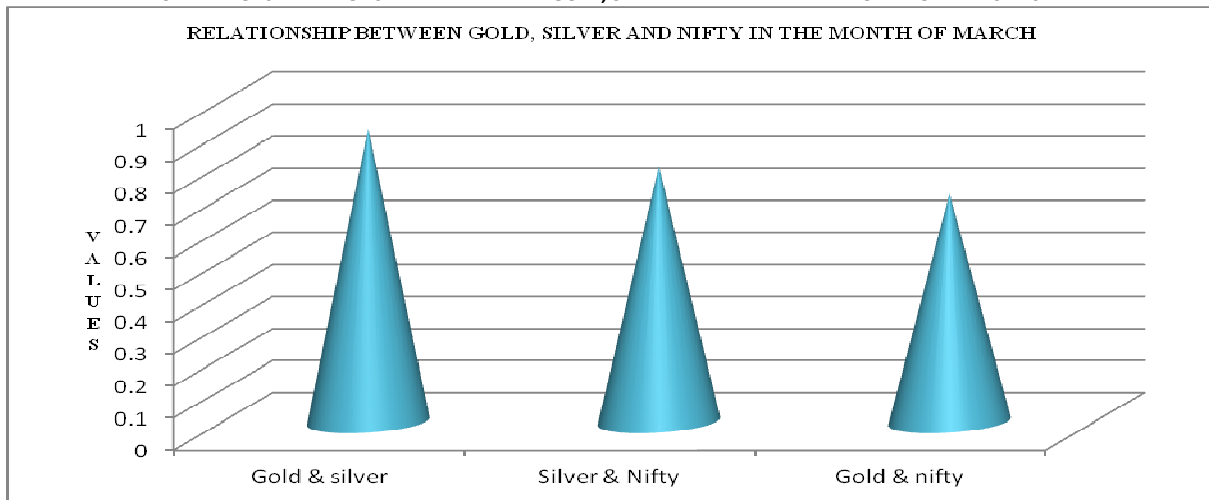
Null hypothesis (H0): There is no relationship between gold, silver and nifty in the month of March.

Alternative hypothesis (H1): There is relationship between gold, silver and nifty in the month of March.

Data	GOLD & SILVER
Gold & silver	0.9131
Silver & Nifty	0.7953
Gold & nifty	0.7106

Source: research data

CHART NO. 6: RELATIONSHIP BETWEEN THE GOLD, SILVER AND NIFTY IN THE MONTH OF MARCH 2011



INTERPRETATION

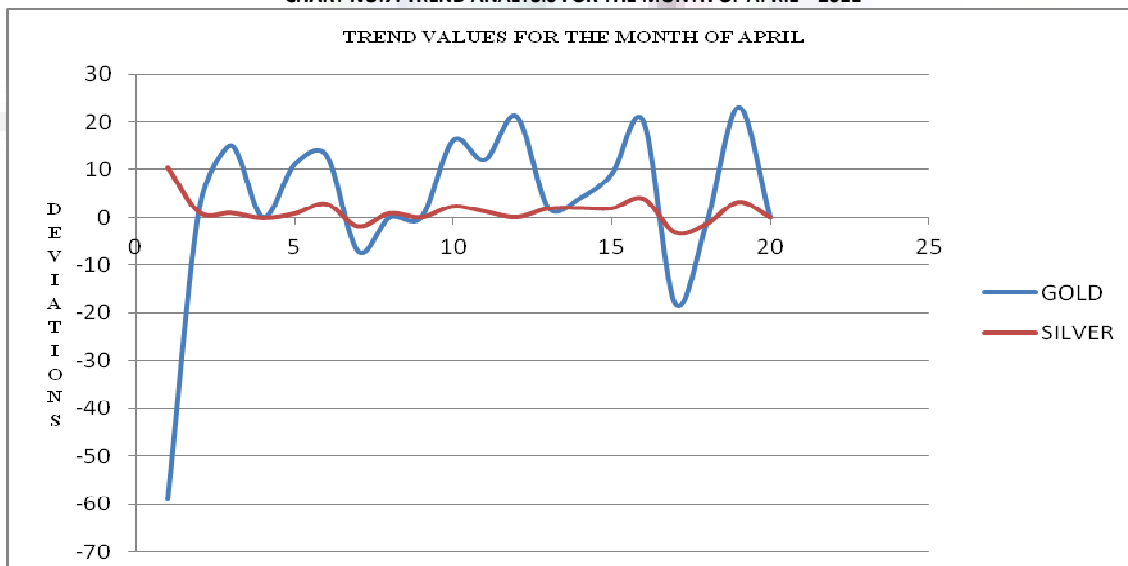
The gold & silver with the value of 0.9131 and shows that there is positive relationship between them because silver is the by-product of gold. The silver & nifty and gold & nifty has strong relationship because with the value of 0.7953 & 0.7106 respectively. This table shows that there is strong relationship between the gold, silver and nifty.

TABLE NO.7: TREND ANALYSIS FOR THE MONTH OF APRIL - 2011

Days	Gold	Deviation	Silver	Deviation
1/04/11	2,000	-59.0	50	10.50
4/04/11	1,941	2.0	60.50	1.00
5/04/11	1,943	15.0	61.50	0.90
6/04/11	1,958	0	62.40	-0.15
7/04/11	1,958	11.0	62.25	0.75
8/04/11	1,969	13.0	63.00	2.80
11/04/11	1,982	-7.0	65.80	-1.90
12/04/11	1,975	0	63.90	0.80
13/04/11	1,975	0	64.70	0
14/04/11	1,975	16.0	64.70	2.30
15/04/11	1,991	12.0	67.00	1.20
18/04/11	2,003	21.0	68.20	0.05
19/04/11	2,024	2.0	68.25	1.85
20/04/11	2,026	4.0	70.10	2.0
21/04/11	2,030	9.0	72.10	1.9
22/04/11	2,039	20.0	74.00	3.9
25/04/11	2,059	-18.0	77.90	-3.20
26/04/11	2,041	-1.0	74.70	-1.35
27/04/11	2,040	23.0	73.35	3.20
28/04/11	2,063	0	76.55	0
Average		63.00		26.55

Source: research data

CHART NO.7: TREND ANALYSIS FOR THE MONTH OF APRIL - 2011



INTERPRETATION

The above table shows that, the gold and silver is in increasing trend with the values of 63.00 and 26.55 respectively. This shows that gold and silver price increases continuously in this month.

TABLE .8: RELATIONSHIP BETWEEN THE GOLD, SILVER AND NIFTY IN THE MONTH OF APRIL – 2011

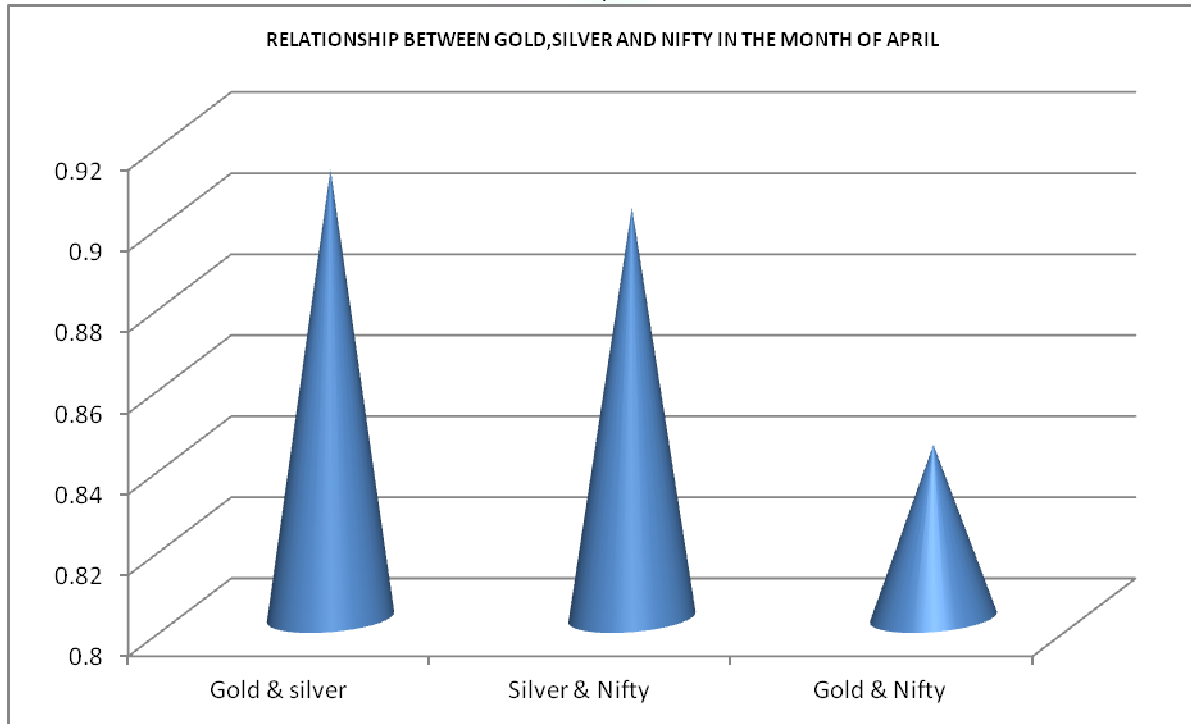
Null hypothesis (H0): There is no relationship between gold, silver and nifty in the month of October.

Alternative hypothesis (H1): There is relationship between gold, silver and nifty in the month of October.

Data	GOLD & SILVER
Gold & silver	0.9106
Silver & Nifty	0.9012
Gold & Nifty	0.8426

Source: research data

CHART NO. 8: RELATIONSHIP BETWEEN THE GOLD, SILVER AND NIFTY IN THE MONTH OF APR - 2011



INTERPRETATION

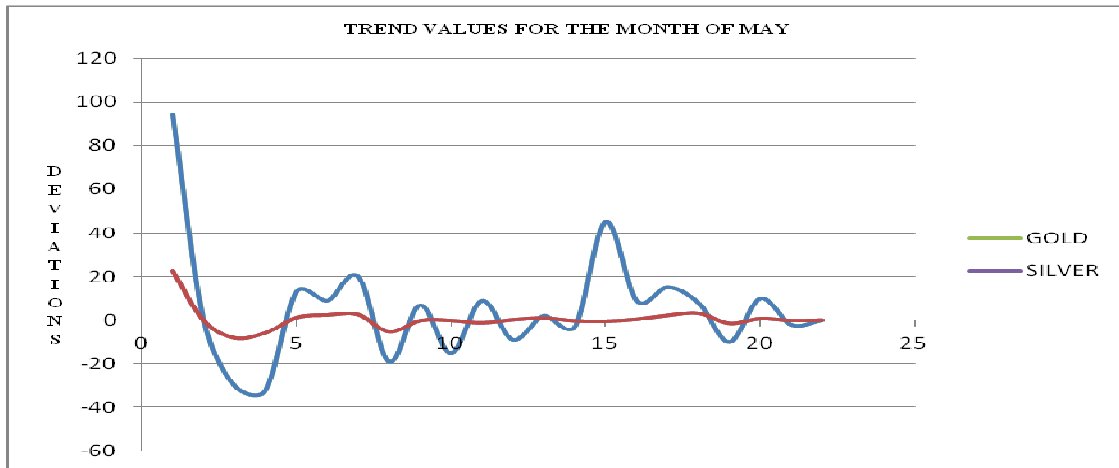
The gold & silver with the value of 0.9106 and shows that there is positive relationship between them because silver is the by-product of gold. The silver & nifty and gold & nifty has strong relationship because with the value of 0.9012 & 0.8426 respectively. This table shows that there is strong relationship between the gold, silver and nifty.

TABLE NO.9: TREND ANALYSIS FOR THE MONTH OF MAY – 2011

Days	Gold	Deviation	Silver	Deviation
2/05/11	2,000	94.0	50	22.40
3/05/11	2,094	0	72.40	-0.10
4/05/11	2,094	-30.0	72.30	-8.15
5/05/11	2,064	-32.0	64.15	-5.80
6/05/11	2,032	13.0	58.35	1.10
9/05/11	2,045	9.0	59.45	2.25
10/05/11	2,054	20.0	61.70	2.45
11/05/11	2,074	-19.0	64.15	-5.25
12/05/11	2,055	7.0	58.90	-0.20
13/05/11	2,062	-15.0	57.80	-0.15
16/05/11	2,047	9.0	57.65	-1.20
17/05/11	2,056	-9.0	56.45	0.20
18/05/11	2,047	2.0	56.65	0.90
19/05/11	2,049	-3.0	57.55	-0.30
20/05/11	2,046	45.0	57.25	-0.45
23/05/11	2,091	9.0	56.80	0.40
24/05/11	2,100	15.0	57.20	2.10
25/05/11	2,115	8.0	59.30	3.05
26/05/11	2,123	-10.0	62.35	-1.40
27/05/11	2,113	10.0	60.95	0.65
30/05/11	2,123	-2.0	61.60	-0.15
31/05/11	2,121	0	61.45	0
Average		121.00		12.8

Source: research data

CHART NO.9: TREND ANALYSIS FOR THE MONTH OF MAY -2011



INTREPRETATION

The above table shows that the gold and silver prices are increasing with 121.00 and 12.8 respectively. There is an direct relationship between gold & silver prices.

TABLE 10: RELATIONSHIP BETWEEN THE GOLD, SILVER AND NIFTY IN THE MONTH OF MAY – 2011

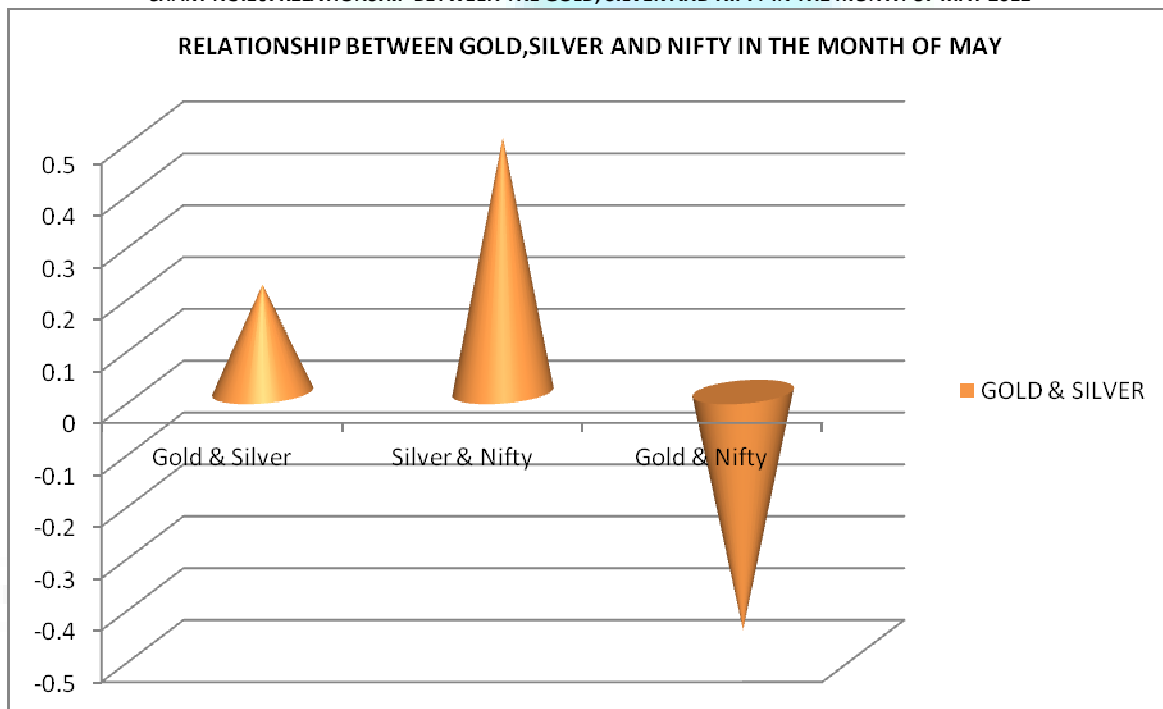
Null hypothesis (H0): There is no relationship between gold, silver and nifty in the month of November.

Alternative hypothesis (H1): There is relationship between gold, silver and nifty in the month of November.

Data	GOLD & SILVER
Gold & Silver	0.2075
Silver & Nifty	0.4914
Gold & Nifty	-0.4587

Source: research data

CHART NO.10: RELATIONSHIP BETWEEN THE GOLD, SILVER AND NIFTY IN THE MONTH OF MAY 2011



INTERPRETATION

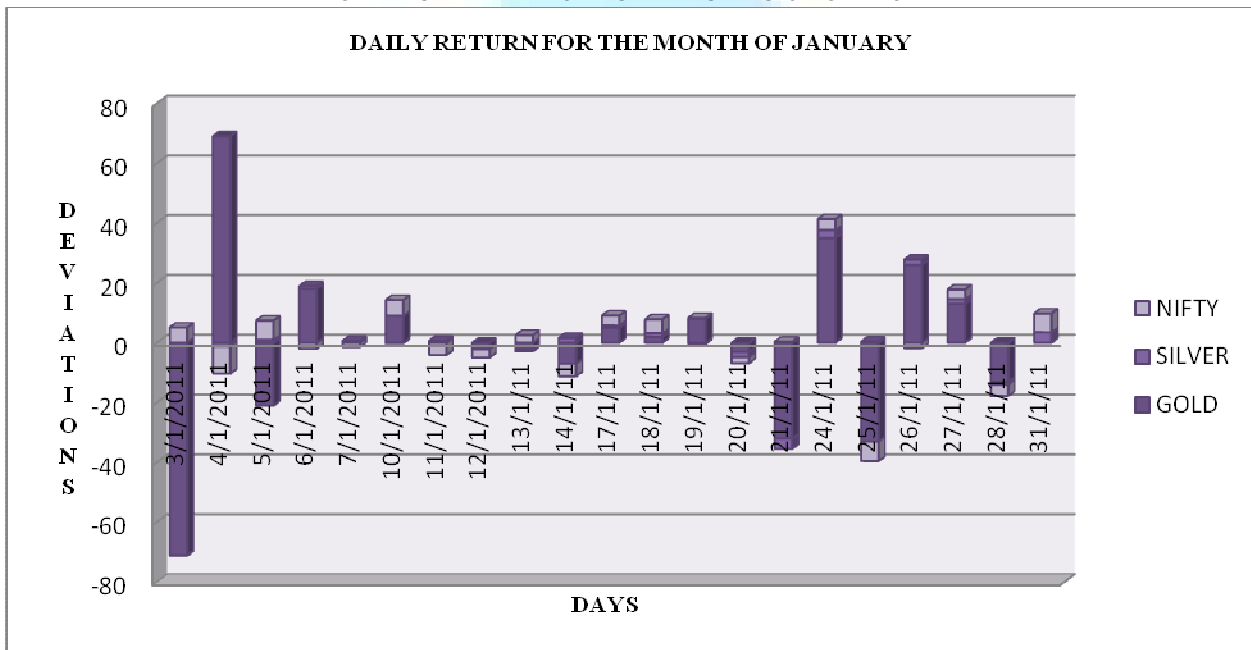
The gold & silver with the value of 0.9106 and shows that there is positive relationship between them because silver is the by-product of gold. The silver & nifty has strong relationship because with the value of 0.9012. The gold & nifty has negative relationship with the value of -0.4587 where it's less than one.

TABLE NO.11: DAILY RETURN FOR THE MONTH OF JAN – 2011

Days	Gold return	Deviation	Silver return	Deviation	Nifty return	Deviation
3/1/11	0	-71	0	-0.2	0	5.045
4/1/11	-71	69.0	-0.2	-1.15	5.045	-9.139
5/1/11	-2.0	-21.0	-1.35	0.95	-4.094	6.392
6/1/11	-23	18.0	-0.4	0.90	2.298	-1.95
7/1/11	-5	0	-0.45	0.60	0.348	-1.376
10/1/11	-5	9.0	0.15	-0.15	-1.028	5.253
11/1/11	4.00	-1.0	0	0.6	4.225	-4.103
12/1/11	3.00	-2.0	0.6	-0.1	0.122	-2.841
13/1/11	1.00	-2.0	-0.1	-0.8	-2.719	2.49
14/1/11	-1.00	-7.0	-0.8	1.6	-0.229	-4.192
17/1/11	-8.00	5.0	0.8	0.75	-4.421	3.272
18/1/11	-3.00	2.0	-0.05	1.2	-1.149	4.568
19/1/11	-1.00	8.0	1.15	-0.30	3.419	0.256
20/1/11	7.00	-3.0	-0.35	-1.80	3.675	-2.032
21/1/11	4.00	-32.0	-2.0	-3.45	1.643	0.294
24/1/11	-28.00	35.0	0.65	2.65	1.937	3.645
25/1/11	7.00	-33.0	-1.65	0.35	5.582	-6.548
26/1/11	-26.00	26.0	-0.2	1.80	-0.966	-1.778
27/1/11	0	13.0	1.35	1.55	-2.744	3.213
28/1/11	13.00	-13.0	-1.2	-1.0	0.469	-3.752
31/1/11	0	0	2.30	3.50	-3.283	6.235
Average		-3.00		7.5		0.449

Source: research data

CHART NO.11: DAILY RETURN FOR THE MONTH OF JANUARY-2011



INTERPRETATION

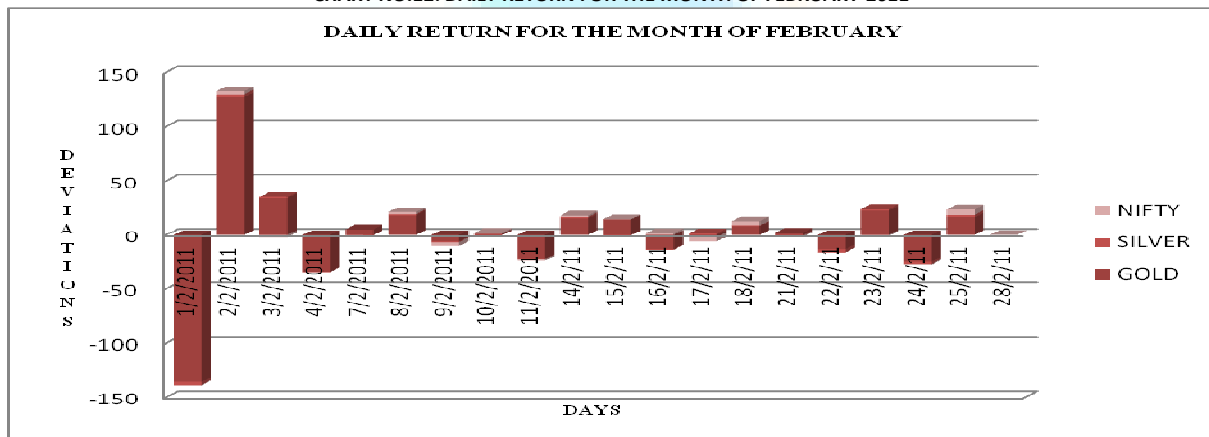
The above table shows that the silver and nifty price is in increasing return with the values of 7.5 and 0.449 respectively and gold decreases by -3.00. This shows that nifty and silver price increases and the gold price decreases continuously in this month.

TABLE NO.12: DAILY RETURN FOR THE MONTH OF FEBRUARY – 2011

Days	Gold return	Deviation	Silver return	Deviation	Nifty return	Deviation
1/2/11	0	-136	0	-2.90	0	-0.412
2/2/11	-136	127.0	-2.90	2.60	-0.412	2.857
3/2/11	-9.0	34.0	-0.30	1.05	2.445	-2.119
4/2/11	25.0	-34	0.75	-0.30	0.326	-0.187
7/2/11	-9.0	5.0	0.45	-0.25	0.139	-0.014
8/2/11	-4.0	18.0	0.20	0.95	0.125	1.881
9/2/11	14.0	-6.0	1.15	-0.85	2.006	-3.48
10/2/11	8.0	1.0	0.30	-0.30	-1.474	0.975
11/2/11	9.0	-22.0	0	-0.45	-0.499	-1.682
14/2/11	-13.0	15.0	-0.45	1.35	-2.181	1.332
15/2/11	2.0	14	0.90	-0.45	-0.849	0.285
16/2/11	16.0	-13.0	0.45	-0.65	-0.564	1.651
17/2/11	3.0	-2.0	-0.20	1.55	1.087	-4.074
18/2/11	1.0	8.0	1.35	0.50	-2.987	4.004
21/2/11	9.0	2.0	1.85	-1.00	1.017	-0.835
22/2/11	11.0	-13.0	0.85	-2.75	0.182	-0.133
23/2/11	-2.0	22.0	-0.90	1.85	0.049	-1.095
24/2/11	20.0	-25.0	0.95	-1.95	-1.046	-0.773
25/2/11	-5.0	16.0	-1.0	2.25	-1.819	5.283
28/2/11	11.0	0	1.25	0	3.464	0
Average		11.0		0.25		3.464

Source: research data

CHART NO.12: DAILY RETURN FOR THE MONTH OF FEBRUARY-2011



INTERPRETATION

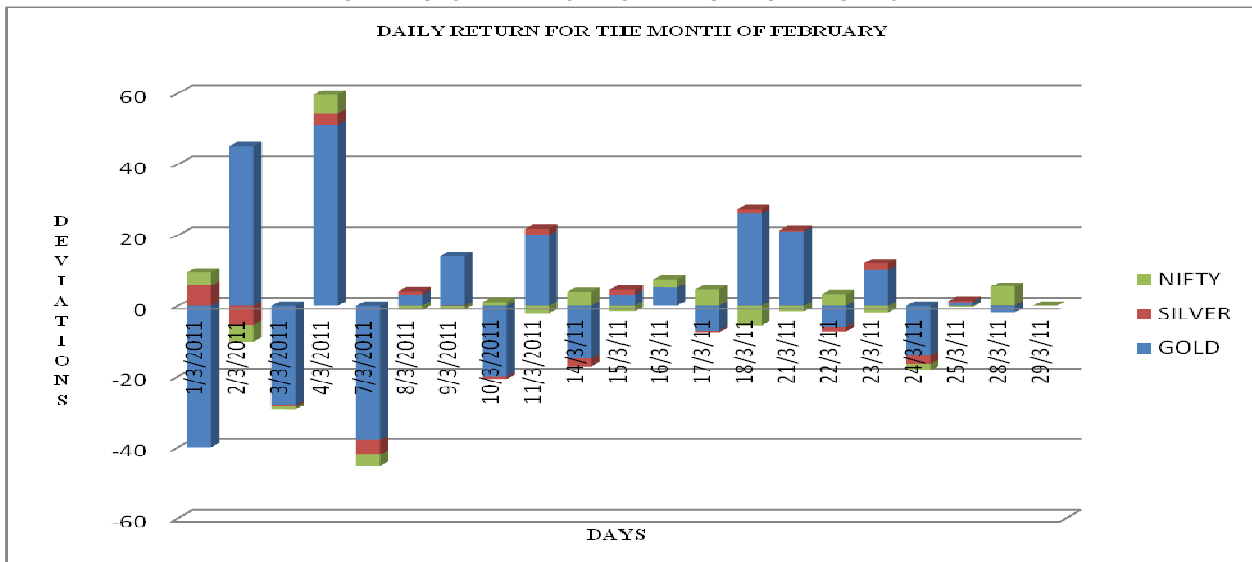
The above table shows that the nifty, gold and silver prices have positive return with 3.464, 11.0 and 0.25 respectively. This shows that nifty, gold and silver is increasing continuously in this month.

TABLE NO.13: DAILY RETURN FOR THE MONTH OF MARCH - 2011

Days	Gold return	Deviation	Silver return	Deviation	Nifty return	Deviation
1/3/11	0	-40.0	0	5.75	0	3.572
2/3/11	-40.0	45.0	5.75	-5.5	3.572	-4.82
3/3/11	5.0	-28.0	0.25	-0.55	-1.248	-0.898
4/3/11	-23.0	51.0	-0.30	3.45	-2.146	5.132
7/3/11	28.0	-38.0	3.15	-4.0	2.986	-3.289
8/3/11	-10.0	3.0	-0.85	0.85	-0.303	-1.228
9/3/11	-7.0	14.0	0	-0.10	-1.531	-0.967
10/3/11	7.0	-20.0	-0.10	-0.70	-2.498	1.057
11/3/11	-13.0	20.0	-0.80	1.70	-1.441	-2.237
14/3/11	7.0	-15.0	0.90	-2.20	-3.678	3.727
15/3/11	-8.0	3.0	-1.30	1.30	0.049	-1.684
16/3/11	-5.0	5.0	0	0	-1.635	2.38
17/3/11	0	-7.0	0	-0.40	0.745	4.383
18/3/11	-7.0	26.0	-0.40	1.25	5.128	-5.65
21/3/11	19.0	21.0	0.85	0.35	-0.522	-1.754
22/3/11	2.0	-6.0	1.20	-1.20	-2.276	3.108
23/3/11	-4.0	10.0	0	1.95	0.832	-2.05
24/3/11	6.0	-14.0	1.95	-2.50	-1.218	-1.83
25/3/11	-8.0	1.0	-0.55	0.35	-3.048	-0.344
28/3/11	-7.0	-2.0	-0.20	0.10	-3.392	5.24
29/3/11	-9.0	0	-0.45	0	1.848	0
Average		29.0		-0.10		1.848

Source: research data

CHART NO.13: DAILY RETURN FOR THE MONTH OF MARCH - 2011



INTERPRETATION

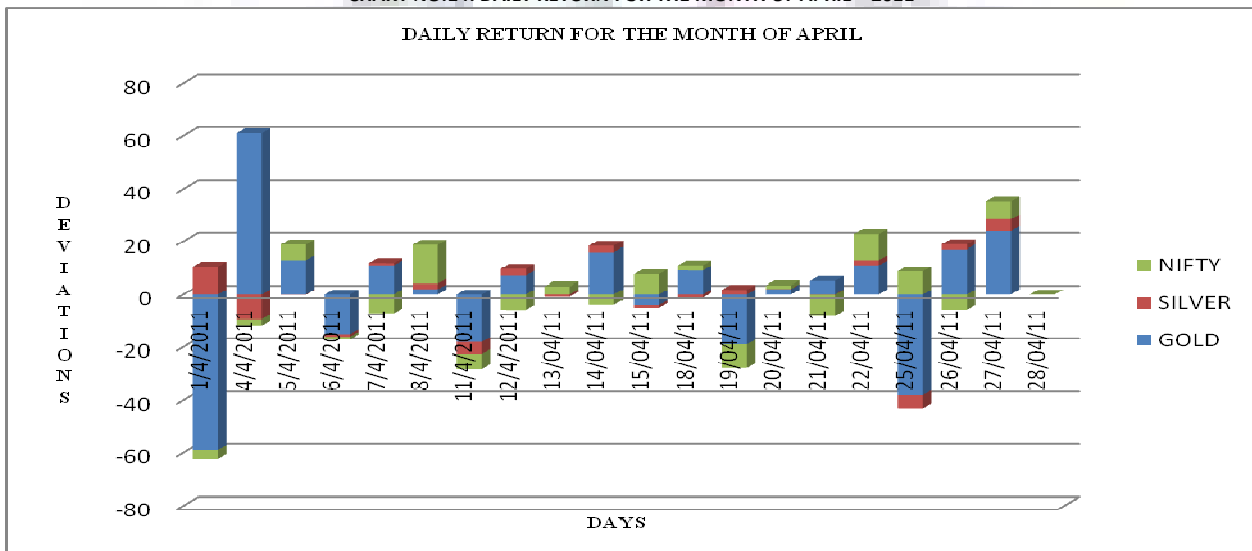
The above table shows that the nifty and gold prices have a favorable return with 1.848 and 29.0 but the silver price shows the unfavorable return with -0.10. The silver prices are negative when it is compared to the gold and nifty.

TABLE NO.14: DAILY RETURN FOR THE MONTH OF APRIL - 2011

Days	Gold return	Deviation	Silver return	Deviation	Nifty return	Deviation
1/04/11	0	-59.0	0	10.50	0	-3.352
4/04/11	-59.0	61.0	10.50	-9.50	-3.352	-2.303
5/04/11	2.0	13.0	1.00	-0.10	-5.655	5.773
6/04/11	15.0	-15.0	0.90	-1.05	0.118	-1.032
7/04/11	0	11.0	-0.15	0.90	-0.914	-7.304
8/04/11	11.0	2.0	0.75	2.05	-8.218	14.643
11/04/11	13.0	-18.0	2.80	-4.70	6.425	-5.624
12/04/11	-7.0	7.0	-1.90	2.70	0.801	-5.924
13/04/11	0	0	0.80	-0.80	-5.123	3.054
14/04/11	0	16.0	0	2.30	-2.069	-3.894
15/04/11	16.0	-4.0	2.30	-1.10	-5.963	7.539
18/04/11	12.0	9.0	1.20	-1.15	1.576	2.013
19/04/11	21.0	-19	0.05	1.80	3.589	-8.836
20/04/11	2.0	2.0	1.85	0.15	-5.247	1.267
21/04/11	4.0	5.0	2.0	-0.10	-3.980	-8.188
22/04/11	9.0	11.0	1.9	2.0	-12.168	9.816
25/04/11	20.0	-38.0	3.9	-5.1	-2.352	8.682
26/04/11	-18.0	17.0	-3.20	1.85	6.330	-5.844
27/04/11	-1.0	24.0	-1.35	4.55	0.486	6.505
28/04/11	23.0	0	3.20	0	6.991	0
Average		25.0		4.03		6.991

Source: research data

CHART NO.14: DAILY RETURN FOR THE MONTH OF APRIL - 2011



INTERPRETATION

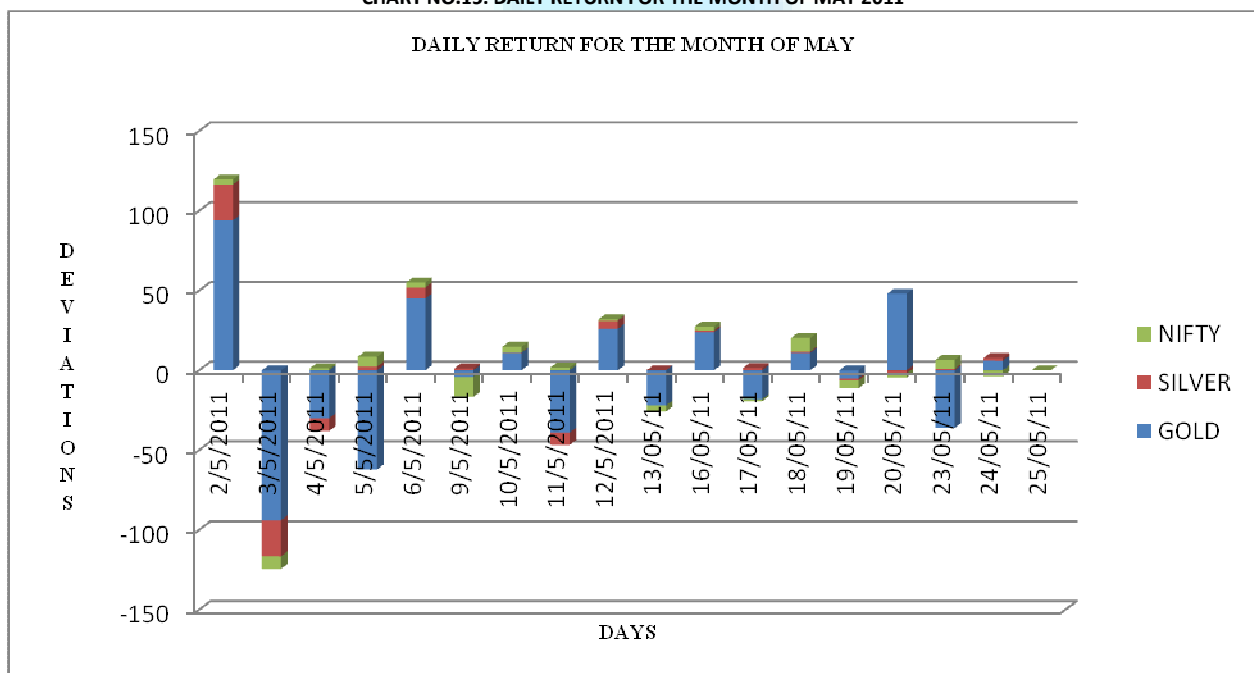
The above table shows that the gold, silver and nifty have a favorable return with 6.991, 25.0 and 4.03. So Gold, Silver and Nifty has a positive return.

TABLE NO.15: DAILY RETURN FOR THE MONTH OF MAY 2011

Days	Gold return	Deviation	Silver return	Deviation	Nifty return	Deviation
2/05/11	0	94	0	22.40	0	3.227
3/05/11	94.0	-94.0	22.40	-22.50	3.227	-7.91
4/05/11	0	-30.0	-0.10	-8.05	-4.683	1.247
5/05/11	-30.0	-62.0	-8.15	2.35	-3.436	6.235
6/05/11	-32.0	45.0	-5.80	6.90	2.799	3.096
9/05/11	13.0	-4.0	1.10	1.15	5.895	-12.553
10/05/11	9.0	11.0	2.25	0.20	-6.658	3.589
11/05/11	20.0	-39	2.45	-7.70	-3.069	1.732
12/05/11	-19.0	26.0	-5.25	5.05	-1.337	0.953
13/05/11	7.0	-22.0	-0.20	0.05	-0.384	-3.773
16/05/11	-15.0	24.0	-0.15	1.05	-4.157	2.363
17/05/11	9.0	-18.0	-1.20	1.40	-1.794	-1.312
18/05/11	-9.0	11.0	0.20	0.70	-3.106	8.601
19/05/11	2.0	-5.0	0.90	-1.20	5.495	-4.946
20/05/11	-3.0	48.0	-0.30	-1.95	0.549	-2.552
23/05/11	45.0	-36.0	-0.45	0.85	-2.003	5.705
24/05/11	9.0	6.0	0.40	1.70	3.702	-3.599
25/05/11	15.0	0	2.10	0	0.103	0
Average		-45.0		2.40		0.103

Source: research data

CHART NO.15: DAILY RETURN FOR THE MONTH OF MAY 2011



INTERPRETATION

The above table shows that the nifty and silver have a favorable return with 0.103 and 2.40. But the gold price shows the unfavorable return with -45.0. The gold price is negative when it is compared to the nifty and Silver.

TABLE NO.16: RISK FOR GOLD, SILVER AND NIFTY

Months	Risk		
	Gold	Silver	Nifty
January	1.376	1.924	2.862
February	1.650	3.495	1.557
March	2.493	5.483	2.334
April	3.150	4.074	5.025
May	2.283	3.145	3.568

SOURCE: RESEARCH DATA

INTERPRETATION

The standard deviation of Silver is found to be highest in the month of March and Nifty in the month of April.

The highest standard deviation (Risk) is found to be 5.483.

The evaluation based on Sharpe ratio shows that the risk-adjusted performance of gold, silver and nifty is very low with high risk. Gold ranks first in the month of January. Next to that silver and nifty in the month of February has a good return. The performance of other months has normal risk and returns.

CHART NO. 16: RISK FOR GOLD, SILVER AND NIFTY

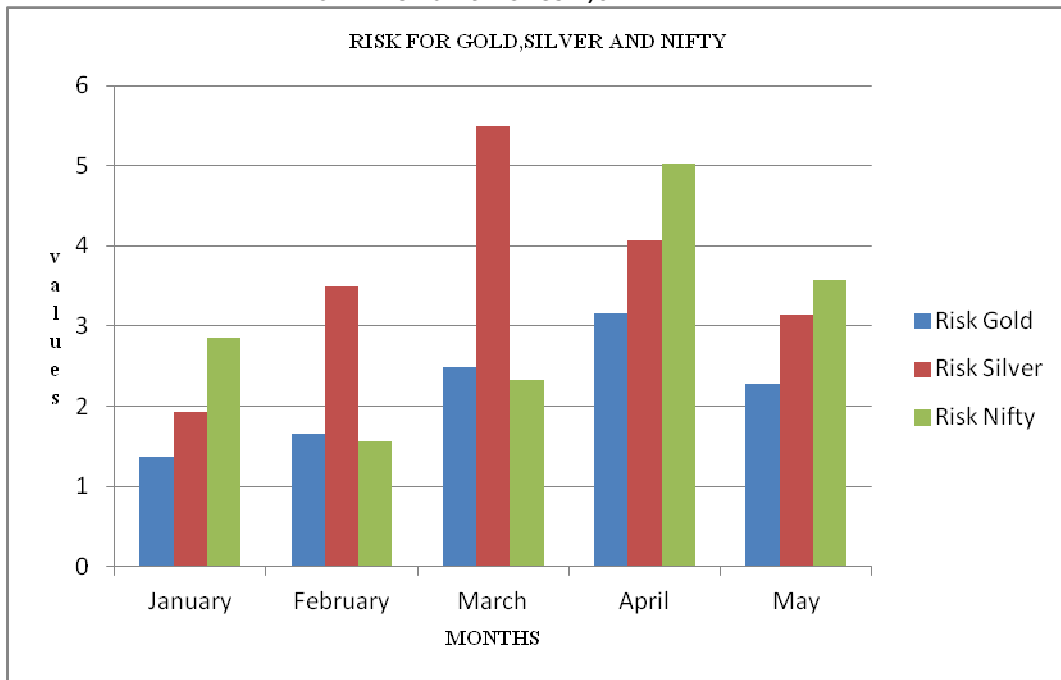


TABLE NO.17: SHARPE RATIO FOR GOLD, SILVER AND NIFTY

Months	Sharpe ratio			RANKING		
	Gold	Silver	Nifty	Gold	Silver	Nifty
January	-4.419	-3.118	-1.921	1	1	3
February	-3.368	-2.048	-3.886	2	2	1
March	-2.228	-1.111	-2.770	5	5	2
April	-2.181	-1.794	-1.479	6	4	5
May	-2.366	-1.881	-1.819	4	3	4

Source: research data

INTERPRETATION

The evaluation based on Sharpe ratio shows that the risk-adjusted performance of gold, silver and nifty is very low with high risk. Gold ranks first in the month of January. Next to that silver, nifty has a good return in the month of February. The performance of other months has normal risk and returns.

CHART NO.17: SHARPE RATIO FOR GOLD, SILVER AND NIFTY

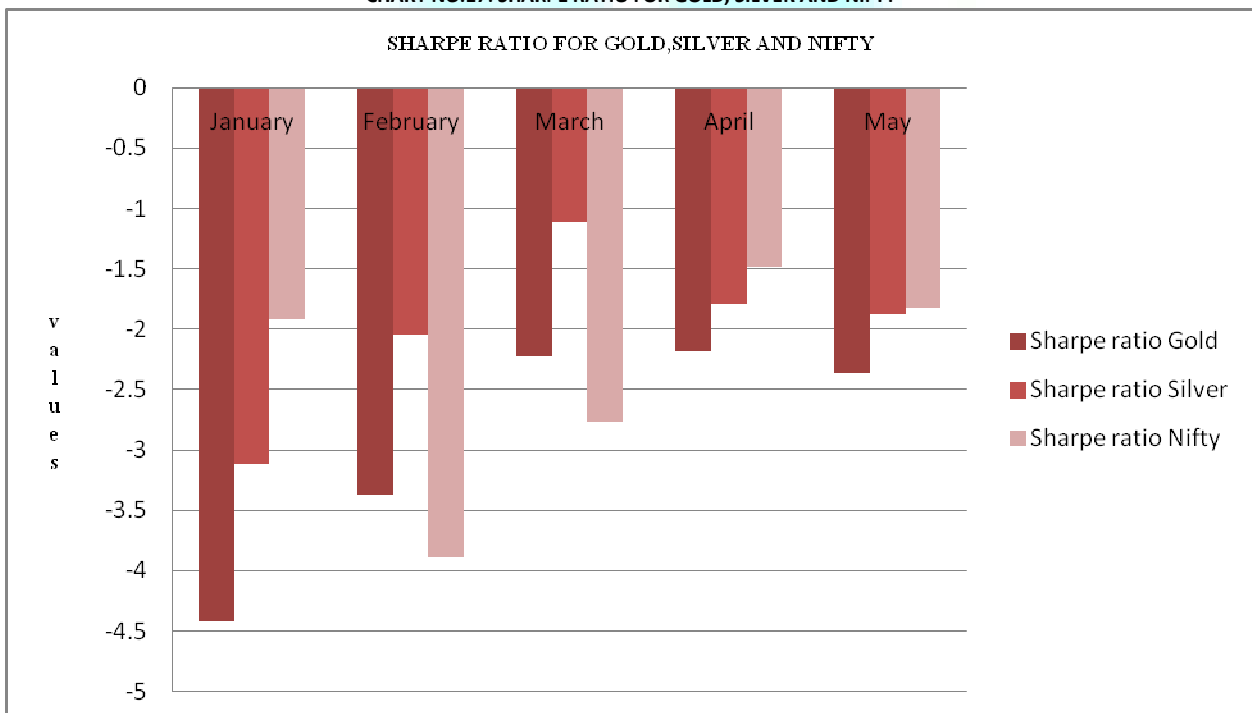


TABLE NO.18: BETA FOR GOLD, SILVER AND NIFTY

Months	Beta		
	Gold	Silver	Nifty
January	-0.022	-0.00059	0.291
February	0.022	0.002	0.281
March	-0.038	-1.69	0.0010
April	0.043	0.0007	0.328
May	-0.027	-0.027	0.262

Source: research data

INTERPRETATION

The evaluation based on Beta shows that the risk-adjusted performance of gold, silver and nifty is moderate high with low risk. Nifty shows good return in the month of April. The performance of gold and silver other months has normal risk and returns.

CHART NO.18: BETA FOR GOLD, SILVER AND NIFTY

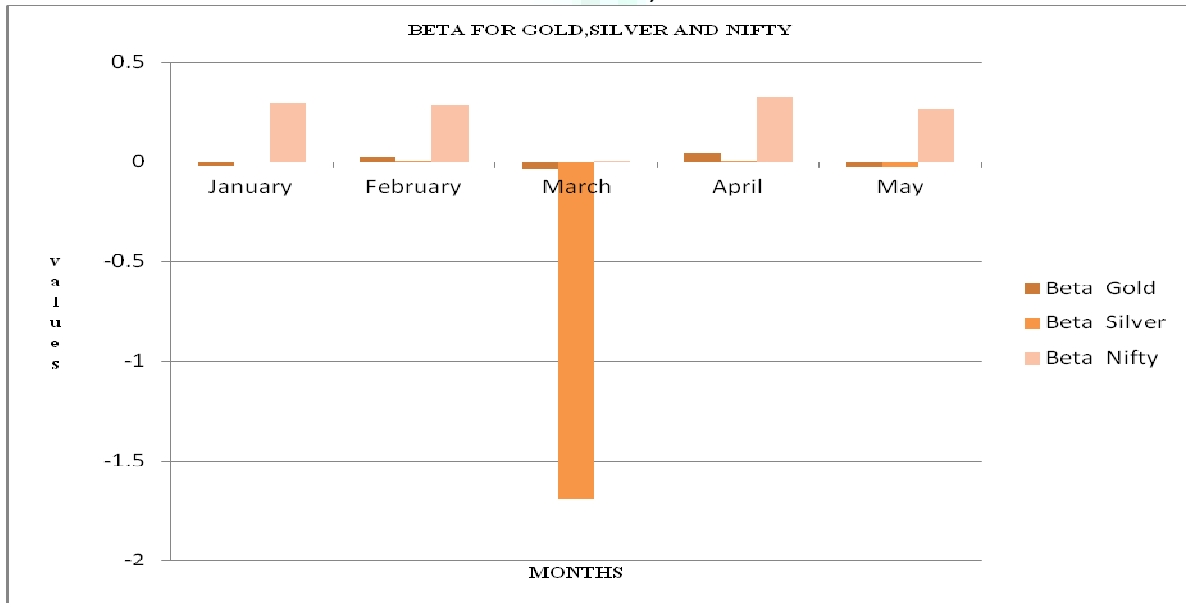


TABLE NO.19: TREYNOR RATIO FOR GOLD, SILVER AND NIFTY

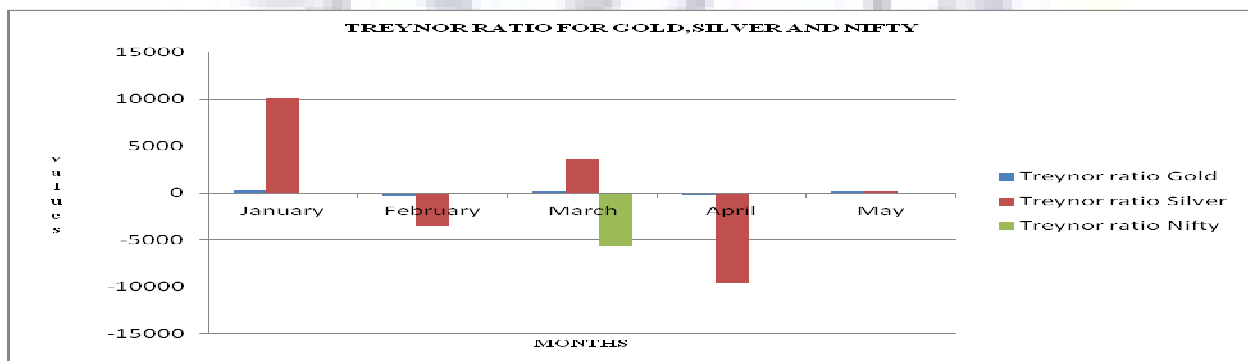
Months	Treydnor ratio			RANKING		
	Gold	Silver	Nifty	Gold	Silver	Nifty
January	276.08	10172.88	-18.83	1	1	1
February	-285.91	-3536.98	-21.54	3	4	3
March	145.77	3596	-5601.7	5	2	5
April	-159.89	-9604.34	-22.67	4	5	4
May	202.98	222.32	-21.02	2	3	2

Source: research data

INTERPRETATION

The evaluation based on the Treynor's ratio shows a negative performance in all the months in gold, silver and nifty. From this gold and nifty show lowest risk level and has the highest returns. The lowest performance is seen in the silver. It has the highest risk rate.

CHART NO.19: TREYNOR RATIO FOR GOLD, SILVER AND NIFTY



FINDINGS

- The gold & silver with the value of 0.943831 and shows that there is positive relationship between them because silver is the by-product of gold.
- In the month of January, February, April and May there is strong relationship between gold, silver and nifty.
- There is a negative relationship in the month of January.
- Gold shows increasing trend in most of the months and silver & nifty shows decreasing trend.

- The standard deviation of the Silver is found to be highest in the month of March and Nifty in April.
- The highest standard deviation (Risk) is found to be 5.483.
- The evaluation based on Sharpe ratio shows that the risk-adjusted performance of gold, silver and nifty is very low with high risk. Gold ranked first in the month of January.
- Silver and nifty has good return in the month of February has a good return. The performance of other months has normal risk and returns.
- The evaluation based on the Treynor's ratio shows a negative performance in all the months in gold, silver and nifty. From this gold and nifty show lowest risk level and has the highest returns.
- The highest deviation in returns in the month of January in gold, silver and nifty is 6.117, 9.841 and -5.643.

SUGGESTIONS

For the successful investment, the investor should focus on the following

- Investor understands the basic elements of commodities market investing and their fund affect on the potential value of the investments over the years.
- Investors fix their objectives; should fix their risk level and have to assess the risk associated with the different funds; this would help to select the fund that meets their needs.
- Investors know about the past performance of the various funds.
- Investors consider the tax implications.
- As the stock market have direct impact on Mutual Funds, knowledge of share market activities and share price movement is important to effectively manage the investments.
- In the field of management, dynamism and well-timed decisions are a must. A delayed decision even for a day reduces the returns for the fund and may increase the cost
- The investors carefully manage and plan the amount which they will be investing in the market.

CONCLUSION

From the investor's point of view, it is always important to look at the commodities, which are ranked, as out-performers are able to consistently do so. Every time a ranking is published, it is found that fund appears in varying orders, with no clear consistent winning or losing prices. The past performance is used as an important tool. Investors have to look for consistency, though it is known that new investments flow into top performing funds, based on performance ranking. The quality of the fund managers also plays a vital part in deciding the performance of the commodity.

The stock market staged a smart rally on the strength of attractive valuations, strong economic growth, encouraging corporate results and foreign funds. An investor can succeed in his investments only when he is able to select the right fund. The investor should keenly watch the situations like market price, economy, company progress, returns, and the risk involved in a fund before taking particular decision. There will be direct impact between commodities and stock market relating to economic crisis all over the world.

BIBLIOGRAPHY

- Bhalla V.K."Investment Management", S.Chand &Company Ltd, New Delhi
- Donald E.fisher & Ronald J.Jordan 1995 Sixth Edition," Security analysis and Portfolio management", Prentice-Hall of India, New Delhi,.
- Jack Clark Francis ,1996,Fifth Edition " investment analysis and management", MCGraw- Hil, inc., New York,
- www.bseindia.com
- www.kitco.com
- www.moneycontrol.com
- www.nseindia.com
- www.outlookmoney.com
- www.tcsc.com

TV VIEWING PRACTICES OF INDIAN CHILDREN

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ABSTRACT

Children are exposed to a lot of television these days. It has been seen that they view TV for long hours and view a large number of ads on TV. Huge exposure to TV and ad content is seen to result into many psychological problems in children. More so, many food ads are aired during times when children watch TV or in children's programmes. In this situation, the parents need to be vigilant about what their children watch. Therefore, it is pertinent to note the patterns of TV viewing in Indian children. The present study aims to explore TV habits of Indian children and to explore awareness in parents about the type of food ads aired on programmes that children watch.

KEYWORDS

TV viewing, children, parents, India.

INTRODUCTION

Children across the globe are seen to spend a lot of time watching TV. In India as well, children are seen to be glued to TV sets and are thus exposed to a large number of commercials (George, 2003). Children, now a days, live in a multi-channel, multi-media environment such that there are, a) multiple TV sets in the house, or b) there are several electronic media (for example internet) to which children are exposed. Exposure to media further increases for children as most parents work outside the home these days (and this proportion is rising in India as well) who have lesser time to engage their children. In such a situation, TV acts as an electronic baby sitter for them and other caregivers who then find it easier to manage them when parents are away. Parents also like that their children get tech-savvy and so they let them watch TV without much hesitation. However, excessive TV viewing is seen to be associated with psychological problems in children like aggression, fear, and materialism (Nathanson, 1999; Buijzen and Valkenburg, 2003 and 2005). Children, as they watch TV, are also exposed to a large number of food ads and researchers find that most of the advertised foods are unhealthy (Consumers International, 2004 and 2008; Stitt and Kunkel, 2008). Excessive exposure to ads for these foods on TV is also found to be associated with overweight and obesity in children (Matheson *et al.*, 2004; Barkin *et al.*, 2006). Watching television itself promotes obesity at two levels. Firstly, television viewing promotes snacking (Matheson *et al.*, 2004), and secondly, food commercials aired in between also trigger the desire to take rich food (Barkin *et al.*, 2006). Children are also seen to consume a substantial proportion of their energy while watching television. They have a propensity to eat more of advertised foods which are mostly energy dense than the non-advertised healthy foods. The energy intake is also seen to increase with increase in TV viewing on weekends than on weekdays (Matheson *et al.* 2004).

High levels of TV viewing in children have led to a situation whereby obesity problems have reached alarming levels in the US, UK, and Australia. The European countries are also taking note of exposure of children to ads as they have detrimental effects on children's dietary habits. Television commercials and prime-time programmes have been identified as important influencers on the types of food that children ask their parents to buy for them and also for the food that they buy for themselves. Sweetened breakfast cereals, candy, desserts, low-nutrient beverages, and salty snack foods are the most commonly advertised products to children and are also the items most frequently requested of parents. Food-marketing practices have come under fire for targeting children and are part of the broader social controversy over marketing to children. Much of the controversy focuses on the appropriateness of particular marketing strategies in view of children's vulnerability.

In India also, problems related to exposure to ads and poor dietary habits are being witnessed. This is attributed to certain reasons, one of the main ones being increase in the number of dual-career families. Dual income families, firstly, increase the spending power of families and, secondly, make the parents more time poor. In such situations, parents do not have much option but to succumb to pressures exerted by children (as they nag their parents to buy their favourite products and brands). More so, as parents are not able to devote much time for their child's activities, buying them products is another way of compensating for lack of time devoted to children and keeping them happy. However, parents are primarily responsible for physical and psychological well being of their children. They can only take some actions if they are aware of the media habits of their children and take interest in identifying the nature of foods advertised when their children watch TV. As not much work has already been done in India, the present paper endeavours to uncover media habits of Indian children and compare across younger and older children. It also aims to shed light on the type of foods that parents find mostly advertised.

PREVIOUS RESEARCH

Researchers have explored TV viewing habits of children in various countries. Gortmaker *et al.* (1996) found that an average amount of TV viewing in 1990 was 4.8 hours per day for American children. Nearly one third of the youth watched more than five hours of TV every day. Hardy *et al.* (2006) also found that as children watch TV for more than two hours on an average on weekdays and that it increases on weekends. Scragg, Quigley and Taylor (2006) also reported that children are viewing similarly in New Zealand and that mean hours of TV viewing are increasing. The number of TV sets in a house is also increasing such that children have been found to have their own TV set in their bedroom. There is more than one TV in the house or the children have their own TV set in their bedroom. They were exposed to considerable amounts of TV advertising for food and three out of every four food ads were for unhealthy foods.

Researchers have also found that nearly half of the ads broadcast at times when children watch TV or on children's channels or programs are for foods (Arnas, 2006; Kelly *et al.* 2007; Stitt and Kunkel, 2008). Other studies have also confirmed that large numbers of food ads are aired on TV to target children (Hardy *et al.* 2006). A lot of food ads are advertised during the times when children watch TV. Arnas (2006) study showed that ninety percent children ate or drank while watching TV. Ninety percent of them reported to have a snack, and many of them consumed unhealthy foods such as soft drinks, chocolates, candy and cake. Nearly forty percent of the children also asked their parents to buy advertised foods (mainly sweetened products) and some of them even cried and pestered their parents in the supermarket. Younger children's food behaviour was found to be most affected as it considerably led to unhealthy food consumption in them. The nature of foods consumed is also seen to vary if TV is on during meal times. Coon *et al.* (2001) found that in families where TV was on during two or

more meals, children consumed more energy dense and nutrient poor foods (red meat, processed meats, pizza/salty snacks and soda groups). They ate less of healthy foods like fruits and vegetables and derived less energy from carbohydrates and more from total fat and saturated fat and consumed more caffeine. In a study, Jordan et al. (2006) noted that nearly half of the families surveyed had a TV set in the room designated for eating. A majority of children indicated that they ate snacks and meals in front of TV and a third of families said that they had the television on during mealtime. In a qualitative study of children in Brazil by Fiates et al. (2008), children reported to watch TV at meal times and also eating while watching TV. They voiced that watching TV interfered in the amount of food they ate.

In light of the foregoing review, the present study endeavours to uncover TV viewing practices of Indian children on weekdays and on weekends, timings of watching TV, frequency of food ads found aired during the times when children watch TV and the nature of foods advertised therein.

METHODOLOGY

Data were collected from three cities of Punjab—Amritsar, Jalandhar and Ludhiana and its capital city of Chandigarh during the period November, 2010 to June, 2011. The three cities were chosen to represent the three regions of Punjab—Amritsar (Majha), Jalandhar (Doaba) and Ludhiana (Malwa). The capital city was chosen as it is more cosmopolitan. The mothers were the basic sampling unit for the present study as they are seen to be the primary caregivers for children. Schools were selected (randomly) out of all schools in the city that enrolled students with various socio-economic and cultural backgrounds Parents of children in eight schools (two from each city), were approached through the schools. The children were asked to take the questionnaire home and get it filled by their mother. In case two children were studying in the same school, the mother was requested to fill the questionnaire keeping in mind the child who had brought it. Of the 600 questionnaires that were distributed to children, 509 (84.83%) complete questionnaires were returned. This resulted in a total sample of 509 mothers of children in the age category 5-15 years (51.27% boys).

In the sample, mothers from all educational levels were represented, although most of them were relatively well educated: 40.1% were graduates and 40.7% were post graduates. Monthly family incomes ranged from less than Rupee 30,000 per month (8.9% of the sample) to more than Rupee 40,000 (26.5% of the sample) per month. More than half of the sample of mothers was working (57.4%) and most of them worked for six days in a week, 6-8 hours every day on an average. The children came from diverse set of families: 44% came from extended families (Husband, wife, children and grandparents), 38 % came from nuclear families and 18% hailed from joint families.

Data were collected through a structured, pre-tested, and non-disguised questionnaire. To develop a list of information items for framing the questionnaire, previous literature on attitude of parents towards advertising in general, children’s advertising and food advertising to children was reviewed. Experts in the area were also consulted. Online discussions were also held with other researchers and academicians and current marketing and social environment was considered. The suggestions led to minor but valuable and meaningful modifications. The preliminary draft of the questionnaire was pre-tested through personal interviews with 80 mothers. This helped in improving the questionnaire. With a few deletions and additions, the final questionnaire was developed. Frequencies and percentages, mean scores and t-test have been used to analyze the data using SPSS 17.0 version.

ANALYSIS AND FINDINGS

At the outset, the mothers were asked to specify the number of TV sets they have in the house. Their responses are shown in Table 1.

TABLE 1: NUMBER OF TV SETS IN THE HOUSE

TV sets	Frequency	Percent
1.00	195	38.3
2.00	182	35.8
3.00	89	17.5
4.00	29	5.7
5.00	14	2.8
Total	509	100.0

The table reveals that nearly seventy three percent of respondents have one or two TV sets in their houses. Only a few respondents (2.8%) stated that they had five TV sets in their house.

The mothers were further asked to specify the number of hours their child watched TV during weekdays and on weekends. Their responses are tabulated in Table 2 and Table 3 respectively.

TABLE 2: NUMBER OF HOURS OF TV WATCHING DURING WEEKDAYS

	Overall sample		Young children		Older children	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
0.50	20	3.9	12	4.9	8	3
1.00	147	28.9	58	23.8	89	33.6
1.50	25	4.9	12	4.9	13	4.9
2.00	195	38.3	96	39.3	99	37.4
2.50	6	1.2	3	1.2	3	1.1
3.00	59	11.6	30	12.3	29	10.9
4.00	34	6.7	23	9.4	11	4.2
5.00	11	2.2	4	1.6	7	2.6
6.00	6	1.2	3	1.2	3	1.1
7.00	6	1.2	3	1.2	3	1.1
Total	509	100.0	244	100	265	100

The table shows that children watch TV for one or two hours on weekdays as reported by mothers for 38.3 percent and 28.9 percent children respectively. On cross-classification of responses on the basis of age, younger as well as older children (nearly 60%) watch TV for one or more hours only on weekdays. Interestingly, younger children (13.4%) are also reported to watch TV for 4-7 hours a weekday. This proportion of younger children watching TV for 4-7 hours during weekdays is higher than the proportion of older children (9.0%). Thus, younger children, in small proportion, also watch a lot of TV during weekdays.

TABLE 3: NUMBER OF HOURS OF TV WATCHING DURING WEEKENDS

	Overall sample		Young children		Older children	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
0.50	3	.6	1	0.4	2	0.8
1.00	39	7.7	19	7.8	20	7.5
1.50	20	3.9	6	2.5	14	5.376
2.00	145	28.5	76	31.1	69	28.5
2.50	6	1.2	1	0.4	5	1.9
3.00	139	27.3	63	25.8	76	28.7
4.00	93	18.3	52	21.3	41	15.5
5.00	31	6.1	9	3.7	22	8.3
6.00	30	5.9	15	6.1	15	5.7
7.00	3	.6	2	0.8	1	0.4
Total	509	100.0	244	100	265	100

From Table 3, it can be seen that TV viewership increases on weekends. For the overall sample, children are reported to watch TV for two, three or four hours, their respective percentages being 28.5 percent, 27.3 percent and 18.3 percent. Similar pattern is observed for younger and older children. Younger children (78.2%) and older children (71.7%) watch TV for two, three or four hours on weekends.

A comparison of Tables 4.2 and 4.3 highlights that more children watch TV for one hour or an hour and a half on weekdays, whereas, on weekends, more children watch TV for three or four hours.

In order to understand whether TV viewing is a family activity for children or whether they watch alone, the mothers were asked to specify the person with whom the child watches TV. Their responses are shown in Table 4.

TABLE 4: WITH WHOM DOES THE CHILD WATCH TV?

	Overall sample		Younger children		Older children	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Alone	113	22.2	57	23.4	56	21.1
With brother/ sister	239	47.0	109	44.7	130	49.1
All family members together	211	41.5	91	37.3	120	45.3
Parents	174	34.2	84	34.4	90	34
Others	25	4.9	12	4.9	13	4.9
Total	509	100.0	244	100	265	100

The table shows that children watch TV with their brother/sister, together with all family member, parent as well as alone. Their respective percentages are 47.0 percent, 41.5 percent, 34.2 percent and 22.2 percent. Similar patterns are observed for younger as well as older children. This shows that TV viewing continues to be a family activity in Indian families.

After questioning the mothers about how many hours and with whom their child watches TV, another pertinent question was the time when the child watched TV. Responses of mothers in this regard are shown in Table 5.

TABLE 5: WHEN DOES THE CHILD WATCH TV?

	Overall sample		Young children		Older children	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Morning before school	20	3.9	9	3.7	11	4.2
Afternoon	162	31.8	76	31.1	86	32.5
Evening	351	69.0	165	67.6	186	70.2
Night	144	28.3	66	27.0	78	29.4

Table 5 highlights that a majority of children (69.0%) watch TV in the evening. Most of the younger children (67.6%) and older children (70.2%) also watch TV in the evening. Children are also reported to watch TV in the afternoon or at night; their respective percentages being 31.8 percent and 28.3 percent.

The study sought to note the type of products that are advertised when children watch TV. Therefore, mothers were asked to specify the frequency with which they found foods advertised especially when children watched TV from very frequently, frequently, sometimes, occasionally, and rarely. Mean score was calculated for this purpose. Their responses reveal that parents find foods ads to be aired frequently (mean scores=3.78).

In line with this, they were further asked to specify the foods they find frequently advertised out of listed foods— Snacks (such as chips), candies, sweets, chewing gums and chocolates, soft drinks, fruit juices, health supplements (such as Bournvita, Horlicks), ready to eat foods (such as Maggi, other noodles), fast food restaurants (such as McDonalds), and others. Their responses are presented in Table 4.6.

TABLE 6: FOODS FOUND ADVERTISED

Foods	Overall Sample		Younger children		Older children	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Snacks	334	65.6	150	61.5	184	69.4
Candies, sweets, gums and chocolates	273	53.6	128	52.5	145	54.7
Soft drinks	278	54.6	133	54.5	145	54.7
Fruit juices	179	35.2	98	40.2	81	30.6
Health supplements	385	75.6	181	74.2	204	77
Ready to eat foods	367	72.1	164	67.2	203	76.6
Fast food restaurants	185	36.3	77	31.6	108	40.8

Others	37	7.9	0	0.0	1	0.4
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The table points to the fact that the mothers (from the overall sample) find health supplements, ready to eat foods (such as Maggi), snacks, soft drinks and candies, sweets, gums and chocolates to be frequently advertised; their percentages are—75.6 percent, 72.1 percent, 65.6 percent, 54.6 percent and 53.6 percent, respectively. Similar patterns are observed for mother of younger as well as older children. However mother of older children, in a greater proportion, as compared to younger children report to witness food ads on TV for health supplements (77% versus 74.2%), ready to eat foods. (76.6% versus 67.2%), snacks (69.4% versus 61.5%) and fast food restaurant (40.8% versus 31.6%). The mothers of younger children however report to find fruit juices more frequently advertised as compared to older children (40.2% versus 30.6%).

All the listed foods are unhealthy, either high in sugar, salt or fat/energy. The mothers report to find these foods frequently advertised. These point to ethical issues about nature of foods targeted at children. If unhealthy foods are frequently advertised, the chances that children would also consume them would also be higher, leading to the problem of obesity.

Mothers were asked to report eating practices of children they eat lunch, dinner or snacks (from very often to rarely) i.e. whether in front of TV their responses are presented in Table 7.

TABLE 7: EATING PRACTICES IN FRONT OF TELEVISION

S. No.		Overall weighted average score	Std. Dev.	Younger children (w.a.s)	Older children (w.a.s)	(t-value)
1	Eat lunch in front of television	2.09	0.78	2.09	2.09	-0.11
2	Eat dinner in front of television	2.13	0.76	2.09	2.16	-1.01
3	Eat snacks in front of television	2.02	0.72	2.00	2.03	-4.07
4	Eat dinner with parents in front of television	2.11	0.74	2.05	2.16	-1.06

For the overall sample, the table shows that, most children eat lunch or dinner or snacks either alone or with parents only sometimes (the weighted average scores are close to 2). Similarly the younger and the older children have been reported by their mothers to eat in front of television only 'sometimes'.

In order to test the null hypothesis—"younger and older children do not differ significantly in their eating practices", t test was applied. The t-values, as seen from the table, were not found to be significant at 5% or 1% level. This also confirms that statistically also there exist no significant differences in eating practices of children in front of TV.

The mothers were asked to specify if children make purchase requests after seeing an ad for a food item on TV. All the mothers, irrespective of age of children, reported that children requested advertised foods after seeing them on TV.

DISCUSSION

The results of the present paper bring to the fore that most of the families surveyed own one or two TV sets. Children watch TV generally for one or two hours on weekdays and the viewership increases on weekends. This level of TV viewing is well within the recommended limits prescribed by American Academy of Paediatrics (Jordan *et al.*, 2006). Most of the children watch TV in the evening and it continues to be a family activity (as already established by Verma and Larson, 2002). Parents find that foods are frequently advertised when children watch TV. Mothers find that most of the advertised foods are unhealthy. More so, mothers of older children find all the products to be more heavily advertised as compared to mothers of younger children. Although mothers report use of TV during mealtimes by children, yet, eating practices of younger and older children do not differ in front of TV.

The study highlights that media habits of Indian children are well in control and closely supervised by other family members for children watch TV with other members of the family also. However, it is noteworthy that some families (nearly 10.0 per cent) report that children watch TV for more than three hours and up to seven hours on weekdays. Importantly, the proportion of younger children is higher than the proportion of older children (as older children are seen to be busier with school work). This finding needs attention for the impact of promotional elements in ads is highest among the younger children who lack the necessary ability to understand persuasiveness of TV advertising. Therefore, it seems that media habits of children could be showing a transition as faced by the western world, owing to similar patterns of socio-economic changes as that happened in the West. Marketers are also turning their attention to the more lucrative developing markets like India where the potential is quite high (Witkowski, 2007). The parents here also witness rampant advertising of unhealthy foods when children watch TV. Ads on TV are found initiate requests by children for advertised products. Therefore, they also need to monitor TV viewing by their children and control media exposure of their child (ren) to protect them from undesirable effects of advertising to children.

More research is needed to understand the nature of products requested and parental response to those requests. Observational studies should also be conducted to uncover actual viewing behaviour of children, the type of programs watched, the frequency of ads appearing in them and the consequent impact on children.

REFERENCES

- Arnas, Y. A. (2006), "The Effects of Television Food Advertisement on Children's Food Purchasing Requests", *Pediatrics International* (2006) 48, 138–145.
- Barkin, S., Edward, I.P., Richardson, I., Klinepeter, S., Finch, S. and Krcmar, M. (2006), "Parental Media Mediation Styles for Children Aged 2 to 11 Years", *Arch Pediatr Adolesc Med.*, 160, 395-401.
- Buijzen, M., & Valkenburg, P. M. (2005), "Parental Mediation of Undesired Advertising Effects", *Journal of Broadcasting & Electronic Media*, 49, 153-165.
- Buijzen, M. and Valkenburg, P.M. (2003), "The Effects of Television Advertising on Materialism, Parent-Child Conflict, and Unhappiness: A Review of Research", *Applied Developmental Psychology*, 24, 437-456.
- Consumers International (2004), *The Junk Food Generation-A multi-country survey of the influence of television advertisements on children*, (Available at: epicpolicy.org/.../the-junk-food-generation-a-multi-country-surveyinfluence-television-advertisements-chil)
- Consumers International (2008), *The Junk Food Trap, Marketing Unhealthy food to Children in Asia Pacific*, (Available at: www.consumersinternational.org)
- Coon, K.A., Goldberg, J., Rogers, B.L. and Tucker, K.L. (2001), "Relationships between Use of Television during Meals and Children's Consumption Patterns", *Pediatrics*, 107 (1).
- Fiates, G.M.R., Amboni, R.D.M.C and Teixeira, E. (2007), "Television Use and Food Choices of Children: Qualitative Approach", *Appetite*, 50, 12-18.
- George, A. (2003), "Your 'T.V. Baby,' Ad Man's Delight." <http://www.hindu.com/thehindu/mp/2003/12/22/stories/2003122201400200.htm>
- Gortmaker, S.L., Must, A., Sobol, A.M., Peterson, K., Colditz, G.A. and Dietz, W.H. (1996), "Television Viewing as a Cause of Increasing Obesity among Children in the United States, 1986-1990", *Arch Pediatr Adolesc Med.*, 150, 356-362.
- Hardy, L.L., Baur, L.A., Garneett, S.P., Crawford, D. Campbell, K.J., Shrewsbury, V.A., Cowell, C.T., and Salmon, J. (2006), "Family and Home Correlates of Television Viewing in 12 -13 year old Adolescents: The Napean Study", *International Journal of Behavioural Nutrition and Physical Activity*, 3 (Available at: <http://www.ijbnpa.org/content/3/1/24>)
- Jordan, A.B., Hersey, J.C., Judith A. M., and Hetzler, C.D. (2006), "Reducing Children's Television Viewing Time: A Qualitative Study of Parents and their Children", *Pediatrics*, 118,1303-1310.
- Kelly, B., Smith, B., King, L., Flood V., and Bauman, A. (2007), "Television Food Advertising to Children: The Extent and Nature of Exposure", *Public Health Nutrition*, 10 (11), 1234-1240.
- Matheson, D. M., Killen, J. D., Wang, Y., Varady, A., and Robinson, T. N. (2004), "Children's Food Consumption during Television Viewing", *American Journal of Clinical Nutrition*, 79, 1088–94.

- Nathanson, A. I. (1999), "Identifying the relationship between parental mediation and children's aggression". *Communication Research*, 26, 124–144.
- Scragg, R., Quigley, R. and Taylor, R. (2006), *Does TV contribute to increased body weight and obesity in children?* A report prepared by the scientific committee of the Agencies for Nutrition Action Wellington: Agencies for Nutrition Action.
- Stitt, C. and Kunkel, D. (2008), "Food Advertising during Children's Television Programming on Broadcast and Cable Channels", *Health Communication*, 23: 573–584.
- Stitt, C. and Kunkel, D. (2008), "Food Advertising during Children's Television Programming on Broadcast and Cable Channels", *Health Communication*, 23: 573–584.
- Verma, S. and Larson, R.W. (2002), "Television in Indian Adolescents' Lives: A Member of the Family", *Journal of Youth and Adolescence*, 31 (3), 177-183.
- Witkowski, T.H. (2007), "Food Marketing and Obesity in Developing Countries: Analysis, Ethics and Public Policy", *Journal of Macromarketing*, 27 (2), 126-137.



TOURISM POTENTIAL IN VELLORE REGION - AN EMPIRICAL STUDY

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ABSTRACT

In India, the importance of Tourism is ever increasing process. This will create lot of possibilities to grow like economic, social & cultural components in India. In this paper an attempt has been made to identify the potential of Tourism in and around Vellore region in Tamil Nadu. The city of Vellore is 135 Km away from Chennai, situated on the national highway from Chennai to Bangalore. Vellore is located on the banks of Palar River. It is named as historical City by its nature of origin. There are many major and popular towns potentially supporting tourism in Vellore region. Since, this region has been blessed with many geographical components like forest, waterfalls, religious temples, mountains, botanical and zoological parks etc and in addition to that it also well supported by historical events in past. The city also highly equipped with world renowned medical facility and educational facility, brought the scope of increasing floating population to the study area, which in turn prepares the grounds for tourism potential. This also well connected by both rail and road from other parts of India like northern and southern. This is the major gateway to many places in southern part of India like Andhra Pradesh, Karnataka & Kerala. Recently, the Government of Tamil Nadu has honored the Vellore City to the level of Corporation with additional benefits

KEYWORDS

Vellore, Historical city, Tourism Potential, Gateway.

INTRODUCTION

The city of Vellore is 135 Km away from Chennai, situated on the national highway from Chennai to Bangalore. Vellore is located on the banks of Palar River. It is named as historical City by its nature of origin. Vellore is slowly improving in its expansion as more and more industrial units are coming up. Apart from the famous Vellore Fort which is oldest and strongest fortresses in South India, the city is also blessed with the world renowned Christian Medical College Hospital (CMC), which attracts many patients and researchers from all over the world. It is one of the best health centers in India. Apart from this historical charisma, it also owns world class University like Vellore Institute of Technology popularly known as VIT - University, in which it attracts students from all over India as well as from many countries like, China, Australia, Singapore, Kenya, Bhutan, Nepal, Uganda, Germany etc.. Further, other several reputed educational Institutions are situated here including Voorhees College, Auxilium College for women, Govt. Medical College, Thiruvallur University, Private Agricultural College and Govt. Law College other than numerous Private Engineering and Arts and Science colleges. On the other hand, several major Industries of both Public and Private sectors are contributing their services towards economic advancement of the country. To represent various religions there are places of worship of heritage value. Recently, the Vellore-based Sri Narayani Peedam constructed with GOLD, popularly known as the "Golden Temple of the South" for the goddess Sri. Mahalakshmi. This has started attracting flow of tourists from many southern parts of India, particularly, Andhra Pradesh, Karnataka, Kerala, Tamilnadu, and Puducherry. As a recent development in records, the Tamil Nadu Tourism Development Corporation Ltd. has started a daily trip from Chennai to Vellore focusing the Golden temple Visit and Tourism Development Corporations of Govt. of Andhra Pradesh as well as Govt. of Karnataka also plying their services from major cities of their respective states to Vellore. Thus, Vellore region has proved its name and fame as the 'Fort City', Health City, Education City and Spiritual City.

DEMOGRAPHICAL PROFILE OF VELLORE DISTRICT: Vellore district has an area of 5928 Sq. kms. The total population as per 2001 Census is 3,477,317. The average of literacy rate is 72.36. Major and Popular towns in the district include Arakkonam, Arcot, Tiruppattur, Elagiri, Sholinghur, Vaniyambadi, Gudiyattam, Karigiri, Ranipettai, Vellore, and Walajapet.

OBJECTIVES

With due consideration of all the above mentioned points, the researcher has decided to study on the scope of tourism development in Vellore with the following objectives:

- To study the demographic factors of the selected respondents,
- To analyze the migratory behavior pattern of the respondents,
- To categorize the various landmarks recognized by respondents in the study area,
- To know the respondents' opinion about the various tourism places & their potential to support tourism and
- To know the respondents opinion about the availability of various living amenities to support tourism.

METHODOLOGY

The researcher adopted the "DESCRIPTIVE DESIGN" to conduct the study on "Tourism potential in Vellore region". The period of study was designed between June to Oct. 2008. This study considers all those individuals residing at Vellore. From the chosen population, the researcher has selected totally 400 respondents as the sample size. Researcher used the "Judgment Sampling" method for selecting the required samples for the study. The researcher used the questionnaire method for the collection of data. Data was collected through a specially designed questionnaire, which constructed to measure the awareness of tourist places and development of tourism in Vellore. Respondents were encouraged to answer all questions, with the assurance that all responses would remain completely be used only for research purpose. Data thus collected was recorded and subjected to data analyses using percentage and weighted average method to derive meaningful results.

RESEARCH FINDINGS

REGARDING THE RESPONDENTS' PROFILE

- 60.5 percent were reported as male respondents and 39.5 were female respondents.
- 78.5 percent were identified under the age group of 18-39, out of which, 33.8 were in the age group of 29-39, 17.5 percent were under the age group of 40-50, and rest of 6.8 percent were under the age group of above 50 years.
- 54.3 percent were under the category of employed persons, 29.0 percent were under the category of business persons, 13.3 percent were identified as house wives, 3.5 percent were representing the category of students.
- 74.3 percent were reported as Graduates, out of which, 23.3 percent had completed up to the level of Post graduation, 6.8 percent had completed their Professional degrees, 14.0 percent had only completed up to School level, and 5.0 percent had completed their Diploma holders.
- 61.8 percent were under the monthly income group between above 5000 and up to 15000, out of which, 28.3 percent were fall under the monthly income

group of Rs.10001-15000, 19.9 percent were earning their monthly income higher than 15000, out of which, 4.1 percent were under the monthly income group 20001-25000, and 3.0 percent were under the monthly income group above 25001 and rest of them say 18.3 percent were earning their monthly income below Rs. 5000.

- 75.8 percent were identified as married and 24.3 percent were found single. 70.5 percent representing the category of nuclear type of family and 29.5 percent fall under the category of joint family. 79.5 percent were native of Vellore itself and 20.5 percent were migrated from outstation.

02. Regarding the MIGRATIONAL BEHAVIORAL PATTERN of the respondents.

- 82.0 percent were used to visit outstations during the summer vacation, and 18.0 percent were not shown their preference to visit any outstations during summer vacation.

- 66.6 percent of them were agreed that their friends or relatives visit to them regularly from outstation for more than 5 times in a year, out of which, 18.8 percent visit them for 3-5 times in a year, 14.8 have agreed that their friends or relatives visit them from outstation less than 3 times in a year and 18.8 percent of them were told that their friends /relatives never visit their place from outstation.

- 67.1 percent of the local population were usually visiting outstations for more than 5 times in a year, out of which, 20.3 percent were visiting outstations between 3-5 times in a year, the rest of them say 31.3 percent of them visiting outstations for less than 3 times in a year, and 1.8 percent denied their outstation visits.

- 77.5 percent traveled to outstation for family affairs like attending wedding, family functions, celebrating festivals and other family reasons out of which, 27.0 percent traveled to outstation for personal reasons, 22.5 percent traveled to outstation for business purposes, and for social affairs like public service.

- 37.5 percent of them were chosen train as their preferred mode of transport, 34.8 percent preferred their personal mode (own or hired) of transportation and 27.8 percent preferred Public transport (buses) on the road as their preference.

REGARDING THE LAND MARK OF VELLORE CITY

- 64 percent still recognized the CHRISTIAN MEDICAL COLLEGE HOSPITAL

- 16.4 percent recognized VELLORE FORT

- 7.3 percent of them opted the VIT UNIVERSITY,

- 4.8 percent were told The EYE HOSPITAL,

- 4.5 percent inferred the VELLORE PRISON and

- 3.0 percent were selected the RATHANAGIRI LOAD MURUGAN TEMPLE as the landmark.

STATE OF AWARENESS OF TOURIST PLACES IN VELLORE REGION

- It is found that all respondents have their opinion uniformly, that, Vellore region got his potential for tourism development.

- Among the tourist places in Vellore region, majority of them were recorded the places like: JAVATHU HILLS, MORDHANA DAM, DELHI GATE – ARCOT, JALAGAMPARAI – WATER FALLS, TIPPUMAHAL – ARCOT, KAVALAR OBSERVATORY, MOSQUE – FORT, PALAR ANAICUT DAM, BALAMATHI HILLS, AND VIRENJIPURAM TEMPLE as the known places to them.

- The other places like: YELAGARI, VELLORE FORT, JAALKANTESWARE TEMPLE –FORT, ST.JOHN'S CHURCH –FORT, AMIRTHI FOREST, RATHANAGIRI TEMPLE, VALLIMALAI, SRIPURAM GOLDEN TEMPLE, AND GREEN THUNDER were seen by them once.

- However, none of the places were recorded under regular visit.

STATE OF LIVING CONDITIONS FOR SUPPORTING TOURISM IN VELLORE REGION:

The study has grouped certain living conditions like, COST OF LIVING, EDUCATIONAL FACILITIES, ROAD AND TRAFFIC CONDITIONS, HOUSING FACILITIES, SHOPPING, BANKING FACILITY, TRAVEL BOOKING MODE, LOCAL TRANSPORT under FAVORABLE one to influence the scope of tourism development in Vellore region.

Further, they were few unchanged conditions like, WATER SHORTAGE, LAW AND ORDER SITUATION, SOCIAL SECURITY, ETHICAL PRACTICES, CLIMATIC CONDITION, AVAILABILITY OF HYGIENIC FOOD, ENVIRONMENTAL CLEANLINESS AND WORKING CONDITION OF LOCAL ADMINISTRATION need to be improved further to facilitate the tourism potential.

POLICY IMPLICATION OF THE STUDY

The above study reveals that, the scope of tourism potential in Vellore could be possibly attained through implementing the following policy implications:

- The scope of tourism normally enriches with the quantum of floating population from other part of our country. Since the Vellore has got the historical importance of its own, this will take only a minimum time to propagate the scope for tourism development.

- If proper arrangements made to develop tourism, it will also improve the living conditions like, boarding and lodging, communication, social security, law and order situations & environmental cleanliness in the order of priority.

- Even if improve few important places like Yelagari, Amirthi Forest, Sriipuram Golden temple, and Green thunder by means of proper infrastructure like road, & local transport support, hygienic drinking water, that in turn add amenities to promote other areas in the profile..

- Encouraging social projects which will prevent global warming through 'Green Vellore' initiated by VIT University and 'Afforestation' initiated by Sri Narayani peedam trust, Vellore will certainly challenge the present state of undesirable climate into desirable one.

- Cross cultural, hospitality, educational, technological and spiritual transformation is possible in due course that in turn improves the ethical part of business standards and employment opportunities

- Cultural heritage can be transformed and which is certainly lead to further research in the national & global level.

- The activities and developments corresponding to the Tourism projects should attain the expected positive outcomes and minimize adverse impacts on the heritage and lifestyles of the host community, while responding to the needs and aspirations of the visitor.

- Improving the needed Infrastructural facilities & living conditions may certainly bring revolution on the part of future accountability.

- Proper affiliations of private & public partnership could possibly improve the living standards of its own.

- Earning potential of the region will improve significantly over the period of time.

- More live project operation will commence based on basic requirements like sanitation, transportation, pollution control mechanism, water reservoir, hospitality, extension of city area and so on will give more comfort to local population.

- Since the Vellore city is the gate way in the road map between South to North and Eastern part of India, it will naturally attract more crowd once it is developed as tourist destination.

REFERENCE

1. Official web site: www.vellore.tn.nic.in
2. Official web site: www.tn.gov.in/policynotes/pdf/tourism.
3. Official website: www.tamilnadutourism.org/pdf/Policy-2008
4. Official web site: www.tamilnadutourism.org/places/citiestowns
5. Tamil Nadu Tourism News letter, Published by Tamil Nadu tourism, Chennai.

A STUDY ON STEPS TAKEN TO IMPROVE CREDIT AND SAVINGS IN RURAL INDIA

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ABSTRACT

This article deals with credit and savings in rural India. The article examines access to credit in rural India and how responses to risk are affected by a household's access to credit. I consider all sources of credit within a rural community and include production as well as non-production credit such as medical and consumption loans. The early results reveal that traditional approach would lead to biased estimates of access to credit because the predominant sources of credit are community level mechanisms of cooperation, despite the presence of specialized rural banks and local moneylenders. This mechanism of mutual cooperation takes two forms, informal cooperation between family and friends in the community and institutional cooperation where community members form a cooperative society. It is a known fact that households with access to institutionalized cooperation are better able to deal with income shocks than households that rely on informal cooperation. The results indicate that households that have access to institutionalized cooperation within the community are significantly less likely to cut consumption and production expenditure when they are faced with an income shock. When there is better ways to save this can lead to better ways to borrow. In a typical framework, households borrow, invest and then repay the loan with interest. If households can save without difficulty, they should be able to follow any repayment frequency. In a standard economic model, there is no room for immediate pressures. However, in reality, it is likely that income gets diverted into miscellaneous expenses. It is found that a household which faces savings constraint is 32 percent more likely to tie a loan repayment schedule with its income schedule and pays 3.6 percent higher annual interest rate to do so. The effects of income shock on savings decision of a household are examined. In particular, it analyzes how an idiosyncratic income shock affects the composition of asset portfolios held by a household. It shows that income volatility contributes to poverty of rural households by leading them to reduce stocks of productive assets in order to accumulate liquid assets. Health related income shocks are significantly likely to do so, in addition to the weather related income shocks. People who start investing for the marriage of the son/ daughter or retirement planning, etc can remain invested for a longer period of time. We can make this instrument a unique one where the investor can see his money grow and be encouraged to invest more money. People in rural areas should be educated about such instruments with the help of Gram Panchayats and other influential people in rural areas.

KEYWORDS

Untapped Potential, Income shock, Informal market, Covenant Centre, Self Help Group.

INTRODUCTION

The profile of livelihoods in India, especially in these states shows that agriculture and animal husbandry still remain the main sources of livelihood for rural communities, though there is a significant shift to non-farm sectors such as mining and quarrying, construction and manufacturing during periods of drought. The ultimate goal is for communities to have the confidence to make informed choices from a range of appropriate options that leads to sustainable and equitable development.

In rural area there is a lot of untapped potential which can be grabbed by putting them into practice. The rural poverty declined slowly from 32.9 to 22.2 and the number of people lying in below poverty is 76.50 lakhs. Data on house hold consumption expenses and the size of landholdings in rural shows two aspects of rural poverty – increase in percapita consumption expenses and lack of financial support for the rural economy. An ounce of practice is better than tons of tall talks” says- Vivekananda. Instead of the Politicians giving too many Promises for the welfare of rural population, it will be better they do something in practice. Rural banking must also be developed to practice the habit of saving among the rural folk. Agriculture production has to be increased not only through increase in yield but through increase in area under cultivation. Before investing the money every one need to analyze the portfolio of investment. Reliance and ICICI Mutual funds have launched MICRO-SIP plans to tap the rural investors savings. In rural India the Post offices and NGO's are attracting the savings. There are a lot of opportunities available for the growth of mutual fund companies through rural investors.

ACCESS TO CREDIT

One of the most pressing issues that hinder India's rural population from progress is the lack of access to credit. Farmer's suicide within the agricultural sector does not occur as a shocking matter as these poor citizens are deprived of monetary assistance when they are most in need. Survival is at stake here. The farmers' cries for help have been ignored as the damaging effects from the absence of credit loans tickles down the population. Apart from the healthcare of a farmer, the lack of access to credit also highly important as almost 80% the farmers own less than a hectare of land. The availability of credit allows farmers to be protected from the inflated costs faced in agriculture and also, improve the quality of fertilizers and hence the output. Indian government is trying to meet production targets and have a better control over prices of grains. Due to the critical shortage of agricultural output, India has to resort to banning grain exports and instead, drive up its import bills from wheat coming into the country. There has been so much attention focused on the industrial and services sector that the agricultural side has been largely neglected.

As commercial banks are not present in remote locations of India, where agriculture is supposed to thrive, it becomes an important limitation as the rural population has a strong dependence on it. Co-operative banks which have been set up previously were also doomed to fail as a result of bad loans and a lack of funds. These commercial banks have their own set of worries, as defaults and crop failures are common in the sector. As such, they prefer lending out to areas where each farmer owns a much larger proportion of land and also, have better irrigation systems. However, that does not solve the problem as the smaller farmers' (which forms a majority) issues remains unaddressed. There should be better banking systems established that is accessible and affordable to every person. It is obvious that the benefits of economic growth have not been equally shared among all as the access to credit is not granted to all. Economic opportunities ought to be created for the marginalized groups to help in poverty reduction and inequality problems. Further attempts made by the government to expand credit loans have ironically resulted in more cases of poverty than ever. The lack of access to formal credit thus places many constraints on agricultural output and also, the standards of living for the rural population thereby hindering their path to further economic and social development. It is clear from the above that "the Indian farmer is born in debt, lives in debt and dies in debt".

ISSUES AND CHALLENGES

There is slow down in agricultural and rural non-farm growth due to the following factors that is hampering the revival of growth:

- **Poor composition of public expenditures:** Public spending on agricultural subsidies is crowding out productivity-enhancing investments such as agricultural research and extension, as well as investments in rural infrastructure, and the health and education of the rural people. In 1999/2000, agricultural subsidies amounted to 3 percent of GDP and were over 7 times the public investments in the sector.

- **Over-regulation of domestic agricultural trade:** While economic and trade reforms in the 1990s helped to improve the incentive framework, over-regulation of domestic trade has increased costs, price risks and uncertainty, undermining the sector's competitiveness.
- **Government interventions in labor, land, and credit markets:** More rapid growth of the rural non-farm sector is constrained by government interventions in factor markets -- labor, land, and credit -- and in output markets, such as the small-scale reservation of enterprises.
- Inadequate infrastructure and services in rural areas.

PROBLEMS FACED CONCERNING RURAL CREDIT ARE:

- Inadequacy of credit
- High interest rates
- Constraints on timely availability of credit
- Neglect the small and marginal farmers
- Low deposit credit deposit ratios in several states
- Continued presence of informal markets

The group to submit its report on agricultural credit is the Task Force on Co-operative Credit System headed by Dr A. Vaidyanathan. It has come out with detailed recommendations for recapitalizing the credit system, subject to actions by the co-operative credit system and the Government itself formulating a new Co-operative Act. Importantly, it demands that Governments foreswear intervention in the functioning of co-operative societies. The cost for the total rehabilitation is estimated at roughly Rs 10,000 crore, which is relatively small compared to the magnitude of the task and the large number of co-operative institutions under revitalization. The Task Force must be complimented for attempting a clear, detailed and definitive package of rehabilitation for the co-operative credit system.

APPROACH TO RURAL BANKING

The Reserve Bank of India has a mandate relating to rural credit and banking by virtue of the provisions of Section 54 of the RBI Act. The major initiative in pursuance of this mandate was taken with sponsoring of All-India Rural Credit Survey in 1951-52. This study made agency-wise estimates of rural indebtedness and observed that cooperation has failed but it must succeed. This is the origin of the policy of extending formal credit through institutions. In the first stage, therefore, efforts were concentrated on developing and strengthening cooperative credit structures. The Reserve Bank of India has also been making financial contributions to the cooperative institutions through evolving institutional arrangements, especially for refinancing of credit to agriculture.

FINANCIAL RESULTS OF COOPERATIVE CREDIT SYSTEM 2005

State cooperative Banks	No: in Profits	30
	No: in Losses	25
	Accumulated losses (in crores)	281
District central cooperative Banks	No: in Profits	237
	No: in Losses	130
	Accumulated losses (in crores)	4401
Primary Agricultural cooperative banks	No: in Profits	58000
	No: in Losses	54000
	Accumulated losses (in crores)	4595

Sources: RBI Bulletin

THE COVENANT CENTRE FOR DEVELOPMENT (CCD)

It is clear from the above table that many of the cooperative Banks run by the government are not profitable. Hence steps were taken by NGO's to strengthen the position of rural community by forming some Organisations. CCD is a developmental organisation based in Madurai, Tamilnadu, India and working with rural communities of seven states in India. As a strong believer in the promotion of people's organisations, it strives to build the capacity of community based organisations to initiate and sustain need based development initiatives. Now CCD is working with other NGO's, mainstream service providers, resource organisations to contribute towards promoting secured livelihoods for the people. It's working with more than 20,000 families directly and other 30,000 families indirectly. The major areas of work are microfinance, promotion of community enterprises, conservation, and health and disaster rehabilitation.

Kazhi Kadaimadai Farmers Federation (KKFF) was founded as a formally registered not for profit trust in 2006, as an outcome of post tsunami response programme, implemented by Covenant Centre for Development, a non-governmental organization of Tamilnadu, India for the rehabilitation of the affected coastal farming communities in the Nagapattinam district of Tamilnadu. The major areas of work include institution building, risk reduction through appropriate technologies, microfinance, infrastructure development and developing agricultural entrepreneurs.

KKFF has existed as a rotating savings and credit institution based on principles of SHG micro-credit organization since inception (2006). The institution received a rotating credit fund as part of relief support to reclaim salinated agriculture land. KKFF raised bank loan and circulated credit amongst members to reclaim salinated land as well as re-start agriculture production. KKFF is a farming community owned "Agriculture Finance" institution. The credits provided by KKFF could be used only for the purpose of agriculture production and value addition. Over last three years KKFF has built its portfolio of investment from 18, 31,292 INR to 75, 00,000 INR, its members have increased from 203 to 586 across 36 groups in 12 villages. KKFF has institutional financing partnership with the Grameen Foundation, Concern Worldwide and Canara Bank.

The financial sector reforms, which were introduced from 1991 onwards, were aimed at transforming the credit institutions into organizationally strong, financially viable and operationally efficient units. The measures introduced include reduction in budgetary support and concessionality of resources, preparation of Development Action Plans and signing of Memoranda of Understanding with the major controllers, and introduction of prudential norms relating to income recognition and asset classification for RRBs and cooperative banks. The lending rates for these institutions have also been deregulated. Other measures of liberalization include allowing non-target group financing for RRBs, direct financing for SCBs and CCBs, and liberalization in investment policies and non-fund business. These measures have contributed to many RRBs turning around and becoming more vibrant institutions. In the case of cooperative banks, there is greater awareness of the problems of officialisation and politicisation and initiatives in this regard include legislative actions on cooperative banks in Andhra Pradesh.

Recently, several policy initiatives have been taken to advance rural banking. These include additional capital contribution to NABARD by the RBI and the Government of India, recapitalisation and restructuring of RRBs, simplification of lending procedures as per the Gupta Committee recommendations, preparation of a special credit plans by public sector banks and launching of Kisan Credit Cards. Finally, a scheme linking self-help groups with banks has been launched under the aegis of NABARD to augment the resources of micro credit institutions. A Committee has gone into various measures for developing micro credit, and has submitted its report, which is under the consideration of the RBI. In respect of cooperatives, a Task Force under the chairmanship of my esteemed and affectionate colleague Shri Jagdish Capoor, Deputy Governor has been constituted to review the status and make recommendations for improvement. Undeniably, these initiatives have enabled a very wide network of rural financial institutions, development of banking culture, penetration of formal credit to rural areas and a counter to the dominance of moneylenders. These initiatives have also financed modernization of rural economies and implementation of anti-poverty and self-employment programmes.

CURRENT APPROACH TO RURAL CREDIT

- The cooperative banks have different layers and many of them have large non-performing assets (NPAs) and are undercapitalised. The public sector banking system also exhibits NPAs, and some of them have so far been provided with recapitalized funds.
- As per the All-India Debt and Investment Survey, 1991-92, the share of debt to institutional agencies in the case of rural households has increased marginally from 61.2 per cent to 64 per cent between 1981 and 1991
- The cost of financial intermediation by the various rural financial institutions is considered to be on the high side. The difference between the cost of resources made available to NABARD by Reserve Bank of India and the commercial rates of interest at which the cooperative banks lend for agriculture in the deregulated interest rate regime is also considered to be on the high side.
- Empirical studies indicate that institutional credit is more likely to be available for well to do among the rural community.
- It also indicates that relatively backward regions have less access to institutional credit.
- The non-availability of timely credit and the cumbersome procedures for obtaining credit are also attributed to the functioning of the financial institutions, though this is equally valid for rural and urban banking.
- Regarding Government sponsored schemes; there has been overlap in accountability in as much as the beneficiaries are identified on a joint basis. Banks have been indicating that NPAs are proportionately more due to this overlapping.

An important development in the formal segment of the rural financial markets is the growing significance of non-banking financial companies, in particular, in hire purchase and leasing operations. They also finance traders of agricultural inputs and output. The NBFCs are recently brought under the regulatory regime of RBI. While their importance is recognized in financing diversified rural agriculture, its extent and scope of operations has not been adequately researched.

The Vaidyanathan Task Force has laid particular emphasis on eliminating State interference in the functioning of the co-operative system. With this end in view, it goes to the extent of making arrangements for retiring the share capital contributed to co-operative societies by State Governments. This contribution had been made in pursuance of the Rural Credit Review Committee's recommendations in the 1950s. While the participation by the State in the share capital of co-operatives was intended to strengthen the viability of the system, the Task Force feels that it has had the incidental and unintended consequence of legitimizing the interference of State Governments, mainly through representatives on the Boards of the co-operative institutions and detailed guidance and supervision. The Task Force recognizes that the co-operatives may not all be in a position to "fund" such returns of capital. As part of the recapitalization package, State Governments will be assisted to make a soft loan to the co-operatives.

REALITIES IN RURAL CREDIT MARKET

Promotion of Self-Help Groups and micro financing is an indirect admission of necessity of informal finance. The informal financial market is legal but officially unrecorded and they account for 70 to 80 per cent of debt transactions. Studies have also shown that many poor people have no access to formal and informal markets institutional credit.

In brief, the linkages between formal and informal markets are complex, contextual and dynamic. Like banks in other parts of the world, Indian banks will have to get interested in providing diversified range of financial products and services along with those that they are already providing, by using technological advances. A small beginning has been made in this direction, through initiatives on micro finance. Enhancing effective supply of credit in such rural financial markets would be a logical objective of policy, thus enlarging the current attention to include both directly disbursed credit by the banking or cooperative sectors and indirect supply.

FACTORS DETERMINING GROWTH OF MUTUAL FUND

The growth of the mutual fund sector, like any other sector of economic activity, is the result of the interaction of demand and supply. The value of traded shares is a better indicator of market liquidity, although it is also not free from weaknesses. It tends to be higher when equity prices are rising and lower when prices are falling, even though market liquidity and efficiency may not change. A more relevant measure of market efficiency and liquidity would be provided - by data on trading costs and price impact.

Many unexpected income shocks occur among rural community. It may be unexpected health related income shocks, death of the bread earner and fire accidents etc. health related income shocks are significantly likely to do so, in addition to the weather related income shocks. Joint families tackle the income shocks due to poor health by reducing liquid assets; nuclear families reduce it by stock of productive assets.

Poor rural and urban households in developing countries face substantial risks, which they handle with risk-management and risk-coping strategies, including self-insurance through savings and informal insurance mechanisms. Despite these mechanisms, however, vulnerability poverty linked to risk remains high. This article reviews the literature on poor households' use of risk-management and risk-coping strategies. It identifies the constraints on their effectiveness and discusses policy options. It shows that risk and lumpiness limit the opportunities to use assets as insurance, that entry constraints limit the usefulness of income diversification, and that informal risk-sharing provides only limited protection, leaving some of the poor exposed to very severe negative shocks. Public safety nets are likely to be beneficial, but their impact is sometimes limited, and they may have negative externalities on households that are not covered. Collecting more information on households' vulnerability to poverty—through both quantitative and qualitative methods—could help inform policy.

People who live in low income economies often have to cope, not only with severe poverty, but also with extremely variable income. The high prevalence of risk in low economies implies that people's ability to manage uncertainty is critical for both productivity and their mere survival. This paper examines the effects of income shocks on the saving decision of rural households i.e. how an unpredictable peculiar income shock affects the composition of asset portfolio of rural households. A sincere attempt is made to gauge the effects of unanticipated health and weather related income shocks on the saving decision of a rural household. This study uses an "Ordinary Least Squares Regression" to analyze the saving behavior of households in response to health and weather shocks. The significant finding of this study is that the volatility of income adds to poverty of rural households by forcing them to reduce stocks of productive assets in order to accumulate liquid assets. Results show that income shocks related to health are more significant to lead them to this than weather related income shocks. In view of the diversity of the structure of rural Indian households (like joint, nuclear and stem households); impact of income shocks has been studied for all categories of rural households. It reveals significant differences in savings behavior between nuclear and joint households. Since, the study has found very strong link between health and income (for low income level), poor are more susceptible to an unpredictable health shock. Hence, the policy implication of the present paper is that the income of rural households can be raised considerably if government tends to design and introduce the appropriate micro health insurance schemes keeping in view the different behavior of joint and nuclear households.

Farmers in India became the centre of considerable concern in the 1990s when the journalist P Sainath highlighted the large number of suicides among them. Official reports initially denied the farmer suicides but as more and more information came to light the government began to accept that farmers in India were under considerable stress. On figures there was much debate since the issue was so emotive. The government tried to underplay the cases of farmer deaths, intellectual supporters of the farmers preferred to inflate them. More than 17,500 farmers a year killed themselves between 2002 and 2006, according to experts who have analyzed government statistics. Others traced the increase in farmer suicides to the early 1990s. It was said, a comprehensive all-India study is still awaited, that most suicides occurred in states of Andhra Pradesh, Maharashtra, Karnataka, Kerala and Punjab. The situation was grim enough to force at least the Maharashtra government to set up a dedicated office to deal with farmer's distress.

In 2006, the state of Maharashtra, with 4,453 farmers' suicides accounted for over a quarter of the all-India total of 17,060, according to the National Crime Records Bureau (NCRB). NCRB also stated that there were at least 16,196 farmers' suicides in India in 2008, bringing the total since 1997 to 199,132. According to another study by the Bureau, while the number of farm suicides increased since 2001, the number of farmers has fallen, as thousands abandoning agriculture in distress. According to government data, over 5,000 farmers committed suicide in 2005-2009 in Maharashtra, while 1,313 cases reported by Andhra Pradesh between 2005 and 2007. In Karnataka the number stood at 1,003, since 2005-06 till August 2009. In the last four years, cases in Kerala were about 905, Gujarat 387, Punjab 75 and Tamil Nadu 26. In April 2009, the state of Chhattisgarh reported 1,500 farmers committed suicide due to debt and crop failure. At least 17,368 Indian farmers killed themselves in 2009, the worst figure for farm suicides in six years, according to data of the National Crime Records Bureau (NCRB).

HYPOTHESIS

H0: There is no relationship between income shock and death in rural India

H1: There is relationship between income shock and death in rural India

1000	2000	3000	5000
15	90	15	30
20	120	20	40
25	150	25	50
30	180	30	60
10	60	10	20

Calculated value of sum, mean, sum of square, variance and standard deviation.

Summary	Xa	Xb	d
N	5	5	5
Sum	561	985	76
Mean	112.2	97	15.2
Sum of square	67401	52263	2130
Ss	4456.8	5218	974.8
Variance	1114.2	1304.5	243.7
Sd	33.3796	36.1179	15.6109

T test			probability	
Mean a-mean b	T	D	One tailed	Two tailed
15.2	2.18	4	0.04752	0.095040

INFERENCE

There is a significant relationship between income shock and death in rural India.

FINDINGS OF THE STUDY

With World Bank support:

- Farmers' incomes have increased substantially
- The poorest farm families have benefited most
- An additional spring crop is being grown
- Paddy yields per hectare have tripled
- Farmers have diversified into higher value crops: vegetables, fruits, and oilseeds
- Output of milk and fish has risen
- Over 500 villages with almost 850,000 people are now connected with all weather roads
- Assam has become self-sufficient in rice production -- the staple food grain -- for the first time in decades.
- Mutual fund helps the rural population to increase their financial position. It is designed in such a way so that even a layman or an illiterate can understand the way it will function and will have no complex terms and conditions.
- The Mutual Fund is but one institutional mechanism to link the rural population to the corporate sector. The underlying premise of the Mutual Fund is the notion of creating possibilities for the poor to own corporate assets. Here monetary and fiscal policy can provide incentives to encourage the corporatisation of private wealth along with the reservation of space for equity ownership of this wealth by the rural public .M.F has the potential to become a big threat to low interest yielding insurance or post office products.
 - The service sector is getting increasing importance in the rural areas also -from coffee shops to cable television operators. Assessing and meeting of credit needs of this sector is important.
 - The integration between rural and urban areas has increased significantly, with the result, mobility of labour, capital, products and even credit between the two is increasing.
 - Commercialization of agriculture, particularly the increasing role of cash crops like cotton has resulted in substantial role for suppliers' and buyers' credit. Thus, fertilizer and pesticide are supplied to farmers on credit, often on deferred payment basis. Only a few non-banking financial companies do provide indirect finance for such purpose.
 - Rural agriculture is getting increasingly diversified in terms of products and processes.
 - In areas where commercialization of agriculture has reached significant levels, the traditional landlord-based tenancy is replaced with commercial-based tenancy. Where intensive cultivation of cash crops such as cotton is called for, this has become quite common.
 - With large work force in rural areas, there is increasing recourse to multiple occupations to earn a decent livelihood. For example, a small farmer is also a petty trader and may also be a satellite based cable television operator in the village.
 - There is reason to seek and obtain consumption loans. Present arrangements in formal credit markets are inadequate to meet such requirements.
 - While there is significant commercialization and diversification of rural economies, progress is very uneven in different parts of the country. So, there are still many areas, where exploitation of tribal's by money lenders or of agricultural laborers by landlord-money lenders still persists.
 - Major part of informal markets would be local and hence savings would be locally deployed, within the rural areas.

SUGGESTIONS

- This suggests that policy interventions in health infrastructure might have a substantial impact on rural income and wellbeing.
- How can ordinary low-income earners, from rural background become rich? Start by saving and investing something regularly, even modest amounts, in anticipation of big returns in the future. The most feasible tool seems to be "Mutual Fund" specially designed to address the unique needs of the rural world.
- The only viable option is regular investment through a scheme similar to Systematic Investment Plan (SIP), a scheme where they can periodically invest a fixed sum, which could be as low as INR 500 per month. SIP works as a disciplined investment method as it forces you to buy even when the markets are low, which is actually the best time to buy. There will be no risk to the capital invested.

- The device needs to be backed up by some assurance from a trustworthy sponsor like the government or reputed business houses like Birla or, the mutual fund needs to bring in the option of adding to their investment in increments as small as Rs. 20 and as frequently as daily or weekly.
- So their challenge is to invent a new business model where they can create a distribution base effectively in all the villages in the world, and to learn to do that at one-tenth the cost of implementing it in the urban world. The Mutual fund might even partner with someone who is selling fertilizers or seeds or tractors.
- A classic case in point for the overall setup is Grameen Bank, Bangladesh. It has taken the initiative in launching the first Mutual Fund of the poor, where it is providing opportunities for investing a small fraction (15 Crore taka) of the savings of its members, in a managed, close-end, Mutual Fund which would invest its portfolio in the corporate sector. Many clues can be taken from this model to develop a similar instrument in other parts of the world.
- The farmers can be encouraged to form clusters to derive benefit in agricultural production. They can pool their lands provided they are not having irrigation source and are cultivating rain fed crops. If the Banks offer them lending hand there are chances of promoting agriculture.
- The biggest risk is the failure of the monsoon. What they have to do, is to ask if this is an insurable risk. Can they then sell this insurance to the farmers? Can this insurance be further reinsured outside the home country so that the risk was shared even more widely? This will create a win-win situation for all. The farmers will be liberated of the jeopardy of tribulations of monsoons. The same distribution channel will be used to sale insurance products. This protection provided to farmers will ensure a continuous flow.
- The next point of concern lies in redistribution of the returns as they understand simple things like the value of their money doubling in 5 years. This is possible considering a modest return of 14-15 % compounded annually over a horizon of 5 years. The money can be tripled in less than 9 years at the same interest rate. They can understand this concept better than the complicated NAV for MF.
- Large corporate houses must come forward so that the people at the bottom of the pyramid can have something to cheer about and lead a better life altogether. They should take up the responsibility of first creating awareness about such a thing by educating the masses about it and then taking up the cause of these people by developing a simple instrument of this kind.
- Presently the underdeveloped world is facing a crisis in the infrastructure sector. Once the growth story embraces this sector, the biggest gainer will be the villages. Government policies and employment generation programs will also improve the standard of living of rural masses by enhancing their per capita income.

CONCLUSION

Financial services, information technology will play the most vital part. Instead of making it too complicated by involving paper work, chip embedded cards can be issued to all the investors. The rural population is familiar with such cards like Kisan credit card, etc. These cards will store all the information regarding the investor and all the addition to the fund can be easily made without any paper work. The people who start investing for the marriage of the son/ daughter or retirement planning, etc can remain invested for a longer period of time. We can make this instrument a unique one where the investor can see his money grow and be encouraged to invest more money. People in rural areas should be educated about such instruments with the help of Gram Panchayats and other influential people in rural areas.

REFERENCES

- Archarya.S. "Agricltural Marketing and Rural Credit for Strengthening Indian Agriculture". Asian Development Bank.
 Business Line
 Business India
 Community & Economic development journal
 Economic Times
 India Today
www.akdn.org/india_rural.asp
<http://go.worldbank.org/8EFXZBL3Y0>
<http://rbidocs.rbi.org.in/rdocs>
www.scribd.com/doc/
www.stepsstones.com

HEALTHCARE SERVICES IN INDIA: A STRATEGIC PERSPECTIVE

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ABSTRACT

Healthcare is one of the most indispensable sectors of a person's life. Nowadays people have grown more health conscious and healthcare for them not only means diagnostic checkups but they also go for wellness and preventive checkups. People these days are more aware of the various types of healthcare products that are available in the market and endeavour to know their proper uses. Healthcare equipments like blood pressure checking machines, heating pads, diabetes checking equipment are common things in almost every health conscious household. As a result the healthcare scenario in India has shown signs of tremendous growth in the past decade. According to the FICCI-Ernst & Young study (January 2007), the Indian healthcare industry is well poised to grow at a CAGR of 15 per cent, with the private sector being responsible for almost 90 per cent of the growth. The last decade has seen the healthcare sector transition from a static and seemingly inconspicuous industry to an increasingly dynamic and significant industry today. This paper is an attempt to study the future trends that might prevail in the Indian healthcare services market and its strategic implications to various stakeholders.

KEYWORDS

Healthcare infrastructure, healthcare models, healthcare service differentiator.

HEALTHCARE SERVICES IN INDIA: AN OVERVIEW

Today, global healthcare industry is stood at US \$ 3.5 trillion¹. The Indian healthcare spending is considerably lower than that in other countries. Access to health care service providers, availability of physicians and financing for health care are the major concerns need to be addressed² (Table 1). Increasing private sector participation in healthcare services is stimulating change in the Indian healthcare industry. According to an ICRA industry report on Healthcare, India spends 5.1 percent of its GDP on health. The health market is estimated at Rs.1, 408 billion (\$30 billion) and includes retail pharmaceutical, healthcare services, medical and diagnostic equipment and supplies. While India's overall expenditure on health is comparable to most developing countries, India's per capita healthcare expenditure is low due its large billion-plus population and low per capita income. This scenario is not likely to improve because of rising healthcare costs and India's growing population (estimated to increase from 1 billion to 1.2 billion by 2012)³.

Compared to a few private institutions primarily in the form of charitable trusts and small nursing homes, recently a number of large sized Indian companies have ventured into healthcare delivery. Companies like Max India, Ranbaxy Laboratories, Escorts, Wockhardt and Birla have established Specialty Hospitals. There is increased interest in diagnostic service as well, with companies such as SRL-Ranbaxy, Nicholas Piramal, and Dr. Lal's laboratory venturing into this field. Emergence of corporate hospitals has led to increased professionalism in medical practices and use of hospital management tools.

There are perceptions that government spending on health in India, which is low by international standards, has been further undermined during the period of economic liberalisation since the early 1990s⁴. Health expenditure in India is dominated by private spending. To a large extent this is a reflection of the inadequate public spending that has been a constant if unfortunate feature of Indian development in the past half century.

The two main characteristics of healthcare which lead to market failure and thus necessitate state intervention are the presence of externalities and information asymmetries. An externality results when an action of an agent has an effect not only upon the agent but also upon others. If a good or service not only benefits those who purchase these but others as well, then there is said to be a positive externality in its consumption. These positive externalities make government intervention essential. Such intervention can take the form of price subsidies to encourage or spread the consumption of healthcare services, or direct public provision of such services.

Asymmetric information reflects any situation in which one party to any contract or exchange has access to some information that is not known to the other party. Such information asymmetries, primarily between the service provider and patient, pervade the health sector and cause market failure in both healthcare and healthcare insurance markets.

Health expenditure is highly unequal across the globe. As is to be expected, developed countries spend the most on health per person. OECD countries accounted for less than 20 per cent of the world's population in the 2000 but were responsible for almost 90 per cent of the world's health spending. Therefore 80 per cent of world's population spent only 10 per cent of the total expenditure on health. This includes people in the Asia-Pacific as well as African and Latin American countries. Africa accounts for about 25 percent of the global burden of disease but only about 2 per cent of global health spending. (World Health Report, 2003).

Similarly, health expenditure, both in terms of percentage of GDP spent on health and per capita health expenditure, is much higher in the developed countries (Table 2). There is a very wide variation of per capita health expenditure across countries, which is typically extremely low in developing countries compared with most of the developed countries. In most of the developed countries, public health spending has relatively higher ratio than the private spending. By contrast, in middle developed and low developed countries, either private expenditure dominates or there is very little difference between the shares of private and public expenditure, although in general both tend to be low. All the private expenditure in India (as in some other countries) is constituted by out-of-pocket expenses. This is inherently regressive and puts a disproportionate burden for healthcare on poor households.

According to the Report of the National Commission on Macroeconomics and Health, 2005, households undertook nearly three-fourths of all the health spending in the country. Public spending was only 22 per cent, and all other sources accounted for less than 5 per cent.

Widespread poverty, restrictive government policies and a lack of investment have prevented a strong domestic healthcare market from taking shape in India. Increases in personal income and government healthcare outlays, combined with longer life expectancy, should lead to average annual growth in healthcare spending of around 13 percent in rupee terms in 2007-11⁴. National healthcare spending in 2006 is estimated about US \$43.5 billion which is 5 percent of GDP. This spending is expected to rise to about 5.2 percent of GDP or US \$75.5 billion by 2011 (*The Economist Intelligence Unit*). Real private consumption is forecast to increase by 6.3 percent annually in 2007-11, which might lead to year-to-year percent increase in pharmaceuticals sales (Table 3).

HEALTHCARE INFRASTRUCTURE IN INDIA

Primary health system in India is primarily driven by the medical practitioners, Health assistants and workers. Due to the inadequate manpower the primary

health system need qualified and skilled medical practitioners apart from skilled and efficient health workers (Table 4).

Indian Primary healthcare infrastructure is not sufficient enough to cope with the requirements of the domestic market and the growth of Healthcare sector (Table 5). The facilities provided under the Indian system of medicines in India are also inadequate to sufficiently cover the demand for better healthcare system (Table 6).

The household and public expenditure in India is witnessing a wide disparity across states. The states that are lagging behind, in providing the adequate funds and infrastructure, need to stress upon policies to fuel the growth and minimize the gaps in the total healthcare system in India (Table 7).

STRUCTURE OF HEALTHCARE FINANCING IN INDIA

Public spending in health care is very low at 17 percent and the National Health Policy has stressed upon this issue. More than 86 percent of healthcare financing is through unplanned (out-of-pocket) spending (Figure 1).

The majority of healthcare services in India are provided by the private sector. Private sector comprises of around 80 percent of healthcare expenditure, with various levels of government covering the remaining 20 percent. In the government sector, the states provide the bulk of healthcare services. The scope for higher public spending on healthcare will be limited, as long as India's combined central and state government deficit remains at around 7 percent of GDP.

The healthcare spending will be sustained by two demographic trends: increase life expectancy and an ageing population. Life expectancy which averaged 66.5 years in 2002-06, is expected to increase to an average of 70 years in 2007-11. The proportion of the population aged 65 years and over is also rising and will increase from 4.9 percent in 2006 to 5.4 percent in 2011. These levels are far lower than most of the developed countries.

Medical tourism characterized by patients traveling to India for medical treatment, will continue to grow. India has established as a leading destination for medical tourism and expected to grow by 30 percent a year over the next 5 years and will be a market of around US \$2 billion by 2012. Many private hospitals in India, today, have the medical technology to match the standards of US and UK hospitals. India will continue to offer high levels of personal medical care and significantly cheaper costs than hospitals in the US and Western Europe.

LIMITATIONS OF INDIAN HEALTHCARE SYSTEM

The Indian Healthcare services are struggling from certain limitations that are the major concerns for future growth of the market. These are poor literacy rate, low socio-economic status, inadequate number of qualified doctors, lack of control of government agencies, poor medical facilities, political interference, excessive privatization and lack of facilities to tackle potential epidemic diseases³. The situation of the Indian healthcare system is grim and urgently needs to be revamped. In such a scenario, conventional techniques of providing healthcare services would not be sufficient.

MODEL FOR HEALTHCARE SERVICES IN INDIA

Many healthcare firms are using the Service Quality model as a conceptual framework for measuring service quality delivery in Health Care Services⁵. The service quality model indicates that consumer quality perceptions are influenced by a series of four distinct gaps occurring in organizations. These gaps on the service providers' side can impede delivery of services that consumers perceive to be of high quality (Figure 2).

HEALTHCARE STRUCTURE: FUTURE PERSPECTIVE

The Indian healthcare sector is at the precipice of a monumental change in direction, wherein the decisions made by the industry leaders and policy makers today, will shape the future of the industry. Every aspect of healthcare delivery is being challenged by forces that promise to usher in a new era and may give shape to a completely different model than what is believed to be an ideal model today. According to the FICCI-Ernst & Young study (January 2007), the Indian healthcare industry is well poised to grow at a CAGR of 15 per cent, with the private sector being responsible for almost 90 per cent of the growth. The key growth drivers are strong domestic economy, increasing literacy rates and growing public health awareness, higher incidence of lifestyle-related diseases, shift in focus from socialized to private healthcare, easier financing for a capital-intensive industry, increasing penetration of health insurance, recognition by government of healthcare as a priority sector, growth of medical value travel and medical tourism. Private hospitals are expected to rake in \$35.9 billion (Rs 1,50,000 crore) in 2012 compared to \$15.5 billion (Rs 6,500 crore) in 2006⁷.

Indians are expected to spend far more on healthcare and share of healthcare spending will rise as fast as education and three times as much as the share of food, beverages and tobacco (Figure 4). Upcoming small cities and rural centers will contribute almost as much to the pharmaceutical growth as metros and top-tier towns (Figure 5). Rising incomes, healthcare insurance and better healthcare infrastructure will spur growth (Figure 6).

The share of private hospitals in the healthcare system will continue to grow compare to the government hospitals and will bring more professional approach towards the healthcare delivery (Figure 7). Many more Indian households will have health cover, and there will be more hospitals to spend it in (Figure 8)⁸.

FUTURE INDIAN HEALTHCARE FORMATS

Medical treatment has advanced exponentially over the last two decades. However, the packaging and delivery of treatment has not shown the same improvement and growth over the time frame. This has left the consumer struggling with scattered and inconvenient healthcare delivery systems. These systems lack transparency and are difficult to access. Overall, the existing systems are providing sub optimal levels of experience and returns for consumers, payers and suppliers. While hospitals will continue to be the mainstay of treatment for episodic acute care we see a fundamental shift in the nature, mode and means of delivery of care. Preventive and chronic care are best treated in an ambulatory environment close to the place where the patient resides. This transformation is already evident and shall continue to grow. Recent studies had proposed the future healthcare formats mentioning the format type, their functionality, target customers, and service differentiators (Table 8).

CONCLUSION

It is evident that the last decade has seen the healthcare sector transition from a static and seemingly inconspicuous industry to an increasingly dynamic and significant industry today. A decade ago in India, health (and the healthcare sector), was not usually considered as a key driver of national economic performance. However, over the years, there has been a fundamental change to this paradigm, with incontrovertible evidence from the world over firmly establishing that improved health leads to better economic performance.

The delivery capability of India's healthcare industry has not been able to match up with the burgeoning population and socio-economic changes. This is expected to undergo a sea change with the availability of affordable, convenient and quality healthcare delivery system. The entry of Health Insurance companies in the Indian healthcare market in 2007 promises a plethora of innovative services. It is expected that around 15,000 healthcare providers including hospitals, blood banks, diagnostic centers and ayurvedic hospitals will be accredited under the National Accreditation Board for Hospital and Healthcare Providers (NABH) for standardization in healthcare delivery in India.

REFERENCES

- Curian, Joe (2006), *Healthcare and Medical Equipment market in India*, Healthcare Summit.
- Parera, Russell (2004), *Health Insurance in India: devising an appropriate model*, KPMG.
- Mukherji, Srimoti, *Healthcare Indicators*, ICRA report on Indian Healthcare and TIFAC.
- Chandrasekhar, C. P., and Ghosh, Jayati, *Health expenditure in India*, <http://www.blonnet.com/2006/09/19/stories/2006091901451100.htm>.

- *ibid.*
- Devi, Syamala M., and Mago, Vijay (2005), *Multi agent model for Indian rural health care*, Leadership in Health Services, Vol. 18, No. 4, pg. i-xi.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985), *A conceptual model of service quality and its implications for future research*, Journal of Marketing, 49:4, pg. 41-50.
- Prasad, Kali, *The Business of Healthcare: An Industry Diagnostic*, <http://www.expresshealthcaremgmt.com/200710/market25.shtml>.
- *India Pharma 2015: A Mckinsey Report*, Businessworld (2007), pg. 58-59.
- *New paradigms in healthcare delivery*, Technopak Healthcare Outlook (2007), Volume 2.
- *Statistics on Healthcare Manpower and Infrastructure (2004-05)*, Planning Commission, Government of India, www.indiastat.com.
- *Statistics on facilities in Alternative System of medicine in India*, Socio-Economic Statistics, Central Statistical Organisation, Ministry of Statistics and Programme Implementation, Govt. of India (2002), www.indiastat.com.
- *Healthcare Financing in India*, An WHO and CII-Mckinsey study (2003).

TABLES

TABLE 1: HEALTHCARE INDICATORS OF MAJOR WORLD MARKETS

Year (2004)	US	UK	Mexico	Brazil	China	India
Life expectancy (average no. of years)	77.4	78.3	72.6	71.4	72.5	64.0
No. of Physicians (per 1,000 people)	2.7	1.9	1.7	1.2	1.7	0.4
Healthcare spend (USD per capita)	5,365	3,036	336	236	62	32
Healthcare spend (% of GDP)	13.2	8.4	5.5	7.5	5.0	5.3

Source: Economist Intelligence Unit. KPMG. 2004.

TABLE 2: GLOBAL HEALTHCARE INDICATORS

HDI rank	Country	Health expenditure as % of GDP (2001)		Per capita expenditure on health (PPP in \$)	Out-of-pocket expenditure as % of private expenditure (2001)	Life expectancy at birth (2001)	Infant mortality rate per 1000 live births (2001)	Per capita GDP (\$) (2001)
		Public	Private					
1	Norway	6.9	1.2	2920	96.8	78.7	4	36974
7	The US	6.2	7.7	4887	26.5	76.9	7	34946
9	Japan	6.2	1.8	2131	74.9	81.3	3	32540
13	The UK	6.2	1.4	1989	55.3	77.9	6	24186
52	Cuba	6.2	1	229	76.8	76.5	7	2234
58	Malaysia	2.1	1.8	345	92.8	72.8	8	3748
65	Brazil	3.2	4.4	573	64.1	67.8	31	2888
89	Azerbaijan	1.1	0.5	48	97.7	71.8	77	679
99	Sri Lanka	1.8	1.9	122	95	72.3	17	849
104	China	2	3.4	224	95.4	70.6	31	918
127	India	0.9	4.2	80	100	63.3	67	462
144	Pakistan	1	3	85	100	60.4	84	401
169	Ethiopia	1.4	2.1	14	84.7	45.7	116	93

Source: The Economist Intelligence Unit, 2007.

TABLE 3: HEALTHCARE INDICATORS IN INDIA: FORECAST

Healthcare and pharmaceuticals forecasts						
	2006	2007	2008	2009	2010	2011
Life expectancy, average (years)	67.9	68.6	69.3	69.9	70.5	71.1
Life expectancy, male (years)	65.7	66.3	66.9	67.5	68.0	68.6
Life expectancy, female (years)	70.4	71.2	71.9	72.6	73.3	74.0
Infant mortality rate (per 1,000 live births)	37.1	34.6	32.3	30.2	28.1	26.3
Healthcare spending (Rs bn)	1,969	2,235	2,521	2,910	3,294	3,663
Healthcare spending (% of GDP)	5.0	5.1	5.1	5.2	5.2	5.2
Healthcare spending (US\$ bn)	43.5	48.1	53.6	61.3	68.6	75.5
Healthcare spending (US\$ per head)	40	43	48	54	59	65
Physicians (per 1,000 population)	0.6	0.6	0.6	0.6	0.6	0.6
Pharmaceutical sales (US\$ m)	6,205	6,911	7,768	8,769	9,937	11,142

Sources: US Census Bureau; Economist Intelligence Unit.

TABLE 4: SHORTAGES IN MANPOWER IN PRIMARY HEALTH SYSTEM IN INDIA (2004)

Particular	2004
Multipurpose Worker (Female)/ANM	11191
Health Worker (Male) Multipurpose Worker (Male)	67261
Health Assistant (Female)/LHV	3198
Health Assistant (Male)	5137
Doctor at PHC's	880
Surgeons	1121
Obstetricians and Gynecologists	1074
Physicians	1457
Pediatricians	1607
Total Specialists	5335
Radiographers	1017
Pharmacists	1869
Laboratory Technicians	6344
Nurse/Midwives	12722

Source: Planning Commission, Govt. of India¹¹

TABLE 5: INFRASTRUCTURE FOR PRIMARY HEALTHCARE IN INDIA

Year	Health Sub-Centres*	Primary Health Centres**	Community Health Centres***	Dispensaries (Indian Systems of Medicine)
1967	17521	4793	214	14803 (1980)
1992	131369	20407	2188	23611
2001	137311	22842	3043	23442
April 2005	142655	23109	3222	22735 (Reduction in nos. of homeopathy dispensaries)

Note : *For every 5000 population in plains and for every 3000 population in hills. ** For every 30000 Population in Plains and for 20000 population in the hills. *** For every 120000 population.

Source: Planning Commission, Govt. of India.

TABLE 6: FACILITIES UNDER INDIAN SYSTEM OF MEDICINE IN INDIA (AS ON APRIL 2002)

(Numbers)					
Facilities	Ayurveda	Unani	Sidha	Yoga	Naturopathy
Hospitals	2957	312	238	8	23
Beds	43555	5023	1991	150	832
Dispensaries	14755	961	354	65	56
Registered Practitioners	430263	43330	17392	-	482
(i) Under Graduate Colleges	209	36	6	-	6
(ii) Admission Capacity	9250	1505	320	-	170
(i) Post-Graduate Colleges	58	8	2	-	-
(ii) Admission Capacity	866	76	90	-	-
Licensed Pharmacies	7778	450	437	-	-

Source : Selected Socio-Economic Statistics, 2002, Central Statistical Organisation, Ministry of Statistics and Programme Implementation, Govt. of India¹².

TABLE 7: HOUSEHOLD, PUBLIC AND TOTAL HEALTH EXPENDITURE IN INDIA (2004-05)

Household, public and total health expenditure in India (2004-05)

States	Household Exp. (Rs. Crores)	Govt. Exp. (Rs. Crores)	Other Exp. (Rs. Crores)	Aggregate Exp. (Rs. Crores)	PC NH Exp. (Rs.)	PC G. Exp. (Rs.)	PC Other Exp. (Rs.)	PC Exp. (Rs.)	NH as % of THE (%)	PE as % of THE (%)	OE as % of THE (%)
Central Govt.	0	14819	730	15549	0	137	7	144	0	95.3	4.7
A. P.	6441	1696	640	8777	820	216	82	1118	73.38	19.39	7.29
Arun. Pradesh	430	67	0	497	3776	589	0	4365	86.51	13.49	0
Assam	3054	672	52	3778	1089	239	19	1347	80.84	17.78	1.38
Bihar	11854	1091	202	13147	1021	124	23	1497	90.17	8.3	1.53
Delhi	1004	721	55	1780	664	476	37	1177	56.41	40.48	3.11
Goa	524	116	22	662	3613	798	153	4564	79.17	17.48	3.35
Gujarat	4893	996	424	6313	920	187	80	1187	77.51	15.78	6.71
Haryana	3385	421	175	3981	1518	189	79	1786	85.03	10.56	4.4
H.P.	2126	306	40	2472	3377	486	64	3927	85.99	12.38	1.63
J & K	1759	471	47	2277	1609	431	43	2082	77.26	20.69	2.05
Karnataka	3847	1267	353	5467	702	231	64	997	70.36	23.18	6.46
Kerala	8373	1048	281	9702	2548	319	86	2952	86.3	10.8	2.9
M.P.	6432	1051	228	7711	746	164	35	1200	83.41	13.63	2.96
Maharashtra	11703	3527	726	15957	1156	348	72	1576	73.34	22.1	4.55
Manipur	420	89	8	517	1680	356	32	2068	81.24	17.2	1.56
Meghalaya	58	94	8	160	242	388	34	664	36.45	58.37	5.18
Mizoram	38	58	0	96	405	623	0	1027	39.39	60.61	0
Nagaland	1024	84	7	1116	4897	404	37	5338	91.74	7.57	0.7
Orissa	2999	684	111	3795	786	179	29	995	79.04	18.02	2.93
Punjab	3493	827	273	4593	1379	326	108	1813	76.05	18	5.95
Rajasthan	3399	1190	267	4855	565	198	44	808	70	24.5	5.5
Sikkim	72	55	0	127	1274	965	0	2240	56.89	43.11	0
T.N.	3624	1590	760	5974	566	248	119	933	60.67	26.61	12.72
Tripura	253	100	13	366	760	301	40	1101	68.99	27.35	3.66
U.P.	17158	2650	550	20359	924	150	31	1152	84.28	13.02	2.7
W.B.	7782	1715	433	9929	931	205	52	1188	78.38	17.27	4.36
U.Ts.	3160	325	227	3712	11168	52	37	598	85.13	8.74	6.12
State Totals	109308	17965	5906	133178	1012	167	54	1233			
GT [GOI+ State]	109308	32784	6636	148727	1012	304	61	1377	73.5	22	4.46

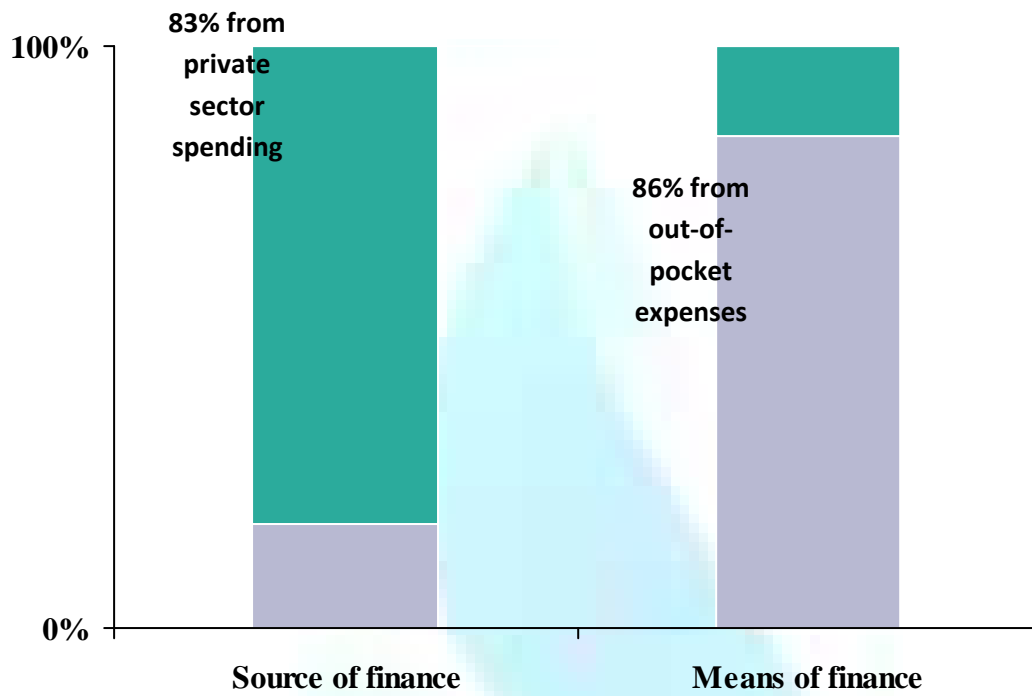
Source : Based on National Health Accounts (NHA) 2001-02
 Notes : (i) Household Expenditure based on NHA for the year 2001-02 and extrapolated for 2004-05
 (ii) Central Govt. expenditure includes transfer to states, other central ministries and central PSUs, and data obtained from Demand for Grants (Provisional), Govt. of India.
 (iii) Govt. Expenditure includes Central, States, Local Govt., and PSUs, data obtained from States Finances (Provisional), RBI, various issues
 (iv) Others include foreign agencies, private firms and NGOs; data relates to 2001-02, which is subsequently extrapolated for 04-05.
 WPC: HH Exp. - Per Capita Household Expenditure; PC: G Exp. - Per Capita Govt. Expenditure; PC: Other Exp. - Per Capita Other Expenditure; NH as % of THE - Household as % of Total Health Expenditure; PE as % of THE - Public Expenditure as % of Total Health Expenditure; OE as % of THE - Other Expenditure as % of Total Health Expenditure; C. Govt. - Central Govt.; U. T. - Union Territories.

TABLE 8: INDIAN HEALTHCARE DELIVERY FORMATS FOR FUTURE

Delivery Formats	Functionality	Service Differentiator
Retail Healthcare	Basic/Primary Medical Care in Retail Outlets (Markets/High Streets/Malls)	Accessibility and convenience
Medical Malls	Multiple independent clinics/ stores/centers in a mall set up	Accessibility & greater depth of service
Day Care Surgery Center	Diagnostic & Therapeutic stand alone intervention centers	Better ambience, high patient satisfaction & cost effectiveness.
Assisted Living	Special Residential care (with Medical Facilities) meeting needs of the elderly.	Planned facility enabling self sufficiency & quality of life.
Rehabilitation Centers	Restoring functionality in a convenient environment	Better accessibility at a lower cost.
Boutique Health Centers	Focus on beauty and wellness	Personalised care in an exclusive environment

Source: Technopak Healthcare Outlook, 2007⁹.

Figure 1: Health care financing in India, 2002 (%)



Source: WHO, CII-McKinsey study, 2003¹³.

FIGURE 2: GAPS IN HEALTHCARE SERVICES

Gap 1	Differences between patient expectations and management perceptions of patient expectations
Gap 2	Difference between management perceptions of patient expectations and service quality specifications
Gap 3	Difference between service quality specifications and service actually delivered
Gap 4	Difference between service delivery and what is communicated about the service to patients
Gap 5	Perceived service quality is defined in the model as the difference between consumer expectations and perceptions, which in turn depends on the size and direction of the four gaps associated with the delivery of service quality on the marketer's side

FIGURE 3: CONCEPTUAL MODEL OF SERVICE QUALITY⁶ (Parasuraman et.al., 1985)

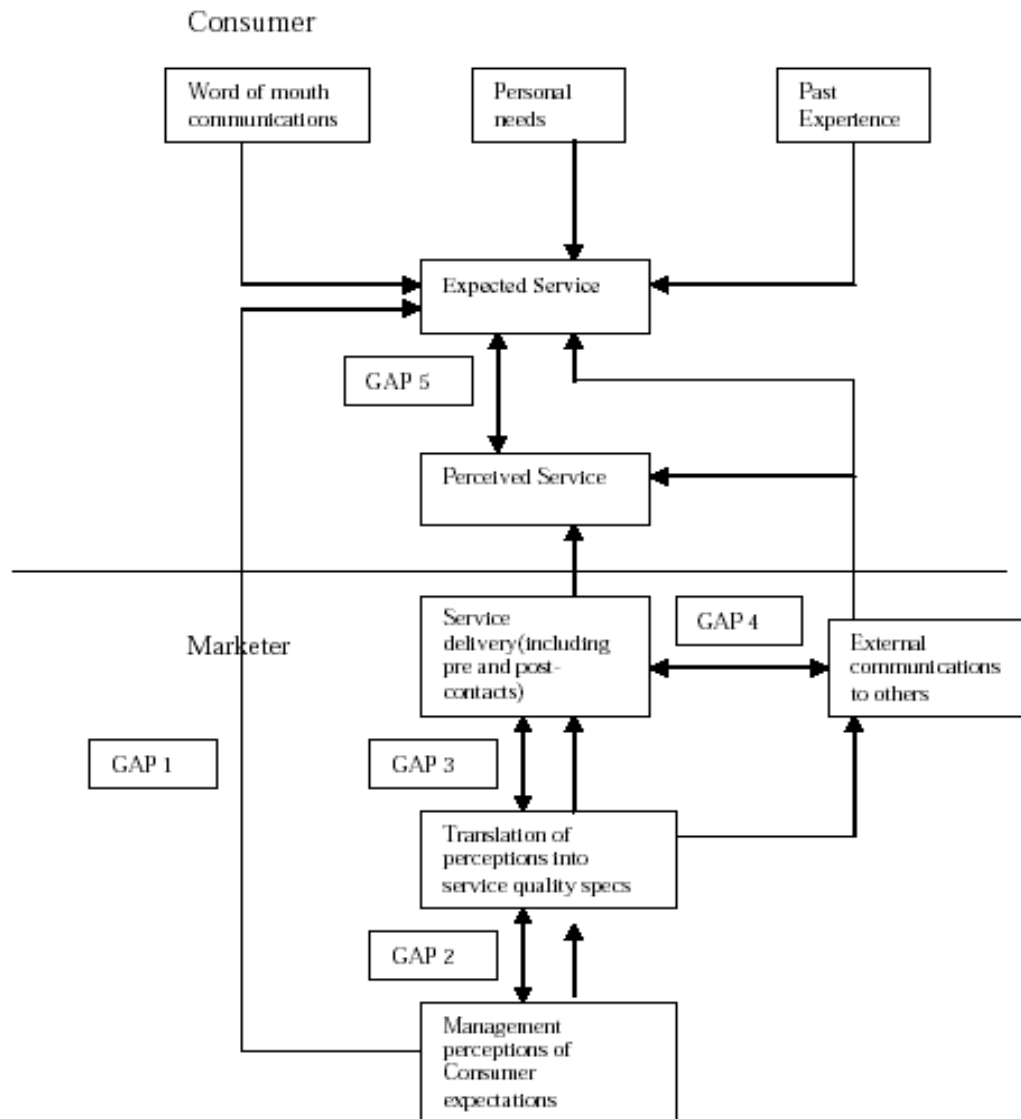
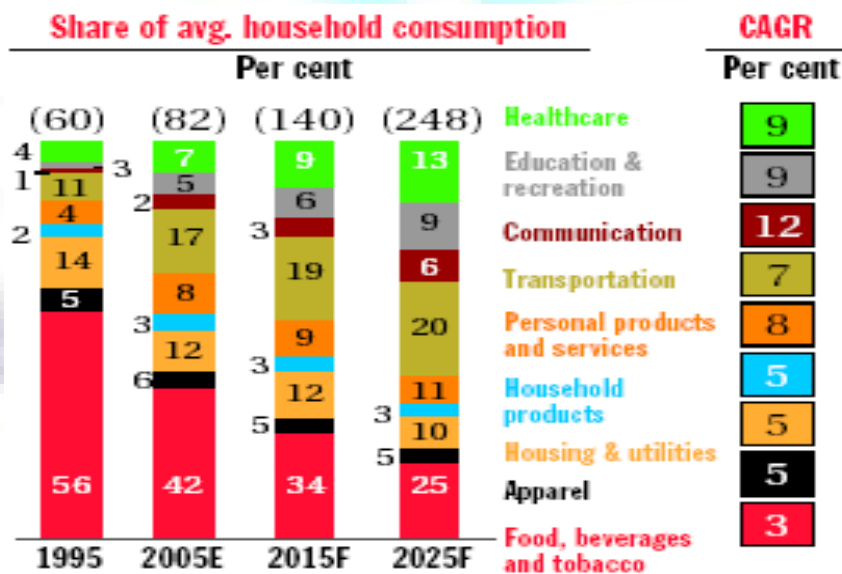
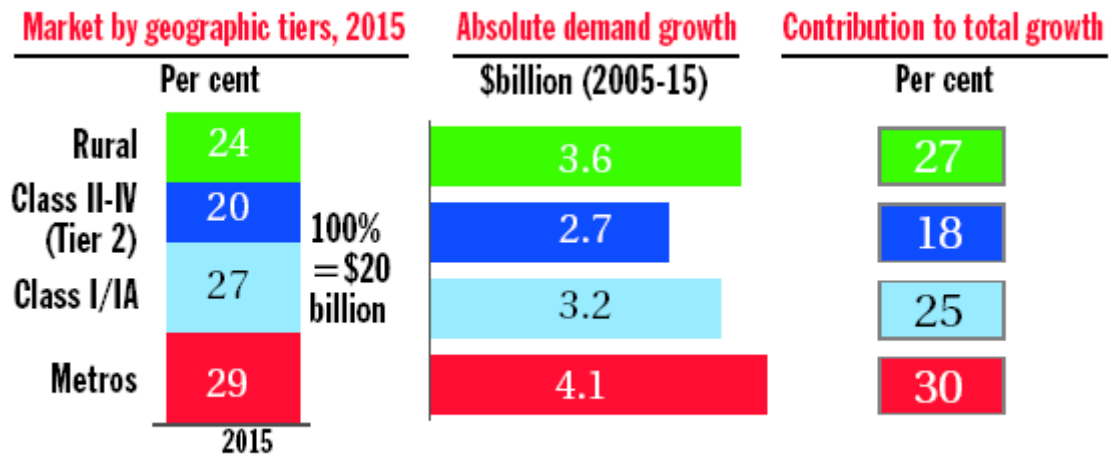


FIGURE 4: HEALTHCARE CONSUMPTION EXPECTED TO TRIPLE



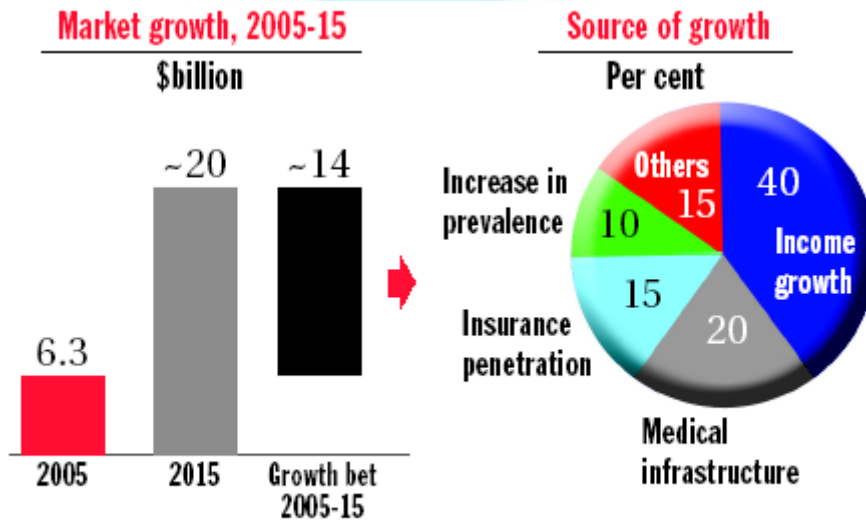
Figures have been rounded off; Figures in brackets are average household consumption in Rs thousand Source: McKinsey report 07

FIGURE 5: RURAL AND TIER-II MARKETS TO CONTRIBUTE ALMOST HALF OF GROWTH TILL 2015



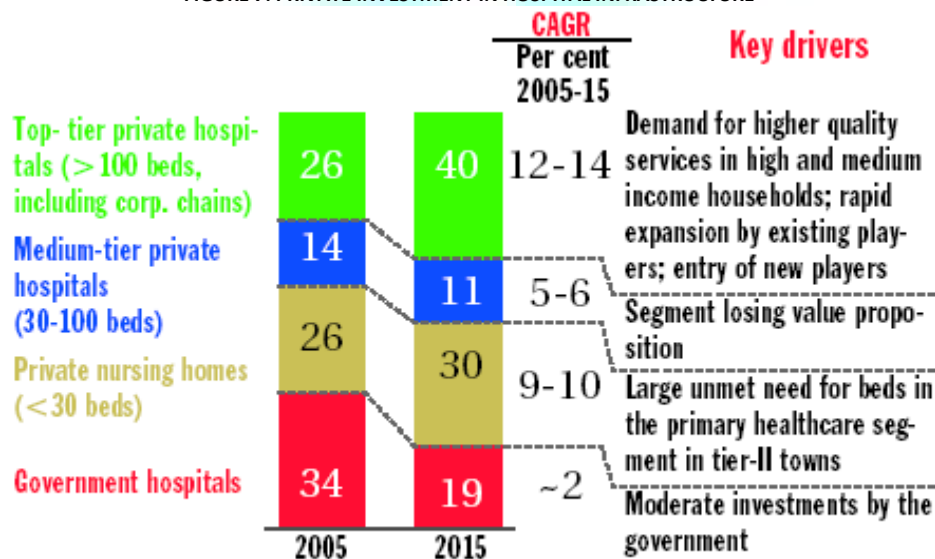
Metros: more than 1 million population, Class I towns: 0.1-1 mn, Class II-IV: 5k- 0.1 mn, Rural: less than 5k
 Source: McKinsey India Pharmaceutical demand model

FIGURE 6: AFFORDABILITY AND MEDICAL INFRASTRUCTURE TO DRIVE DEMAND GROWTH



Source: McKinsey India Pharmaceutical demand model

FIGURE 7: PRIVATE INVESTMENT IN HOSPITAL INFRASTRUCTURE



Source: Secondary research annual reports; interviews; McKinsey analysis

FIGURE 8: 20 PERCENT OF INDIAN POPULATION INSURED BY 2015

Components	Key drivers	Coverage (million)	
		2006	2015
Premium-based health insurance	Removal of regulatory hurdles; active market shaping by private health insurers; entry of international players and life insurers	25-30	~125
Social insurance/welfare funds	Relaxation in income ceiling or enterprise criteria (though this will be limited by small size of organised workforce with wage employment)	35-40	~50
Employer provided (sponsored benefits)	Employers increasingly preferring premium-based coverage plans; no appreciable growth expected in public sector employment	30-35	~35
Community insurance (self-funded)	Increased efforts of NGO/self-help groups	2-3	8-10

Source: Secondary research, interviews, McKinsey analysis



INCREASING WOMEN EMPLOYMENT IN IT INDUSTRY: AN ANALYSIS OF REASONS

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ABSTRACT

Number of women employed in Indian IT industry is growing. Researchers found the industry's picturisation as 'gender neutral', social status, growth opportunities and lucrative salary are the attracting forces. NASSCOM reports and others found strong business case for employing women in the IT industry. This paper based on primary data explains the other reasons that are making more women to enter the IT industry. Due to emerging socio-cultural and industrial HR policies change, technical competence and confidence is increasing among women. Availability of career guidance at collages, Campus selection method, existence of working relatives in the same industry, presence of women member in the recruitment committee, recruitment of non-technical personnel by the companies and increasing social acceptance of the women as software professional are the other factors which are increasing proportion of women in the Indian IT workforce.

KEYWORDS

Women, IT, Software, NASSCOM, Employment.

INTRODUCTION

 ASSCOM Mercer(2008) reports increasing employment of women in the Indian IT industry from 421,460 in 2006 to 670,984 in 2008. During 90's the 20% of the total IT workforce was women, in the year 2010 NASSCOM-PWC(2010) reports it increased to 30% median. Som Mittal, NASSCOM Chairman, expected men-women ratio to reach 60:40 by 2010 in software segment and in ITES already it has crossed in favour of women i.e. 40:60. Number of women entering IT profession (Mallish, Ilavarasan and Vigneshwar (2009) rejects IT employeemes as professionals and consider them as workers) is increasing. According to NASSCOM-PWC (2010) women constitutes 37% median of the entry level workforce. Even if as Neetha(2009) and Gurumurthy(2003) found women employed in IT sector constitutes very small proportion of the overall employment of women, the study of women employment in IT industry is essential. Because inspite of IT industry in its nascent stage, considered to be important for women empowerment. According to Primo(2003), Pande(2004), Jimmy and Elias(2006) and Mitter(2003) women participation in terms of producer/employee is essential to get the power to influence and to avoid further marginalization due to 'digital-divide'. Contrary to the developed nations, in developing countries women employment in ICT industry is increasing. This paper tries to analyse the reasons for increasing employment of women in the IT industry.

OBJECTIVES

Main purpose of the present study is to analyze the reasons for increasing women employment in the IT industry with in that specially in software companies.

METHODOLOGY

Present study utilizes both primary and secondary resources. Primary data has been collected through structured questionnaires, which were directly distributed to software employees at Bangalore, Pune, Hyderabad and Hubli. 128 employees responded. Based on simple averages, analysis has been done. NASSCOM Reports, Journals were used as secondary resources.

REASONS FOR THE INCREASING NUMBER OF WOMEN

Basically there are two main reasons for increasing number of women in the IT industry. First, many women are aspiring for IT jobs and another is IT industry itself is realizing the strong business case for employing women.

a. Women are aspiring for IT job?

As Parikh and Sukhatme (2008) observed, number of women in engineering courses is increasing. Further most of them are opting for IT related courses. Mukherjee(2008), and Sucheta (2008) explained the reasons like; social status, branding of IT jobs as 'gender-neutral' and 'women-friendly', westernized work environment, lucrative salary etc. In India women basically work for two reasons. Women belonging to higher socio-economic strata work for 'social status' and women belonging to lower-middle economic strata work to support their families. IT industry provides both; economic power and social status. (Cautiously it has to be considered because with in IT industry, software and hardware sector carry higher social status but not the ITES-BPO jobs). Earlier proportion of women working for social status was more as Babu(2004 and 2008) found most of the women were not the prime-bread-earners for their family. But NASSCOM-PWC (2010) reports increasing proportion of prime-bread-earners among women IT employees now.

b. Business case for employing more women by IT Companies.

According to Som Mittal 'Gender Inclusivity' is not a CSR activity rather a business imperative and necessary for survival. Employing women is essential for IT companies to reduce the problem of 'talent crunch' and 'manpower shortage' that it is facing. Attrition being another serious threat, IT companies are considering women to be more loyal and stable. Nasscom-Mercer (2009) reports 17% attrition among women compared 19% for men. Further it explains the qualities of women that better suits the job which are now realized by the companies; leadership, motivational strength, empathy, emotional intelligence, management. Loyalty, less attrition, good communicators, strong team players, well-versed in multitasking. Cost advantage is another reason as Hafkin and Taggart(2001) finds "comparative wages of women in developing countries were one-sixth to one-twentieth of those for women in developed countries". More women in the workforce helps companies to build their brand image, to understand consumer needs better and increased profitability as observed by McKinsey(2008) in terms of higher return on equity, higher return to share-holder value and higher operating margins.

FINDINGS

Along with the above cited reasons, over the time period due to the changes found in social, structural and industries HR policies additional factors due to which women employment in IT industry is increasing are observed. They are as follows,

1. INCREASING CONFIDENCE ABOUT THEIR TECHNICAL COMPETENCE AMONG WOMEN

In European countries inspite of SET (Science, Engineering and Technology) degrees most of the women hesitated to enter the SET profession due to the lack of confidence about their technical capability. Increased unemployment among women engineers was the observed phenomenon even in India. But as showed in Table-1, out of 128 respondents 78.12% said that they themselves opt for their profession compared to 21.88% who didn't. Even today women's jobs are decided by their family and not by themselves. But as 78.12% said that 'it was their decision to enter the job', represents increasing 'job consciousnesses' and 'confidence about their technical ability'.

TABLE-1 DECISION ABOUT THE JOB

Decision about the profession	Female
Self	100(78.12%)
Others	28(21.88%)
Total	128

Source: Primary survey

2. AVAILABILITY OF PROPER CAREER GUIDANCE

'Finding first job' is the main difficulty of women engineers according to Parikh and Sukhatme (2008). But now most of the 'Technical' and even 'non-Technical' education centers have opened their own career guidance cell and placement sections. Due to the persistent barrier for women's networking ability and lack of mobility they are able to get necessary information about the employment opportunities and links through these cells. Table -2 explains that nearly 69% of the respondents were benefitted by their College Career Guidance Cell.

TABLE-2 AVAILABILITY OF CAREER GUIDANCE AT COLLEGE

Career guidance at College	Female
Available	88(68.75%)
Not available	39(30.47%)
Total	128

Source: Primary survey

3. CAMPUS SELECTION METHOD

As Vasavi and Upadhyaya (2008) explain four important methods for recruitment practiced by IT Companies. They are, Campus Selection, Employee Referral, Open Advertisement and Direct Interview. Primary analysis of the respondents about their method used to get the first job in table-3 show more bias in terms of campus selection as the proportion is 46.09%. Hence through 'campus selection' Companies themselves approach the women. Once through this method they enter their 'first job', opting for another through other methods is not difficult as they will have some 'network' by the time and even their parents will get confidence about their daughters job and safety.

TABLE-3 RECRUITMENT METHOD THROUGH WHICH WOMEN GOT THEIR FIRST JOB

First mode of recruitment	Female
1. Campus Selection	59(46.09%)
2. Employee Referral	12(9.38%)
3. Open Advertisement	22(17.19%)
4. Direct Interview	35(27.34%)
Total	128

Source: Primary survey

4. PRESENCE OF WORKING RELATIVES/FRIENDS IN THE SAME INDUSTRY

One of the Head of the IT courses of a well known Engineering collage while doing our survey expressed that 'to enter and sustain' in the IT profession women require working relatives in the same field. The logic can be traced as it gives them networking ability which can be used to enter the profession through 'Employee Referral method'. And another advantage for their first employment parents and family members will feel relaxed to send their daughters to distant places if they find already existing working relative in the same place. Their perception about the statement is negative as in table-4, 92% of the respondents disagreed with the statement that 'for women to enter and sustain in the industry, relatives working in the same industry is necessary'. But practically, nearly 60% of the respondents had working relatives.

TABLE-4 RELATIVES AND ENTRY TO THE IT INDUSTRY

Is this Necessary to have relatives?	Female
Yes	06(4.69%)
No	118(92.19%)
Total	128
Do you have Relatives in the IT field?	Female
Yes	74(57.81%)
No	53(41.41%)
Total	128

Source: Primary survey

5. PRESENCE OF WOMEN MEMBER IN THE RECRUITMENT COMMITTEE

Parikh and Sukhatme (2008) recommended 'the presence of women members in the recruitment committees'. IT industry images itself as gender-neutral and IT employees reluctant to consider any aspect in terms of gender influence. Still as a 'Gender inclusivity' measure many companies have appointed women members in the recruitment committees. Does it have any positive impact on the fresh entrants? For this nearly 60% of the respondents accepted that there was a woman member in the Recruitment committee. But whether it helped them or not only 20 (15%) respondents replied that they were benefitted by a woman's presence in the RC. Even if in percentage terms 15% is not a considerable impact but neither it is possible to neglect.

6. RECRUITMENT OF NON-TECHNICAL PERSONNEL

Earlier companies for recruitment concentrated only on technical degree holders and IIT and IIM students. Till date number of women students is negligible in IIT's and IIM's and REC's (Parikh and Sukhatme, 2008). As their 'personnel' requirement increased, companies widened their scope to tier-2 and tier-3 cities where most of the women students are concentrated. When even that couldn't suffice their requirement, they started employing personnel with any formal education who can be easily trained for the industry requirement based on their reasoning and logical ability. This phenomenon worked out positively for women who are concentrated in social sciences and humanities.

In the present analysis Table-5 shows that 68.75% of the respondents had 'Technical education', 7.81% had the 'professional education' and 18.75% were formal graduates and postgraduates. Company's policy of recruiting non-technical personnel enlarged the number of women employees in the industry.

TABLE-5 QUALIFICATION OF THE WOMEN EMPLOYED IN IT

Qualification	Female
I. Technical: B.E, B.Tech,M.E, M.Tech, MCA, PGDCA, BCA,BCS,Dip	88(68.75%)
II. Professional: B.F.A., BBA, MBA, BBM	10(7.81%)
III. Others: B.A., B.Com., B.Sc., M.Com., M.Sc., M.A., P.U.	24(18.75%)

Source: Primary survey

7. INCREASING SOCIAL ACCEPTANCE' OF WOMEN AS IT EMPLOYEE

'Social status' is already observed reason by researchers. But along with that 'increasing social acceptance' of women as IT employee is reducing the socio-cultural barriers and providing them supportive environment in family and society. 83% of respondents agreed that their profession has given them a social status. And 95% of the respondents said that their families are supportive to them. Obviously this social acceptance will allow parents to help their daughters to study IT courses and join IT sector. But this 'social acceptance' cannot be taken with all IT industry jobs. ITES jobs still are not acceptable in the middle-class societies. And some researchers found that due to their BPO jobs some of the women are not finding matches. Further in spite of being selected in the campus selection many parents are not allowing their daughters to join.

CONCLUSION

In Indian IT industry already 'gender bias' is witnessed and there is a concentration of women at the lower level. Industry people attribute lesser number of women in the industry as a reason for their less representation in the top positions. As IT industry still in its nascent stage and as it matures with more number of women employees, influence of women can be expected to increase and stereotypical gender roles may start changing. As Salaas and Accesso(2005) says 'number matters' Hence it is necessary to increase the number of women in the industry at first instance.

REFERENCES

1. Chris Fuller and Haripriya Narasimhan "Empowerment and Constraint: women, work and the Family in Chennai's Software Industry" *"In an outpost of the Global Economy; work and workers in India's Information Technology Industry"* Edited by Carol Upadhy and A.R.Vasavi, Routledge publication pp, 190-210.
2. Ewa Ruminska-Zimmy and Gretchen Elias, consultant,"Women and ICT use in the UNECE Region", UNEconomic Commission for Europe Series: Entrepreneurship and SMEs. –
3. Gurumurthy, A (2003), "Bridging the Digital Gender Divide: Issues and Insights on ICT for Women's Economic Empowerment", New Delhi: UNIFEM
4. Hafkin, Nancy and Taggart, Nancy, (2001) Gender, information technology, and developing countries: An analytical study; <http://www.comminit.com/en/node/1861>
5. Mukherjee Sanjukta (2008); "Producing the knowledge Professional: Gendered Geographies of Alienation in India's New High-tech Workplace" *"In an outpost of the Global Economy; work and workers in India's Information Technology Industry"* (2008) Edited by Carol Upadhy and A.R.Vasavi, Routledge publication p: 50- 73.
6. Margarita Salas and Fundacion Acceso (2005): *"Women as Professionals in the Costa Rican Information Technology Sector"*, A Developing connection: Bridging the policy Gap between the Information Society and Sustainable Development. IISD.
7. Mitter Swasti(2003) Globalisation and ICT: Employment Opportunities for Women ; <http://gab.wigsat.org/partIII.pdf>
8. Mallish C.M and Ilavarasan P.Vigneswara (2009), Workers, not Professionals, Situating Indian Software Programmers, Labour and Development, Vol.14-15, No. 2%1, June, pp; 1-21.
9. Neetha N(2009), Changing Dimensions of Female Employment in India: Insights from NSSO Data, Labour and Development, Vol. 14-15, No. 2&1,June, pp 22-47.
10. Parikh, P P and Sukhatme, S P (2004), "Women Engineers in India", EPW, Jan. 10, 2004, p; 193-201.
11. Pande, Rekha.(2004) "Digital Bridge or Digital Divide- Assessing Gender Equations and the Indian Experience in Information and Communication Technologies" *Paper presented at the annual meeting of the International Studies Association, Canada, Mar 17, 2004* ,2010-04-27 http://www.allacademic.com/meta/p73094_index.html
12. Priyabadini Sucheta (2008), *"Social mapping of women students in engineering: A case study of bhubhaneshwar, Orissa"*, *Indian Jl. Of Social Research, Vol.49(4) Oct-Dec pp: 325-337*
13. Primo, N., 2003, 'Gender issues in the information society', Paris: UNESCO Publications for the World Summit on the Information Society (WSIS), UNESCO WSIS Publication Series URL: http://portal.unesco.org/ci/file_download.php/gender_issues.pdf?URL_ID=12847&filename=10704640205gender_issues.pdf&filetype=application%2Fpdf&filesize=379764&name=gender_issues.pdf&location=user-S/&PHPSESSID=3efff83117356bab5d2ac0496daaa82

BOOKS

1. Babu P. Ramesh(2008), "Decent work and Labour in Offshored services", *"Shifting Trajectories: work organization, Labour Relations and Mobilisation in Contemporary India"*, VVGNI, pp; 123-147.
2. Babu P.Ramesh (2004), "Labour in Business Process Outsourcing: A case study of Call Centre Agents". NLI research studies series No. 051/2004. VVGNI.
3. "In an outpost of the Global Economy; work and workers in India's Information Technology Industry" (2008) Edited by Carol Upadhy and A.R.Vasavi, Routledge publication

REPORTS

- NASSCOM-IIM Ahmedabad Report 2007.
 NASSCOM -Mercer 2008.
 NASSCOM-MERCER Report 2009
 NASSCOM-PWC Report 2010.
 McKinsey'Women Matter' 2008.

IMPACT OF ORGANIZATIONAL CLIMATE, ROLE AMBIGUITY AND ROLE CONFLICT ON ORGANIZATIONAL COMMITMENT AMONG THE FACULTY IN ENGINEERING COLLEGES

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ABSTRACT

This paper examines the relationship of organizational climate, role ambiguity and role conflict with organizational commitment. Four dimensions of climate for faculty (considerations, intimacy, disengagement and production emphasis) and three dimensions of organizational commitment (affective, normative and continuance) along with role ambiguity and role conflict were measured on 160 faculty working in Engineering colleges. The results show that all the independent variable (role ambiguity, role conflict and organizational climate) are associated with organizational commitment (normative commitment, continuance commitment and affective commitment). A negative correlation exists between affective commitment and role ambiguity, role conflict. At the same time a positive correlation was found between affective commitment and organizational climate. A possible explanation for this is that some differences were existing among the faculty members with regard to their roles and climate prevailing in the campus which made them show difference in their commitment towards the organization. The result does predict that role ambiguity and role conflict has an influence on affective commitment were by reducing them would increase a better organizational climate into the organization resulting in affective commitment among the faculties.

KEYWORDS

Organisational Climate, Role Conflict, Engineering Colleges.

INTRODUCTION

Human resources management places great emphasis on developing and maintaining a workforce highly committed to the organization. HRM is the set of practices that business uses to ensure that they have an effective workforce in place to meet operational needs. Organizational commitment is a state in which an employee identifies with a particular organization and its goals, and wishes to maintain membership in the organization. Despite often difficult working conditions, faculty must display professionalism and rigour qualities which are demanded from them by means of teaching and research activities. The impact of the work environment on professional attitudes and behavior has long been the concern of behavioral scientists (Aranya and Ferris, 1984). Much of the research involves professions such as engineering, medicine, nursing, social work, and education (Arches, 1991). The research is motivated primarily by the changing environment in which professionals function and the relationship of this environment to the organizational commitment of the individual professional. The objective of this research is therefore to link the emotions felt at work by faculty to their organizational commitment and to the organizational climate, role conflict and role ambiguity that they experience.

Organizational commitment was found to be related to the work related attributes of role conflict and role ambiguity (Joanne Brandt, 2008). The effect of organizational climate, role ambiguity, role conflict have an reflection on organizational commitment in academic setting is not well understood. Universities have placed emphasis on reputation, image, and the quest for research level status; and teaching for collaborative productivity have not been given top priority or advocated as worthwhile (Shulman, 1993). The effect of role conflict and role ambiguity on organizational outcomes such as commitment and retention has received less attention, and was typically conducted in non-academic settings (Meyer & Allen, 1991; Meyer, Allen & Smith, 1993; Mowday, Porter & Steers, 1982). This research explores organizational climate, role ambiguity, role conflict and their effect on organizational commitment to the academic setting of faculty members.

Neumann and Finaly-Neumann (1990) indicated that "Universities need dedicated faculty members who not only join their university, but continue to remain actively involved in innovative research activities; prepare new materials and approaches for teaching; build, assess, and reform academic programs; maintain high levels of academic standards; participate in academic decision making; and work closely and actively with their students". Thornton (1970) explored the relationship between organizational involvement and commitment to the university. Thornton (1970) found that when dimensions of organizational involvement were professional, junior college faculty were committed to both their profession and their school. Therefore, the study on relationships between organizational climate, role ambiguity, role conflict on organizational commitment in faculty would be of great usefulness to the colleges study and universities.

THEORETICAL FRAMEWORK

ORGANIZATIONAL COMMITMENT

The concept of organizational commitment has attracted considerable attention as an attempt to understand the intensity and stability of employee dedication to work organizations. Early researchers of organizational commitment (Becker, 1960; Kanter, 1968) identified that commitment is primarily a function of individual behaviour and willingness of individuals to their organization through actions and choices over time. He described commitment as the tendency to engage in consistent lines of activity, such as intent to stay in the organization. Organizational commitment is the relative strength of an employee's attachment or involvement with the organization where he or she is employed. Organizational commitment is important because committed employees are less likely to leave for another job and are not more likely to perform at higher levels. Commitment has recently been defined as "as force that binds an individual towards a course of action" (Meyer and Herscovitch, 2001). Meyer and Allen (1991) suggested three types of organizational commitment – 'affective' commitment reflects an attitude that centers on emotional identification with the values and goals of the organization whereas 'continuance' commitment is based either on the material benefit to be gained from remaining with the particular company or the anticipated costs and drawbacks of leaving and "normative" commitment remains with an organization because of the feeling of obligation. Organizational commitment is important to researchers and organizations because of the desire to retain a strong workforce.

ORGANIZATIONAL CLIMATE

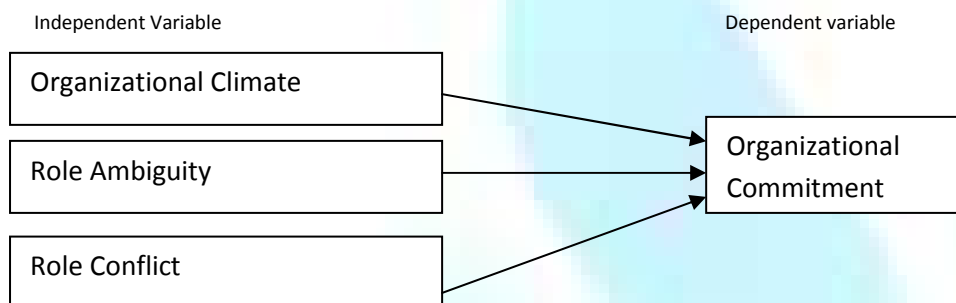
The concept of organizational climate was developed in the late 1930s by the social scientist, Lewin et al (1939). They used social climate term to describe subjective feelings or atmosphere they encountered in their studies of organizations. Organizational climate can be defined as sets of perceptually based descriptions of relevant organizational features, events and process (James and Jones, 1979). These perceptions represent cognitive interpretations of organizational context or situations, and summarize an individual's description of their work experiences (Schneider, 1975). Schneider and Barlett view organizational climate as perceptual as well as an individual attribute. Climate in this approach is viewed as summary or global perception held by individuals about their organizational environment. Regarding participative climate, employees have reported more satisfaction, more interpersonal trust, less role tension, and more organizational commitment when the discrepancies between the desired and actual participation were low (Alutto 1973). Some studies have also found certain aspects of organizational climate to be significantly related to organizational commitment.

ROLE AMBIGUITY & ROLE CONFLICT

Pritchard (1973) define role ambiguity as "uncertainty about the products to produce or their importance for the role and one's evaluation". Other role researchers have similar views of role ambiguity and have defined it as the lack of clear information about job responsibilities and expectations, which are required by the role incumbent for adequate performance of a role (Kahn, et al. , 1964). They argue that role stressors emerge from the social environment created by organizations. They also view organizations as a network of interrelated roles with role senders coming from various places within the organization. Top management, immediate supervisors, co-workers, and team members may all serve the role sending function for a given role incumbent (Kahn et al., 1964). Faced with changing roles, new and varied job responsibilities, and technological advances, a worker or role incumbent finds himself or herself in ambiguous situations. Poorly written or detailed job descriptions, unclear assignments, and mixed message from supervisors can all impact perception of role ambiguity (Huber, 1981).

Role conflict is a condition in which role expectations were contradictory or mutually exclusive. Role conflict and role ambiguity have been the subject of much research over the last few decades. Several theoretical models encompassing these constructs have been developed and empirically tested and two major meta-analyses have been reported (Jackson & Schuler, 1985). A handful of studies have examined the effect of wording factors on measures of role conflict and role ambiguity. Some of these have largely supported the intended substantive factors, while other studies have concluded that method factors predominate (Rizzo et al., 1970).

FIGURE 1: THEORETICAL MODEL OF THE RESEARCH



METHOD

The present study used quantitative survey method to collect the data. Few engineering colleges were taken for survey. The faculties address were collected from the college master roll randomly and 300 questionnaires were distributed among the selected members, out of which only 160 were found to be valid usable at the response rate of 89%. Questionnaire packets included measures of organizational commitment, role ambiguity, role conflict and organizational climate. The participant's belong to various disciplines as well as various designations of the college performing different roles.

MEASURES

Organizational commitment was measured using a revised version of the Meyer and Allen in Multidimensional Model of Organizational Commitment (1991). Meyer and Allen's Multidimensional Model of Organizational Commitment (Allen & Meyer, 1997) provided the foundation for this research. The Multidimensional Model of Organizational Commitment proposes that organizational commitment consists of three dimensions: (1) affective, (2) continuance, and (3) normative. Each of these dimensions of organizational commitment identified different consequences for employee behavior. The antecedent variables to organizational commitment intention chosen for this study included organizational and personal characteristics examined through demographic data obtained from the participants. The instrument contained six items for affective commitment, continuance commitment and normative commitment with seven point scale for measuring the respondents level of agreement with each statement (from 1- strongly disagree to 7- strongly agree). The reliability coefficient (Cronbach α) for this scale was 0.90. Organizational climate consists of ten items for consideration climate, disengagement climate, intimacy climate and production emphasis climate with seven point scale for measuring the respondents level of occurrence with each statement (from 1- even almost never occur to 7- even almost always occur). The reliability coefficient (Cronbach α) for this scale was 0.75. Role status variables chosen to examine in this study were role ambiguity and role conflict. The instrument contained six items for role ambiguity and role conflict with seven point scale for measuring the respondents level of satisfaction with each statement (from 1- very false to 7-very true). The reliability coefficient (Cronbach α) for this scale was 0.84.

RESULTS AND DISCUSSION

Descriptive statistics on the variables of the study is furnished in Table 1. The demographic variable denotes that the average number of years in their respective college is 5.3 years with total average experience being 8.25 years. The average age group of the faculty is 37 year.

TABLE 1: DESCRIPTIVE STATISTICS

Variables	N	Mean	SD
Demographic variable			
No.of years in this college	160	5.30	3.576
Total experience	160	8.25	7.459
Age	160	37.5	2.891
Role status			
Role ambiguity	160	5.55	3.542
Role conflict	160	4.29	6.106
Organizational Climate			
Consideration	160	3.58	8.932
Intimacy	160	3.40	6.707
Disengagement	160	2.99	4.700
Production emphasis	160	3.59	6.991
Organizational commitment			
Affective commitment	160	3.86	3.057
Continuance commitment	160	4.42	5.194
Normative commitment	160	4.68	6.468

Among the above three factors, role status has got the highest mean score 4.29. In this study role status variable chosen to examine were role ambiguity and role conflict. Role ambiguity has got the highest mean score of 5.55 which means that faculty members are not clear with their roles. Role conflict has got the mean score of 4.29, it represents that more conflict exist among the faculty members which might also be considered as one of the reasons for low commitment among them towards their work. Organizational commitment has the next highest mean score of 4.38 which should be highly valued in any organization. The organizational commitment of the faculty member in engineering college is good at the same time not too much encouraging as its value falls only slightly above the neutral point. Among the sub-factors of organizational commitment, the normative commitment has the mean score value of 4.48 highest above the other two. Normative commitment arises from an individual sense of obligation to the organization and reflects the degree that one's value and belief conform to those of the organization (Meyer & Allen, 1997). Continuance commitment has the mean score of 4.42 which is second highest score in the sub-factor of organizational commitment. Employees with continuance commitment perform only as required to keep their jobs (Meyer & Allen, 1997). This shows that faculty performs their work just for the sake of retaining their job. Affective commitment has the mean score of 3.86 which indicates faculties have very less job satisfaction among them. An affective commitment among employee improves the operational aspects of the organization. Such improvement include greater job satisfaction and involvement, as well as increase job performance (Marrow, 1993 ; Meyer & Allen, 1997). On the whole organizational commitment is very moderate or just slightly above the neutral value among the faculty members of engineering college. Organizational climate has the least mean score of 3.39 which represents the moderate climate prevailing in the institutions. Among the sub-factors of organizational climate, consideration and production emphasis sub-factor has the mean score of 3.58 and 3.59, which shows that output reproduced out of the work and the consideration for the faculty member in the organization is moderate. The study thus represents that when consideration for faculty member from management is moderate, same would be the production emphasis given by the faculty to the work. The sub-factor intimacy has the mean score of 3.40, shows that management intimacy and trust towards faculty members is also low. Disengagement has the least mean score with 2.99 which shows that they is a great disconnect between the understanding and communication of the faculty members with the management. The study clearly shows that moderate organization commitment exist in the organization because of more role conflict and disengagement among the faculty members which leads to a poor working climate inside the organization.

ORGANIZATIONAL COMMITMENT (AFFECTIVE, CONTINUANCE & NORMATIVE) AND THE THREE INDEPENDENT VARIABLES (ROLE AMBIGUITY, ROLE CONFLICT & ORGANIZATIONAL CLIMATE

Ho1: There is no significant relationship between organizational commitment and role ambiguity, role conflict, organizational climate.

Ha1: There is significant relationship between organizational commitment and role ambiguity, role conflict, organizational climate.

TABLE 2: CHI-SQUARE

Variables	Affective Commitment		Continuance Commitment		Normative Commitment	
	Chi-square value	Significance	Chi-square value	Significance	Chi-square value	Significance
Role Ambiguity	5.110	.000**	7.917	.000**	7.985	.000**
Role Conflict	7.517	.000**	1.042	.000**	1.175	.000**
Organizational climate	1.563	.052*	2.140	.000**	2.585	.000**

*Highly significant at 5% level of significance p<=.05

** Highly significant at 1% level of significance p<=.01

Table2 shows that all the variables are (p<=.01) highly significant with organizational commitment, therefore rejecting the null hypothesis. The Chi-square test revealed the significant relationship between the commitment and all the other independent variables (role ambiguity, role conflict & organizational climate) of the faculty member. From the table significance level (.000) has been achieved, this means chi-square test is showing a significant association between the above variables at 99% confidence level. Thus the organizational commitment and role ambiguity, role conflict and organizational climate are associated significantly with each other.

CORRELATIONS OF VARIABLES

This study was mainly concerned with the investigation of the relationship between organizational climate dimensions with organizational commitment. The organizational climate is an important variable that has been found positively correlated with employee's commitment (Ekvall, 1996). Literature of Ahmed and Alvi, 1987; Neumann et al, 1990; Steers, 1977; Decottis and Summer, 1997 suggest that there is a positive and significant relationship between organizational climate and employee's commitment. A correlation test was carried out; it was observed that among the dimensions taken for the study most of them were correlated with the dependent variable organizational commitment.

TABLE 3: CORRELATES OF ORGANIZATIONAL COMMITMENT WITH ORGANIZATIONAL CLIMATE – ROLE AMBIGUITY- ROLE CONFLICT

Factors	OCC	OCI	OCD	OCP	RA	RC
AC	.336**	.285*	.395**	.298*	-.252**	-.306**
CC	.369**	-.143	-.198*	.170*	-.361**	-.271*
NC	.283**	.023	.016	.251**	.136	-.059

** Correlation is significant at the 0.01 level (2 tailed)

*Correlation is significant at the 0.05 level (2 tailed)

(Note: OCC –Organizational climate consideration, OCI - Organizational climate intimacy, OCD - Organizational climate disengagement, OCP - Organizational climate production emphasis, RA- role ambiguity, RC – role conflict , AC- affective commitment, CC- continuous commitment and NC – normative commitment.) Table 3 presents the correlation between the variables in the study. A negative correlation and significant relationship exists between affective commitment and role ambiguity with ($r = -0.252, p < 0.01$) and role conflict with ($r = -0.306, p < 0.01$). Role ambiguity and role conflict are negatively correlated to affective commitment (Meyer & Allen, 2001). Therefore, it represents that the role ambiguity or role conflict has a direct affect on the affective commitment of the faculty in an organizational performance. A strong positive and significant correlation was found between organizational affective commitment and organizational climate. A positive relationship exists between continuance commitment and organizational climate consideration ($r = 0.369, p < 0.01$) and organizational climate production emphasis ($r = 0.170, p < 0.05$). The strong negative but significant correlation was found between organizational climate disengagement ($r = -0.198, p < 0.05$). This finding is compatible with the previous results of productivity (Litwin et al , 1973) and commitment (Laschinger , 2001) and strong for bottom line performance (Stringer, 2002). A high level of organizational climate disengagement in the work setting has high levels of organizational continuance commitment. A positive relationship exists between normative commitment and organizational climate consideration ($r = 0.283, p < 0.01$) and organizational climate production emphasis ($r = 0.251, p < 0.05$). Interestingly, role ambiguity and role conflict are negatively correlated with affective commitment but not with continuance and normative commitment. Therefore the set hypothesis (There is significant relationship between organizational climate, role ambiguity, role conflict and organizational commitment) is partially supported by the data. Role ambiguity, role conflict, and organizational climate significantly ($p \leq .05$) influenced all dimensions of organizational commitment.

DEMOGRAPHIC ANALYSIS

GENDER

Data analysis on the relationships between the gender demographic characteristic and the dependent variable organizational commitment used t-test for independent samples. This technique is appropriate when dealing with characteristics represented by two groups. Table 4 summarizes the difference between the genders.

TABLE 4: ORGANIZATIONAL COMMITMENT AND GENDER

	t	df	Sig.(2 tailed)
Affective organizational commitment	97.734	159	.000
Continuance organizational commitment	63.277	159	.000
Normative organizational commitment	54.968	159	.000

Table 4 t-tests for all the three forms of commitment result in significance value lesser than .05 which means that there is significant relationship between all the three forms of commitment and gender.

AGE, EDUCATIONAL LEVEL, DESIGNATION AND TENURE

Ho2: There is no significant relationship between faculty age, educational level, designation or tenure, and faculty affective commitment.

Ha2: There is a significant relationship between faculty age, educational level, designation or tenure, and faculty affective commitment.

Ho3: There is no significant relationship between faculty age, educational level, designation or tenure, and faculty continuance commitment.

Ha3: There is a significant relationship between faculty age, educational level, designation or tenure, and faculty continuance commitment.

HO4: There is no significant relationship between faculty age, educational level, designation or tenure, and faculty normative commitment.

Ha4: There is a significant relationship between faculty age, educational level, designation or tenure, and faculty normative commitment.

The relationship between the three forms of commitment and age, educational level, designation & tenure was investigated using one-way Analysis of variance (ANOVA) because these variables are measured on more than two levels. Table 5 shows the result of the analysis between affective, continuance and normative commitment and demographic variable.

TABLE 5: ANOVA BETWEEN ORGANIZATIONAL COMMITMENT AND DEMOGRAPHIC VARIABLES

Demographic variable	Affective Commitment		Continuance Commitment		Normative Commitment	
	F value	Significance	F value	Significance	F value	Significance
Age	6.974	.000	3.372	.020	5.107	.002
Educational level	4.497	.013	8.233	.000	3.052	.029
Designation	4.072	.008	6.268	.000	3.178	.026
Tenure	6.506	.000	6.753	.000	7.705	.000

The relationship between the three forms of commitment and demographic variables (age, educational level, designation and tenure) shows some difference between the groups. The F-test with a significance value ($p < .05$) shows that there is a significant differences somewhere between the groups. Therefore all the values are highly significant rejecting the null hypothesis Ho2, Ho3 and Ho4. It is to be concluded that there exist a significant relationship between faculty age, educational level, designation or tenure, and faculty organizational commitment. Personal characteristics of age, organizational tenure, and position tenure have been demonstrated to be correlated to all dimensions of organizational commitment (Meyer & Allen, 1991; 1997).

CONCLUSION

The study of faculty organizational commitment in academic setting is characterized by increasing changes in colleges. There is a greater emphasis on efficiency, flexibility and productivity. Colleges must be able to adopt more quickly and more easily changing conditions and expectations. Higher education is becoming a big business, with increasing pressure to obtain research funding and maintain high standards of teaching and learning. Faculty commitment to the university also provided important consequences for the faculty and the university. While this paper found evidences for the correlates of role ambiguity, role conflict, organizational climate in organizational commitment, cautions in interpreting the results is warranted since there are limitations to the study’s findings. Although the measurement of the independent and dependent variables are separated, the presence of bias due to common methods, that is, using a self evaluation instrument to measure all the variables is ruled out. Furthermore, a declarative instrument relying on participants’ memory was used, which may have caused hindsight bias. Faculty retention is especially important in schools and colleges. The teaching profession is facing a serious shortage of qualified faculty. Understanding commitment in the work place would make the faculty happier and more productive teachers and researchers. The identification of faculty to their organization with greater commitment can create a large driving force in performance.

REFERENCES

Ahmed, S. W. and Alvi, S.A. assessing Organizational Commitment in a developing country: Pakistan, A case study, Human relations, 1987, 40(5), pp. 267 – 280.
 Alutto, J. A., Hrebiniak, L. G. & Alonso, R. C. (1973). On operationalizing the concept of commitment. *Social Forces*, 51, 448-454.
 Aranya, N. and Ferris, K.R. (1984), “A re-examination of accountants’ organizational-professional conflict”, *The Accounting Review*, Vol. 59 No. 1, pp. 1-15.
 Arches, J. (1991), “Social structure, burnout, and job satisfaction”, *Social Work*, Vol. 36 No. 3, pp. 202-6.
 Blackhurst A, Brandt J & Kalinowski J(1998), Effects of personal and work related attributes on the organizational commitment and life satisfaction of women student affairs administrators. *NASPA Journal*, Winter 35, 86 – 99.
 Bruce Clayton, Stanley Petzall, Barabara Lynch and Julie Marget ., An examination of the organizational commitment of financial planners., *International Review*

- of Business Research Papers., Vol. 3., No.1., March 2007, pp 60 – 72.
- DeCotiis, T.A. and Summers, T.P. A path analysis of a model of the antecedents and consequence of organizational commitment, *Human relation*, 1987, 40(7), 445-470.
- Engel, G.V. (1969), "The effect of bureaucracy on the professional authority of physicians", *Journal of Health and Social Behavior*, Vol. 10 No. 1, pp. 30-41.
- Ekvall, G., Frankenheaeuser, M. And Parr, D. Change oriented leadership, stress and creative organizational climate, *European Journal of work and organizational psychology*, 1996, 5(1), 105 – 123.
- Fisher, R.T. (2001), "Role stress, the type A behavior pattern, and external auditor job satisfaction and performance", *Behavioral Research in Accounting*, Vol. 13, pp. 143-70.
- Gaertner, K.N. (1984), "Work satisfaction and family responsibility correlates of employment among nurses", *Work and Occupations*, Vol. 11 No. 4, pp. 439-60.
- Gregson T., 1992, An investigation of the casual ordering of job satisfaction and organizational commitment in turnover models in accounting, *Behavioural Research in Accounting.*, Vol. 4, pp. 80 – 95.
- Joanne Brandt, Personal and work related predictors of organizational commitment and life satisfaction of Slovak women in higher education, *College Teaching Methods & Styles Journal*, Feb. 2008, Vol. 4, No. 27.
- Jackson S., & Schuler R.S. (1985), "A meta analysis and conceptual critique of research on role ambiguity and role conflict in work settings", *Organizational Behaviour and Human Decision Process*, vol 36, pp. 16-78.
- Kahn R.L., Wolfe D.M., Quinn R.P., Snoek J.D., & Rosenthal R.A., (1964), *Occupational Stress; Studies in role conflict and ambiguity*, New York, Wiley.
- Kwiek M., (2003) Academic in transition: Transformation in the polish academic profession, *Higher education*, 45, 455 – 476.
- Laschinger, H., Finegan, J. and Shamian, J. The impact of workplace empowerment, organizational trust on staff nurses, work satisfaction and organizational commitment, *Health care Management review*, 2001, 26(3), 7 – 23.
- Lewin, K., Lippitt, R., and White, R. K. Pattern of aggressive behaviour in experimentally created 'social climate, *Journal of social Psychology*, 1939 10(2), 271-299.
- Litwin, G. and Stringer, R. Motivation and organizational climate, in Pritchard R.D. and Karasick B. W. The effects of organizational climate on managerial job performance and job satisfaction. *Organizational Behaviour and Human Performance*, 1973, 9(1), 126 – 146.
- Meiksins, P.F. and Watson, J.M. (1989), "Professional autonomy and organizational constraint: the case of engineers", *The Sociological Quarterly*, Vol. 30 No. 4, pp. 561-85.
- Meyer J P and Allen N J (1984), testing the "Side –Bet Theory" of Organizational Commitment: Testing Methodologies Considerations", *Journal Applied Psychology*, Vol. 69, pp. 372 – 378.
- Meyer J.P., & Allen N.J., (1991), " A three component conceptualization of organizational commitment", *Human Resources Management review*, Vol. 1, pp. 61-89.
- Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a tree-component conceptualization. *Journal of Applied Psychology*, 78 (4), 538-551.
- Meyer, J. P. and Allen, N. J. (1997). *Commitment in the workplace: Theory, research and application*. Thousand Oaks: SAGE Publications.
- Mowday, R. T., Porter, L. W. and Steers, R. M. (1982). *Employee-organization linkages: The psychology of commitment, absenteeism, and turnover*. New York: Academic Press.
- Murphy C.A., Owen S.V., & Gable R.K.(1988). Causes and consequences of role stress among higher education administrators, Papers presented at annual meeting of the American Educational Research Association, New Orleans L.A.
- Neumann, Y. and Finaly-Neumann, E. (1990). The reward-support framework and faculty commitment to their university. *Research in Higher Education*, 31 (1), 75- 97.
- Pritchard, R. and Karosick, B. (1973). The effects of organizational climate on job satisfaction. *Organizational Behavior and Human Performance*, 9, 126.
- Peter Berg , The role of the work environment and job characteristics in balancing work and family, University of North Carlonia , June 1999.
- Rizzo J., House R., & Lirtzman S. (1970), "Role conflict and ambiguity in complex organizations", *Administrative Science Quarterly* , Vol. 15, pp. 150 – 164.
- Rosenblatt, Z. and Ruvio, A. (1996), "A test of a multidimensional model of job insecurity: the case of Israeli teachers", *Journal of Organizational Behavior*, Vol. 17, pp. 587-605.
- Schneider, B. and Snyder, R. A. (1975). Some relationships between job satisfaction and organizational climate. *Journal of Applied Psychology*, 60 (3), 318-328.
- Shulman, L. (1993). Teaching as the responsibility of the community. *Change*, 25 (6), 6-8.
- Smolentseva A., (2003) , Challenges to the Russian academic profession, *Higher education*, 45, 455 – 476.
- Slantcheva S., (2003), The Bulgarian Academic profession in transition:, *Higher education*, 45, 455 – 476.
- Steers, R. M. (1977). Antecedents and outcomes of organizational commitment. *Administrative Science Quarterly*, 22, 46-56.
- Steward R.J., Patterson B.T., Morales P., Bartell P., Dinas P., & Power R., (1995), Women in higher education: Does interpersonal style matter? *NASPA, Journal* 33, 45 – 53.
- Ward L., (1995), Role stress and propensity to leave among new students affairs professionals. *NASPA Journal*, 33, 35 – 44.

PERFORMANCE APPRAISAL SYSTEM IN INCOME TAX DEPARTMENT: A CASE STUDY

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ABSTRACT

Performance appraisal is essential to understand and improve the employee's performance through the human resource development. It was viewed that performance appraisal was useful to decide upon employee promotion/transfer, salary determination and the like. But the recent development in human resources management indicates that performance appraisal is the basis for employee development. Performance appraisal indicates the level of desired performance level, level of actual performance and the gap between these two. The present study is an effort to assess the extent to which the performance appraisal system and its different variables such as Self-review; Identification of development needs; Developing mutual understanding and trust; Facilitating communication; Performance-review and Follow on action are found in the Income Tax Department by using the Mean, Standard deviation, Standard error and 't' test. The study is based on both the primary and secondary data. The paper found that the performance appraisal system is good in the Income Tax Department as perceived by most of the respondents.

KEYWORDS

Mutual understanding, Trust, Facilitating communication, Development needs, Performance-review, Self-review.

INTRODUCTION

Performance appraisal refers to how well someone is doing the assigned job. Job evaluation determines how much a job is worth to the organization and, therefore, what range of pay should be assigned to the job. It is a continuous process in every large scale organization. Traditional techniques of performance appraisal are appropriate for the stability and sustainable growth strategies. Similarly, appraisal by the superior is appropriate for these strategies. Modern performance appraisal techniques are suitable for growth strategies like expansion, diversification, joint ventures, mergers and acquisitions. These strategies help the company to meet competition, build competencies, acquire strengths, enhance market share, innovate and create new markets, new products and new technologies. Performance appraisal by the customers, subordinates and peers in addition to the superiors, help the employees to have a feedback from multiple directions, identify their deficiencies and acquire competencies through training and development. In addition, the modern techniques of performance appraisal and 360 degree performance appraisal enhance employee creativity which in turn contributes for the achievement of strategies like new product development, low cost leadership and differentiation strategies.

Performance appraisal is a method of evaluating the behaviour of employees in the work spot, normally including both the quantitative and qualitative aspects of job performance (Carrel and Kuzmits, 1992). Performance here refers to the degree of accomplishment of the tasks that make up an individual's job. It indicates how well an individual is fulfilling the job demands. Often the term is confused with effort, but performance is always measured in terms of results and not efforts. A student, for example, may exert a great deal of effort while preparing for the examination but may manage to get a poor grade. In this case the effort expended is high but performance is low. In order to find out whether an employee is worthy of continued employment or not, and is so, whether he should receive a bonus, a pay rise or promotion, his performance need to be evaluated from time to time (Halloran, 1985). When properly conducted performance appraisals not only let the employee know how well he is performing but should also influence the employee's future level of effort, activities, results and task direction (Byars and Rue, 1984). Under performance appraisal we evaluate not only the performance of a worker but also his potential for development (Beach, 1980).

REVIEW OF LITERATURE

Rao (1988) has stated the efforts of several banks in introducing a development oriented performance appraisal system in his paper 'Performance Appraisal System in Banks'. He contends that appraisal alone is not adequate to create a culture of development. Development has to be created through a variety of mechanisms. Moreover, the objectives of performance appraisal need to be defined clearly by the bank. The development oriented performance appraisal should form an integral part of HRD philosophy and HRD system of entire bank. Besides, performance planning should precede appraisal and the purpose of self-appraisal should be clearly understood and used. Luthans (1973) explained the Performance Appraisal system as prevailed in the organisations. It used to be solely a means of differentiating among hourly employees for wage increases, transfers, promotion and lay-off. However, in the recent years, performance appraisals are used not only for the above, but also as a means of communication, motivation and development of all employees in the organisation.

Rao and Rath (1992) feel that performance appraisal system is one of the key HRD instruments to achieve the objective of realising the organisational goal through tapping the individual talent. They admit that the success of an HRD instrument or system depends upon how effectively one implements its process. He emphasises on the continuous nature of the implementation thrust. Since performance appraisal system is a continuous process, having linkages to different human resource sub-systems facilitation, analysis, feed back and review have to be matched and made a cyclic process. They conclude that people generally accept the concept of categorisation. What they often debate about is the criteria used for categorisation. An appraisal system must guarantee fair methods of evaluation on one hand and on the other strategies must be evolved for ensuring fair and effective implementation.

OBJECTIVES OF THE STUDY

- To examine the Performance Appraisal System found in Income Tax Department.
- To compare and analyse the opinion of managers on the Performance Appraisal System in Income Tax Department.
- To test statistically whether there is significant difference in the opinion of managers in respect of Performance Appraisal System in Income Tax Department.

RESEARCH METHODOLOGY

UNIVERSE OF THE STUDY: The Central Board of Direct Taxes (CBDT) is a part of Department of Revenue in the Ministry of Finance of Government of India. On one hand, CBDT provides essential inputs for policy and planning of direct taxes in India, at the same time it is also responsible for administration of direct tax laws through the Income Tax Department. The Central Board of Direct Taxes is a statutory authority functioning under the Central Board of Revenue Act, 1963. The officials of the Board in their ex-officio capacity also function as a Division of the Ministry dealing with matters relating to levy and collection of direct taxes. Thus, the whole Income Tax department of Government of India is the universe of the study.

SELECTION OF SAMPLE & RESPONDENTS: This is basically an empirical study about the Performance Appraisal System, based on the perception of employees/officers working in Income Tax department selected for this purpose. Income Tax Department is large one spread over length and breadth of the country. So, we are constrained to limit our study to Haryana Region only.

The sanctioned manpower of the Income-tax Department is 61463 all over India. This includes 10647 Gazetted Officers, 42413 non-gazetted staff and 8403 Peons, etc. There is one Chief Commissioner of Income Tax for the Haryana Region comprising of 5 Commissioners of Income Tax at Rohtak, Hisar, Faridabad, Karnal and Panchkula. Each Commissioner has 3 Ranges headed by Additional Commissioner of Income Tax and each Range has one Assistant Commissioner and 4 Income Tax Officers. Besides, staff in the cadre of Inspectors, Office Superintendent, Senior tax Assistants, Tax Assistants, Stenographers, Daftari and Peons is provided. There is large concentration of manpower / human resources in field offices itself. Our respondents would be officers / employees posted in field offices of Haryana Region only.

TABLE - 1: TOTAL MANPOWER OF INCOME TAX DEPARTMENT (As on 31.3.2010)

Offices	Officers	Non Gazetted staff	Sub-staff	Total
Total manpower of Income Tax Offices in Haryana Region under study	149	401	197	747
Total manpower of Income Tax Offices in India	10647	42413	8403	61463

Source: www.incometaxindia.gov.in

TABLE - 2: SELECTION OF RESPONDENTS

Offices	Total Respondents	Selected respondents	Percentage
Commissioner's Office	97	22	22.68
Jt./Additional Commissioner's Office	122	19	15.57
Asstt./Dy. Commissioner's Office	130	21	16.15
Income Tax Officer's office	398	76	19.09
Total	747	138	18.47

TABLE - 3: DISTRIBUTION OF OFFICERS REGARDING PLACEMENT

Station of Placement	Respondents & Percentage	
	Respondents	%
Stations of Commissioner's Office	22	15.94
Stations of Additional/ Jt. Commissioner's Office	19	13.77
Stations of Asstt./Dy. Commissioner's Office	21	15.22
Stations of Income Tax Officer's office	76	55.07
Total	138	100.00

Table 3 exhibits that there are four categories of Officers posted in Income Tax Offices in Haryana i.e. (i) Stations of Commissioner's Office; (ii) Stations of Additional/Joint Commissioner's Office (iii) Stations of Asstt./Dy. Commissioner's Office (iv) Stations of Income Tax Officer's office.

TABLE - 4: DISTRIBUTION OF OFFICERS REGARDING HIERARCHY

Level of Hierarchy	Respondents & Percentage	
	Respondents	%
Higher level of management	3	2.18
Middle level of management	17	12.31
Lower level of management	118	85.51
Total	138	100.00

Table 4 reveals that there are three levels of Hierarchy management in Income Tax Department viz; (i) Lower level of management; (ii) Middle level of management and (iii) Higher level of management. While lower level of management comprises officials of cadre of Dy. Commissioner and below; middle level of management comprises officers of cadre of Joint/ Additional Commissioners and higher level of management consists of Commissioners and Chief Commissioner of Income Tax. There are 3 (2.18%) officers at higher level; 17 (12.31%) officers at middle level and 118 (85.51%) officers/officials at lower level out of total 138 respondents in the Income Tax Department in Haryana Region. So, we have to again satisfy with a lower number of respondents at the level of higher management due to reluctance on their part to share adequate information.

TABLE - 5: DISTRIBUTION OF OFFICERS REGARDING QUALIFICATION

Category of Managers	Respondents & Percentage	
	Respondents	%
Upto Graduates	102	73.91
Post Graduates	32	23.19
Professionals	4	2.90
Total	138	100.00

Table 5 exhibits that there are three types of officers according to qualification such as; (i) Graduates & below; (ii) Post graduates and (iii) Professionals like B.E., CA, MBA, CS and ICWA. In Income Tax department, there are upto graduate qualified 102 (73.91%); Post Graduates 32 (23.19%) and Professionals 4 (2.90%) out of total respondents of 138.

TABLE - 6: DISTRIBUTION OF OFFICERS REGARDING EXPERIENCE

Category of employees	Respondents & Percentage	
	Respondents	%
Low Experienced	43	31.16
Mediocre Experienced	67	48.55
High Experienced	28	20.29
Total	138	100

Table 6 exhibits that there are three types of officers according to the length of experience in Income Tax Department such as; (i) Low experienced (Below 8 years); (ii) Medium experienced (Between 8-18 years) and (iii) Highly experienced (Above 18 years) personnel. There exists 'Low experienced' 43 (31.16%); 'Mediocre experienced' 67 (48.55%) and 'Highly experienced' 28 (20.29%) out of total 138 respondents.

DATA COLLECTION: The study is based on both the types of data viz; primary as well secondary. The secondary data is collected through the memorandum, articles, brochures, annual reports and extracts from the books and website of the Income tax department selected for the study. The primary data is collected through a questionnaire administered on Officers/employees of Income Tax department working in Haryana Region. The said questionnaire instrument was developed by Rao, T.V. However, it applied with slight modifications here and there so that respondents can easily respond to it as well as it can facilitate the analysis work. There are two part of the questionnaire. The first section is for personal information about respondents regarding their age, qualifications, experience, pay scale and hierarchy level etc. in the Income Tax Department.

The second section namely Performance Appraisal is used for assessing the extent to which the performance appraisal system in the organisation is HRD – oriented. An HRD oriented appraisal system promotes participative planning of performance, participative analysis of performance leading to the identification of factors facilitating and hindering performance review, discussions, relatively more objective – assessment through task and target orientation, identification of development needs, more communication, openness mutuality and trust between appraisers and appraisees. The performance appraisal system comprises six variables as: (1) Self-review; (2) Identification of development needs; (3) Developing mutual understanding and trust; (4) Facilitating communication; (5) Performance-review and (6) follow on action.

SCORING PATTERN: Each statement has 5 choices on the pattern of Five-Point-Scale.

There are three statements in all in case of Self-review variable. Thus the score below 6 point out that this function is performed 'Ineffectively'; score 6-9 'Effectively' and score above 9 'Highly effectively'.

However, there are four statements in each of the other remaining five variables. Thus the score below 8 shows that the variables are performed 'Ineffectively'; score 8-12 'Effectively' and score above 12 'Highly effectively'.

TOOLS OF ANALYSIS: The following statistical tools would be applied for the purpose of analyzing the collected data:

't' Test -'t' Test would be used to determine whether the mean of a sample deviates significantly from the population mean. The value of the 't' – test is calculated as under:

Where

x = The mean of the sample
u = Populations mean

$$t = \frac{\bar{x} - u}{s} \sqrt{n}$$

n = The sample size

S = The Standard deviation of the sample.

If the calculated value of 't' exceeds the table value at desired level of confidence, this shows that difference between x and u is significant. On the other hand, if the calculated value of 't' is less than the table value at desired level of confidence, the difference between x and u is not statistically significant and hence the sample might have been drawn from a population with mean = u.

In addition to above some other statistical tools such as Mean, Standard deviation, Standard Error and Percentage have also been used in accordance with the requirement of the subject matter and the nature of inference to be drawn.

DATA ANALYSIS AND FINDINGS

The primary data has been analyzed in Table 7, 8, 9 and 10 on the basis of placement, hierarchy, qualification and experience of the officers/officials of Income Tax department working in Haryana Region.

PLACEMENT BASED ANALYSIS

Table 7 exhibits mean score values along with SD, SE and 't' values in respect of six variables explained beginning with, according to the placement of the officers/officials of Income Tax Department i.e. (i) Commissioner's Office; (ii) Jt. /Additional Commissioner's Office; (iii) Asstt./Dy. Commissioner's Office and (iv) Income Tax Officer's office.

In respect of Self Review variables, the mean values along with 't' values are 6.29(t-.76); 6.02(t-.34); 6.23(t-.14) and 6.09(t-.64) for the Commissioner's office, Jt./Additional Commissioner's Office, Asstt./Dy. Commissioner's Office and Income Tax Officer's office respectively. The mean values indicate that this function is performed effectively in the Income Tax Department as perceived by the officers of all the four categories. The 't' values show that the mean score value for the personnel of all the four group do not differ from the grand mean value. So, the 'Self review' function of performance appraisal is done effectively in the Income Tax Department as viewed by officers of all the four categories. However, there is still room for improvement i.e. of being highly effective in this regard. This is good that the perceptions of personnel of all the four categories are in conformity with that of population as witnessed by 't' values.

In connection with Identification of Development Needs variable, the mean score values along with 't' values are 7.97 (t-2.76); 7.51(t-.61); 6.45(t-.51) and 6.18(t-2.09) for the officers of the four classes respectively. The mean values show that this function is discharged effectively in the Income Tax Department as perceived by officers of Commissioner's office. However, the function is performed ineffectively as viewed by the Jt. /Additional Commissioner's Office, Asstt. /Dy. Commissioner's Office and Income Tax Officer's office. The 't' values indicate that the mean score value pertaining to the officers of Jt. /Additional Commissioner's Office and Asstt. /Dy. Commissioner's Office does not differ from the grand mean value. However, the mean score value for the officers of Commissioner's office and Income Tax Officer's office differs from the grand mean value. So, the Income Tax Department should take necessary steps to make the performance-appraisal-system helpful in identifying the development for needs of individuals. Also the opinions of officers of Commissioner's office and Income Tax Officer's office differ from that of population as 't' values prove.

In respect of variable of Developing Mutual Understanding & Trust, the values along with 't' values are 6.93(t-2.21); 6.24(t-.43); 5.26(t-1.06) and 5.76(t-2.01) for the officers of Commissioner's office, Jt./Additional Commissioner's Office, Asstt./Dy. Commissioner's Office and Income Tax Officer's office respectively. The mean values indicate that this function is performed ineffectively in the Income Tax Department as viewed by the officers of all the four categories. The 't' values show that the mean score value for the Jt. /Additional Commissioner's Office, Asstt. /Dy. Commissioner's Office does not differ from the grand mean value. However, the mean score value pertaining to the officers of Commissioner's office and Income Tax Officer's office differs from the grand mean value. Thus, this function is done ineffectively in the Income Tax Department as viewed by the officers of all the four groups. So, there is need to make the performance-appraisal-system helpful for developing mutual understanding and trust amongst employees of the Income Tax Department. The Income Tax Department will have to make serious efforts in this regard. It is bit disturbing that the views of officers of Commissioner's office and Income Tax Officer's office are not in harmony with that of population as proved by 't' values.

In regard of Facilitating Communication variable, the mean values along with 't' values are 6.85(t-3.26); 6.34(t-.54); 4.53(t-2.09) and 5.01(t-3.19) for the four classes of officers respectively. The mean value shows that this function is discharged ineffectively in the Income Tax Department as viewed by all the four categories of personnel. The 't' values show that the mean score value for the officers of Commissioner's office, Asstt./Dy. Commissioner's Office and Income Tax Officer's office differs from the grand mean value. However, the mean score value pertaining to the officers of Jt. /Additional Commissioner's Office does not differ from the grand mean value. Thus, this function is discharged ineffectively in the Income Tax Department as viewed by officers of all the four categories. So, much more is to be done to make the performance-appraisal-system useful for facilitating communication in the Income Tax Department. Also the

perception of officers of Commissioner's office, Asstt. /Dy. Commissioner's Office and Income Tax Officer's office is not in agreement with that of population as witnessed by 't' values.

In respect of Performance Review variable, the mean along with 't' values are 6.08(t-3.42); 4.83(t-1.09); 4.67(t-1.24) and 4.67(t-3.02) for the four groups of officers respectively. The mean values indicate that this function is performed ineffectively in the Income Tax Department as perceived by the officers of all the four segments. The 't' values indicate that the mean score value pertaining to the officers of two groups i.e. officers of Commissioner's office and Income Tax Officer's office differs from the grand mean value. However, the mean score value for other two segments viz. Jt./Additional Commissioner's Office, Asstt./Dy. Commissioner's Office does not differ from the grand mean value. Thus, the function, 'Performance review' is done ineffectively in the Income Tax Department as viewed by the officers of all the four groups. So, Income Tax Department should take necessary steps to improve performance-review-aspect of performance appraisal. It is also a matter of concern that the views of Commissioner's office and Income Tax Officer's office are not in conformity with that of population as witnessed by 't' values.

In regard of Follow action variable, the mean values along with 't' values are 7.98(t-4.02); 6.07(t-.50); 5.03(t-2.64) and 5.12(t-5.32) for the Commissioner's office, Jt./Additional Commissioner's Office, Asstt./Dy. Commissioner's Office and Income Tax Officer's office respectively. The mean values indicate that this function is discharged effectively in the Income Tax Department as viewed by the officers of Commissioner's office. However, the function is performed ineffectively as perceived by the personnel of Jt. /Additional Commissioner's Office, Asstt. /Dy. Commissioner's Office and Income Tax Officer's office. The 't' values show that the mean score value for the officers of Jt. /Additional Commissioner's Office does not differ from the grand mean value. However, the mean score value pertaining to the officers of Commissioner's office, Asstt./Dy. Commissioner's Office and Income Tax Officer's office differs from the grand mean value. So, Income Tax Department should make all efforts to strengthen the follow on action aspect of performance appraisal in the organisation. It is also a matter of concern that the views of officers of Commissioner's office, Asstt. /Dy. Commissioner's Office and Income Tax Officer's office differ from that of population as 't' values prove. The Income Tax Department will have to make serious efforts in this regard. It is bit disturbing that the views of officers of Commissioner's office and Income Tax Officer's office are not in harmony with that of population as proved by 't' values.

HIERARCHY BASED ANALYSIS

Table 8 reveals the mean score values along with SD, SE and 't' values regarding six variables explained beginning with, according to the Hierarchy level viz. (i) Lower level; (ii) Middle level and (iii) Higher level of management. In regard of variable No. 1, the mean values along with 't' values are 6.13(t-1.49); 6.69(t-2.41) and 6.59(t-.32) for the lower, middle and higher level of management respectively. The mean values indicate that this function is discharged effectively in the Income Tax Department as perceived by the officers of all the three categories. The 't' values show that the mean score value for the lower and higher level of management does not differ from the grand mean value. However, the mean score value pertaining the middle level of management differs from the grand mean value. Thus, the 'Self review' function of performance appraisal is done effectively in the Income Tax Department as viewed by the officers of all the three categories. But none is of the opinion that the function is discharged in highly effective manner. So there is still room for improvement i.e. of high effectiveness in this regard. Also the views of middle level of management only are not in conformity with that of population as proved by 't' value.

In connection with variable No. 2, the mean score values along with 't' values are 6.42(t-2.54); 8.17(t-3.78) and 9.74(t-2.01) for the three categories of personnel respectively. The mean values indicate that this function is performed ineffectively in the Income Tax Department as viewed by the personnel of lower level. However, the function is done effectively as perceived by the two other categories i.e. middle level and higher level of management. The 't' values indicate that the mean score value pertaining to the personnel of all the three groups differs from the grand mean value. So, Income Tax Department needs to do much more to make performance appraisal system helpful in identifying development needs of individuals. It is bit disturbing that the opinion of all the three groups of officers differs from that of population as witnessed by 't' values.

In regard of variable No. 3, the mean values along with 't' values are 6.24(t-1.25); 7.20(t-1.75) and 8.04(t-1.37) for the three classes of officers respectively. The mean values show that this function is discharged ineffectively in the Income Tax Department as viewed by lower and middle level of management. However, the function is performing effectively as perceived by the officers of higher level of management. The 't' values indicate that the mean score value for each level of hierarchy does not differ from the grand mean value. So, the Income Tax Department should take serious steps to see that performance appraisal can be made instrumental for developing mutual understanding and trustworthy amongst employees. It is satisfying that the opinions of all the three categories of officers are in harmony with that of population as evident by 't' values.

In respect of variable No. 4, the mean values along with 't' values are 5.81(t-1.44); 6.34(t-1.87) and 8.03(t-2.57) for the three groups of officers respectively. The mean values indicate that this function is done ineffectively in the Income Tax Department perceived by the officers of lower and middle level. However, the function is done effectively as viewed by officers of higher level. The 't' values show that the mean score value pertaining to lower and middle level of management does not differ from the grand mean value. However, the mean score value for other officers of higher level are differs from the grand mean value. So, the Income Tax Department would have to travel a long distance in order to improve performance appraisal that can be helpful for facilitating communication in the organisation. It is good that the views of lower and middle level of management are in conformity with that of population as proved by 't' values.

In respect of variable No. 5, the mean values along with 't' values are 5.27(t-1.96); 6.67(t-2.81) and 7.21(t-1.78) for the lower, middle and higher level of management respectively. The mean values indicate that this function is discharged ineffectively in the organisation as viewed by the managers of all the three categories. The 't' values show that the mean score value for the managers of lower and higher level do not differs from the grand mean value. However, the mean score value pertaining to the officers of higher level differs from the grand mean value. Thus, the Income Tax Department should take necessary steps to improve performance review aspect of performance appraisal in the organisation. It is convincing that the opinion of lower and higher level of management is in agreement with that of population as witnessed by 't' values.

In connection with variable No. 6, the mean values along with 't' values are 5.76(t-1.79); 6.78(t-2.30) and 8.07(t-2.27) for the officers of three hierarchy level respectively. The mean values indicate that this function of performance appraisal is discharged ineffectively in the Income Tax Department as perceived by the officers of lower and middle level of management. However, the function is performed effectively as viewed by the officers of higher level. The 't' values show that the mean score value for the other two categories of officers i.e. lower and higher level differs from the grand mean value. Thus, the 'Follow on action' function of performance appraisal is discharged ineffectively in the Income Tax Department as perceived by the officers of lower and middle level. However, the officers of higher level consider that the function is done effectively in this regard. But none consider it to be highly effective. The follow on action constitutes an important ingredient of any performance appraisal system. So, Income Tax Department should take all the necessary steps to strengthen this aspect of performance appraisal in the organisation. It is bit disturbing that the perception of middle and higher level of management is in contrast with that of population as proved by 't' values.

QUALIFICATION BASED ANALYSIS

Table 9 deficits the mean score values along with SD, SE and 't' values in regard of six variables explaining to begin with, according to the qualification of officers/officials of the Income Tax Department viz. (i) Upto Graduates ; (ii) Post Graduates and (iii) Professionals like B.E., B.Tech., MBA, CA, ICWA, CS etc.. In regard of variable No. 1, the mean values along with 't' values are 5.81(t-1.73); 6.53(t-.65) and 6.50(t-.91) for the three groups of officials/officers respectively. The mean values indicate that this function is discharged ineffectively in the Income Tax Department viewed by the personnel of group (i). However, the function is performed effectively as perceived by the personnel of class (ii) and (iii). The 't' values show that the mean score value pertaining to the officers of all the three classes does not differ from the grand mean value. Thus, there is still room for improvement viz; to be highly effective in this regard. It is satisfying that the opinion of all the three categories of managers is in conformity with that of population as evidenced by 't' values.

In respect of variable No. 2, the mean values along with 't' values are 6.77(t-2.01); 8.09(t-1.03) and 8.04(t-.92) for the three classes of managers respectively. The mean values indicate that this function is discharged ineffectively in the organisation as viewed by the first category of officers. However, the function is performed effectively as perceived by the officers of other two categories. The 't' values show that the mean score value pertaining to the personnel of I and II

category differs from the grand mean value. However, the mean score value for the managers of category (iii) does not differ from the grand mean value. So, Income Tax Department should take necessary steps to make the performance appraisal system helpful for identifying development needed for individuals. It is bit disturbing that the views of I and II category of personnel are in conflict with that of population as evident by 't' values.

In regard of variable No. 3, the mean values along with 't' values are 5.74(t-2.78); 6.56(t-.48) and 8.01(t-3.10) for the managers of three categories respectively. The mean values indicate that this function is discharged ineffectively in the organisation as viewed by the officers of group (i) and (ii). However, the function is performed effectively as perceived by the III category of officers. The 't' values indicate that the officers of class (i) and (iii) differ from the grand mean value. However, the mean score value for the personnel of II category does not differ from the grand mean value. So, Income Tax Department should take necessary steps to make the performance appraisal system instrumental for developing mutual understanding and trustworthy amongst employees. Also the views of first and third categories of officers are not in harmony with that of population as 't' values prove.

In respect of variable No. 4, the mean score values along with 't' values are 6.03(t-3.31); 8.09(t-2.79) and 6.73(t-.85) for the three groups of personnel respectively. The mean values indicate that this function is discharged ineffectively in the organisation as viewed by the officers of group (i) and (iii). However, the function is performed effectively as perceived by the II category of officers. The 't' values show that the mean score value pertaining to the first and second class of officers differs from the grand mean value. However, the mean score value for class (iii) personnel does not differ from the grand mean value. So, Income Tax Department should take steps necessary to make the performance appraisal system helpful for facilitating communication in the organisation. It is a matter of concern that the opinion of first and second categories of officers differs from that of population as proved by 't' values.

In connection with variable No. 5, the mean score values along with 't' values are 5.34(t-1.96); 6.37(t-.77) and 6.49(t-.63) for the three categories of officers respectively. The mean score values indicate that this function is discharged ineffectively in the Income Tax Department as viewed by all the three category of personnel. The 't' values indicate that the mean score value for all the three classes of personnel does not differ from the grand mean value. Thus, the 'Performance-review' aspect of performance appraisal is highly lacking in the organisation as viewed by all the three groups of officers. It can be emphatically said that performance review constitutes an important component of performance appraisal. So, undoubtedly Income Tax Department should take serious steps in order to strengthen the performance review aspect of performance appraisal. It is convincing that the views of all the three categories of officers are in perfect agreement with that of population as evident by 't' values.

In respect of variable No. 6, the mean values along with 't' values are 6.18(t-2.07); 7.01(t-.27) and 8.02(t-2.19) for the three groups of personnel respectively. The mean values indicate that this function is performed ineffectively in the Income Tax Department as perceived by the officers of group (i) and (ii). However, the Job is done effectively as perceived by the III groups of officers. The 't' values indicate that the mean score value pertaining to the officers of group (i) and (iii) differs from the grand mean value. However, the mean score value for the officers of II group does not differ from the grand mean value. So, the Income Tax Department would have to make extra efforts in order to develop the follow on action system of performance appraisal. It is also disturbing that the opinion of first and third categories of officers differs from that of population as witnessed by 't' values.

EXPERIENCE BASED ANALYSIS

Table 10 exhibits the mean score values along with SD, SE and 't' values in regard of six variable explanation to begin with, according to the length of experience of officers of Income Tax Department viz, (i) Low experienced (Below 8 years); (ii) Medium experienced (Between 8-18 years) and (iii) Highly experienced (Above 18 years) personnel. In regard of variable No. 1, the mean values along with 't' values are 5.32(t-2.54); 6.07(t-.31); 6.80(t-2.71) for the three categories of officers respectively. The mean value indicates that this function is discharged ineffectively in the Income Tax Department as viewed by the officers of first category. However, this task is performing effectively as perceived by the officers of other two categories. The 't' values show that the mean score value pertaining to officers of first and third category differs from the grand mean value. However, the mean score value for the II category of officers does not differ from the grand mean value. So there is still scope for further improvement in this regard. It is also a matter of concern that the opinion of first and third category of officers is not in agreement with that of population as proved by 't' values.

In respect of variable No. 2, the mean score values along with 't' values are 6.17(t-2.09); 7.09(t-.27) and 8.05(t-2.61) for the three groups of officers respectively. The mean values show that this function is performed ineffectively in the Income Tax Department as perceived by the first and second groups of officers. However, the function is discharging effectively as viewed by the personnel of group (iii). The 't' values indicate that the mean score value for officers of class (i) and (iii) differs from the grand mean value. However, the mean score value pertaining to the officers of II category does not differ from the grand mean value. So, Income Tax Department should take all the steps necessary to make the performance-appraisal-system useful to identify developing needs of individuals. It is also worth nothing that the views of first and third categories of officers differ from that of population as evident by 't' values. In regard of variable No. 3, the mean values along with 't' values are 5.42(t-2.39); 6.24(t-.12) and 6.87(t-1.81) for the officers of three groups respectively. The mean values indicate that this function is performed ineffectively in the Income Tax Department as perceived by all the three categories of officers. The 't' values show that the mean score value for first group of officers differs from the grand mean value. However, the mean score value pertaining to the officers of group (ii) and (iii) does not differ from the grand mean value. Thus, this aspect is ineffective in the Income Tax Department as viewed by the personnel of all the three categories. So, Income Tax Department will have to make all efforts in order to turn the performance appraisal system as an important tool for developing mutual understanding and trustworthy among employees. It is satisfying that the perception of II and III category of officers is in conformity with that of population as witnessed by 't' values.

In respect of variable No. 4, the mean score values along with 't' values are 5.71(t-1.83); 6.30(t-.18) and 6.78(t-1.65) for the three classes of officers respectively. The mean values indicate that this function is discharged ineffectively in the organisation viewed by all the three groups of officers. The 't' values show that the mean score value pertaining to the officers of all the three categories do not differ from the grand mean value. Thus, this aspect is done ineffectively in the organisation as viewed by the officers of all the three categories. So, Income Tax Department should take steps necessary to make the performance appraisal system instrumental for facilitating communication in the organisation. It is satisfying that the opinion of all the three classes of officers match with that of population as 't' values prove.

In respect of variable No 5, the mean values along with 't' values are 4.23(t-2.54); 5.81(t-.20) and 6.48(t-1.87) for the three classes of officers respectively. The mean values indicate that this function is performed ineffectively in the Income Tax Department as viewed by all the three categories of officers. The 't' values reveal that the mean score value for I group of officers only differs while of the II and III groups of officers does not differ from the grand mean value. Thus, there is harmony of views among three categories of officers that 'Performance review' aspect of performance appraisal is lacking in the organisation. Obviously, the Income Tax Department will have to make serious efforts to strengthen performance revival ingredient of performance appraisal. It is convincing that the views of second and third categories of officers are in agreement with that of population as evident by 't' values.

In regard of variable No. 6, the mean score values along with 't' values are 5.64(t-3.55); 6.87(t-0.08) and 8.01(t-2.86) for the officers of three categories respectively. The mean values exhibit that this function is performed ineffectively in the Income Tax Department as viewed by officers of class (i) and (ii). However, this job is done effectively as perceived by III category of officers. The 't' values reveal that the mean score value pertaining to the I and III groups of officers differ from the grand mean value. However, the mean score value for II class of officers does not differ from the grand mean value.

REFERENCES

- Dale, S., Beach, (1980), "Personnel", Macmillan, New York, p.290.
 Jack, Halloran, (1985), "Personnel and Human Resource Management", Prentice Hall, Englewood Cliffs, NJ, p. 160.
 Lloyd, L., Byars, Leslie, W., Rue, (1984), "Human Resource and Personnel Management", Richard D. Irwin, p.312.
 Luthans, Fred, (1973), "Organisational Behaviour", McGraw Hill International Book Company, New Delhi, P. 596.
 Michael, R., Carrell, Frank, E., Kuzmits, (1992), "personnel", Charles E. Merrill Publishing Company, London, p. 237.
 Rao, G.P., Rath, Jibitesh, (1992), "Innovative HRD Intervention: a case study on strategy for Implementation of executive Performance Appraisal System",

Personnel Today, Vol. XXII, No.1, April-June, pp. 9-14.

Rao, T.V., (1995), "The HRD missionary", Oxford & IBH Publishing Co. Pvt. Ltd; New Delhi. pp.51-87.

Rao, T.V., Periera, D.F., (1986), "Recent Experiences in Human Resource Development", Oxford & IBH Publishing Co., Pvt. Ltd., New Delhi.

Rao, T.V., (1988), Performance Appraisal System in Bank: "HRD in Banks", Edited by Khandelwal, A.K., Oxford & IBH Co., New Delhi.

http://incometaxindia.gov.in

http://irsofficeronline.org/

http://taxinfo-nwr.org/

TABLES

TABLE – 7: PLACEMENT BASED ANALYSIS
MEAN & STANDARD DEVIATION OF PERFORMANCE APPRAISAL IN INCOME TAX DEPARTMENT Alongwith 't' values

Variables	Commissioner Office				Addl. Commissioner Office				Dy. Commissioner Office				ITO's office				Grand Mean Value
	Mean	S.D.	S.E.	't' Value	Mean	S.D.	S.E.	't' Value	Mean	S.D.	S.E.	't' Value	Mean	S.D.	S.E.	't' Value	
I. Self Review	6.29	2.47	.17	0.76	6.02	2.89	.60	0.34	6.23	2.67	.63	0.14	6.09	3.04	.26	0.64	6.17
II. Identification of Development needs	7.97	3.87	.30	2.76**	7.51	3.54	.73	0.61	6.45	2.31	.54	0.51	6.18	4.28	.40	2.09*	7.01
III. Developing mutual understanding and Trust	6.93	3.22	.27	2.21*	6.24	3.47	.72	0.43	5.26	2.75	.63	1.06	5.76	3.78	.34	2.01*	6.52
IV. Facilitating Communication.	6.85	3.13	.23	3.26**	6.34	3.31	.71	0.54	4.53	2.62	.63	2.09*	5.01	3.26	.30	3.19**	6.01
V. Performance Review	6.08	3.32	.24	3.42**	4.83	3.19	.65	1.09	4.67	2.51	.60	1.24	4.67	3.61	.31	3.02**	5.43
VI. Follow Action	7.98	3.87	.29	4.02**	6.07	3.77	.78	0.50	5.03	2.36	.57	2.64	5.12	2.65	.25	5.32**	6.14

Sources: Compile from the questionnaire

* Significant at 1 % level (1.96)

** Significant at 5 % level (2.54)

TABLE – 8: HIERARCHY BASED ANALYSIS
MEAN & STANDARD DEVIATION OF PERFORMANCE APPRAISAL IN INCOME TAX DEPARTMENT Alongwith 't' values

Variable	Lower level of Management				Middle level of Management				Higher level of Management				Grand Mean Values
	Mean	SD	SE	't' Values	Mean	SD	SE	't' Values	Mean	SD	SE	't' Values	
1 Self Review	6.13	2.99	.22	1.49	6.69	2.23	.21	2.41*	6.59	3.10	.92	.32	6.29
2 Identification of Development needs	6.42	3.83	.26	2.54**	8.17	2.77	.25	3.78**	9.74	3.84	1.22	2.01*	7.01
3 Developing mutual understanding and Trust	6.24	3.87	.25	1.25	7.20	3.10	.27	1.75	8.04	3.01	.90	1.37	6.57
4 Facilitating Communication.	5.81	3.62	.24	1.44	6.34	3.02	.29	1.87	8.03	3.04	.62	2.57**	6.13
5 Performance Review	5.27	3.76	.25	1.96*	6.67	3.01	.30	2.81**	7.21	2.34	.70	1.78	6.00
6 Follow Action	5.76	3.39	.23	1.79	6.78	2.79	.26	2.30*	8.07	2.58	.78	2.27*	6.12

Sources: Compile from the questionnaire

* Significant at 1 % level (1.96)

** Significant at 5 % level (2.54)

TABLE -9: QUALIFICATION BASED ANALYSIS
MEAN & STANDARD DEVIATION OF PERFORMANCE APPRAISAL IN INCOME TAX DEPARTMENT Alongwith 't' values

Variable	Upto Graduate				Postgraduate				Professional				Grand Mean Values
	Mean	SD	SE	't' Values	Mean	SD	SE	't' Values	Mean	SD	SE	't' Values	
1 Self Review	5.81	2.79	.31	1.73	6.53	2.46	.26	.65	6.50	2.78	.29	.91	6.31
2 Identification of Development needs	6.77	3.60	.37	2.01*	8.09	3.43	.30	1.03	8.04	3.31	.32	.92	7.71
3 Developing mutual understanding and Trust	5.74	3.30	.37	2.78**	6.56	3.50	.33	.48	8.01	3.52	.33	3.10**	6.74
4 Facilitating Communication.	6.03	3.34	.36	3.31**	8.09	3.78	.32	2.79**	6.73	3.42	.34	.85	6.97
5 Performance Review	5.34	3.67	.37	1.96*	6.37	3.60	.31	.77	6.49	4.31	.41	.63	6.18
6 Follow Action	6.18	3.46	.32	2.07*	7.01	3.41	.34	.27	8.02	3.90	.38	2.19*	7.03

Sources: Compile from the questionnaire

* Significant at 1 % level (1.96)

** Significant at 5 % level (2.54)

TABLE – 10: EXPERIENCE BASED ANALYSIS
MEAN & STANDARD DEVIATION OF PERFORMANCE APPRAISAL IN INCOME TAX DEPARTMENT Alongwith 't' values

Variable	Low Experienced				Medium Experienced				Highly Experienced				Grand Mean Values
	AV	SD	SE	't' Values	AV	SD	SE	't' Values	AV	SD	SE	't' Values	
1 Self Review	5.32	2.70	.27	2.54**	6.07	2.91	.26	.31	6.80	2.73	.27	2.71**	6.11
2 Identification of Development needs	6.17	3.57	.37	2.09*	7.09	3.74	.33	.27	8.05	3.32	.33	2.61**	7.02
3 Developing mutual understanding and Trust	5.42	3.12	.34	2.39*	6.24	3.73	.32	.12	6.87	3.41	.32	1.81	6.21
4 Facilitating Communication.	5.71	3.02	.31	1.83	6.30	3.51	.33	.18	6.78	3.27	.34	1.65	6.28
5 Performance Review	4.23	3.21	.30	2.54**	5.81	3.54	.31	.20	6.48	3.64	.35	1.87	5.79
6 Follow Action	5.64	3.29	.34	3.55**	6.87	3.09	.30	.08	8.01	3.78	.34	2.86**	6.74

SOURCES: COMPILE FROM THE QUESTIONNAIRE

* Significant at 1 % level (1.96)

** Significant at 5 % level (2.54)

ROBUST AWARENESS ON INDIAN INSURANCE INDUSTRY IN TIER THREE CITIES

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ABSTRACT

The insurance industry today is passing through an exciting phase. The lure of the growth potential has already seen players drawing up aggressive plans for market and the mind share of prospective customers. India has 17 life insurers and the state-owned Life Insurance Corporation of India dominates the industry with over 70% market share, though private players that have been growing aggressively. Foreign holding in Indian insurance companies is limited to 26%. The government wants to increase the cap to 49%, but such a move is opposed by its communist allies. According to McKinsey & Co report, the total premium could go up to \$80-100 billion by 2012 from the present \$40 billion as higher per capita income increases per capital insurance intensity. The average household premium will rise to Rs.3,000-4,000 from the current Rs.1,300 and so will penetration by the existing and new players. The ratio of life insurance premium to India's GDP is around 4% against 6-9% in the developed world. Based on this background, an attempt is made in this article to highlight the robust growth and the potential in the Indian life insurance industry, the role played and customer's awareness on the private life insurance players in Vellore District, Tamil Nadu.

KEYWORDS

Customer's awareness, Insurance.

INTRODUCTION

The life insurance industry in India, which has been nationalized in the 1950s, was liberalized in 1999 based on the recommendations of the Malhotra Committee report (1993). After passing of the IRDA Act 1999, the first private sector life insurance company started its business in 2001. Today there are 15 players in life and 11 in non-life in the private sector. The Indian demographic composition and the life insurance penetration so far have enhanced the attractiveness of the sector. According to data collected by the Life Insurance Council, the life insurance industry has made a huge leap across several other parameters in the liberalized era. The growth in insurance premium collections has spelt an opportunity for the equity market. The industry's investment in the equity market stood at Rs.1,50,000 crore and the assets under management were at Rs.6,00,130 crore as on March 31, 2007. Based on this background, an attempt is made in this article to highlight the robust growth and the potential in the Indian life insurance industry, the role played and customer's awareness on the private life insurance players in Vellore District, Tamil Nadu.

INDIAN INSURANCE INDUSTRY - PROFILE

The insurance industry is estimated to be a Rs.400 billion business in India and the gross premium collection is about 4% of the country's GDP. The industry is growing a rate between 15% and 20% per annum. The total investible funds with LIC alone are about 8% of the GDP. Yet, more than three-fourths of India's population have no life insurance cover i.e., only around 65 million out of 250 million people are covered by life insurance.

INDIA IN GLOBAL LIFE INSURANCE INDUSTRY

The share of India in global life insurance is a meager 0.66%. Life Insurance penetration has gone up from 2.15% (2001) to 2.53% (2004), but is still low compared to the 5.84% (2001) for Asian countries. Per capita premium was \$15.90 in 2006 as against \$125 for Asia in 2001 and \$235 for the whole world. As per various estimates, only 20% of the insurable Indian population is insured.

INDIAN INSURANCE INDUSTRY - PROBLEMS

The Indian insurance market is now facing heavy competition. The private life insurance companies also confronted stiff challenges from the country's only public sector life insurance company with respect to selling insurance products. Moreover, LIC had an astronomical customer base and also enjoyed the trust of the huge Indian population. On account of traditional and orthodox thoughts and beliefs, most people in India preferred government organizations like LIC. Past scams along with the bankruptcy of a few private companies further triggered the lack of trust in private insurers. Another major impediment was the people's lack of knowledge of or awareness about insurance benefits. People generally viewed insurance as a tax saving device and were found to be ignorant about the insurance benefits. They never thought about safeguarding their dependants in case of untimely death or from any other unforeseen contingencies. Therefore, private life insurance players tried to capitalize on customer services. They tried to draw advantage from the fact that people's necessities revolved around highly customized products and services that were delivered at a faster pace.

REVIEW OF LITERATURE

Krishnamurthy (2007) pointed out that, the country is witnessing growing insurance awareness with such new generation products making entry, even in Tier 2 and Tier 3 cities. Private insurers have already made an impressive beginning. Liberalization has led to a new distribution channel, Bancassurance, a concept

that is already firmly rooted in European countries. Sheela (2007) studied that the Indian market –both the urban and the rural offers tremendous growth opportunities for insurance companies, the need of the hour is to understand the changing needs of customers and their occupational structure. Joy Chakraborty (2007) examined that the Indian insurance industry underwent a drastic transformation with the entry of private players who captured a significant market share (26.6%) during 2005-06.

HYPOTHESIS OF THE STUDY

H0. There is no significance relationship between the occupation and awareness of private life insurance.

H1. There is significance relationship between the occupation and awareness of private life insurance.

OBJECTIVES OF THE STUDY

1. To study the demographic profile of the private life insurance customers in Vellore District.
2. To find out customers awareness on private life insurance industry players in Vellore District.

RESEARCH METHODOLOGY

RESEARCH DESIGN

Research design is descriptive in nature.

SAMPLE

Convenience sampling techniques were used in this study for the selection of samples. The total sample size is 100, consisted both male and female policy holders of Vellore District, Tamil Nadu.

DESIGN OF QUESTIONNAIRE

A structured questionnaire was designed to collect data for the study. Before conducting the field study, the questionnaires were pre-tested. A few modifications were made as a result of the pretest exercise. Likert's five point scale was used to collect the questionnaire.

DATA COLLECTION

Both, primary and secondary data were collected and used for the study. The required secondary data were collected through various journals, magazines, newspapers, books, reports etc. The required primary data were collected from the respondents by face-to-face approach, using of questionnaire.

STATISTICAL TOOLS USED FOR ANALYSIS OF DATA

1. Frequency tables, and cross tabulation is used to analyze the data collected.
2. Pearson Chi-square test and correlation is used to measure the level of significant relationship between occupation and customer's awareness on private life insurance players.

PERSONAL PROFILE

PERCENTAGE ANALYSIS AND INTERPRETATION – I

TABLE 1: AGE OF THE RESPONDENT

Age	Frequency	Percentage
21 to 30	7	7
31 to 40	19	19
41 to 50	59	59
Above 51	15	15
Total	100	100

Source: Primary data.

TABLE 2: EDUCATIONAL QUALIFICATION OF THE RESPONDENT

Education	Frequency	Percentage
SSLC	21	21
+2	24	24
UG	38	38
PG	17	17
Total	100	100

Source: Primary data.

TABLE 3: OCCUPATION OF THE RESPONDENT

Occupation	Frequency	Percentage
Business	48	48
Professional	9	9
Agriculture	4	4
Employee	37	37
Home maker	2	2
Total	100	100

Source: Primary data.

TABLE 4: MONTHLY INCOME OF THE RESPONDENT

Monthly Income	Frequency	Percentage
Below Rs.10,000	26	26
Rs.10,001 to Rs.20,000	40	40
Rs.20,001 to Rs.30,000	16	16
Rs.30,001 to 40,000	6	6
Above Rs.40,001	12	12
Total	100	100

Source: Primary data.

From Table 1 indicated that the majority (59%) of the respondents are under the age group of 41 to 50. From Table 2 reveals that 38% (majority) of the respondents' educational qualification is UG only. From Table 3 pointed out that majority (48%) of the respondents are doing business only. From Table 4 stated that 40% of the respondents are getting monthly income between Rs.10,001 to Rs.20,000.

TABLE 5: HOLDING OF LIFE INSURANCE POLICY OF THE RESPONDENT

Policy Holders	Frequency	Percentage
Bajaj Allianz	10	10
Birla Sunlife	1	1
HDFC	5	5
ICICI Prudential	9	9
ING Vysya Life	3	3
Reliance	3	3
SBI Life	4	4
Max Newyork Life	2	2
TATA Age	2	2
LIC	61	61
Total	100	100

Source: Primary data.

TABLE 6: AWARENESS OF PRIVATE LIFE INSURANCE OF THE RESPONDENT

Awareness	Frequency	Percentage
Very high	9	9
High	49	49
Neither high nor low	0	0
Low	39	39
Very low	3	3
Total	100	100

Source: Primary data.

From Table 5, indicated that 61% of the respondents are having life insurance form LIC and remaining 49% of the respondents are having private life insurance policy in Vellore District. From Table 6 stated that majority (49%) of the respondents is having high awareness and 39% of the respondents is having low awareness on private life insurance in Vellore District.

**AWARENESS OF PRIVATE LIFE INSURANCE
CHI SQUARE ANALYSIS AND INTERPRETATION – II**

TABLE 7: CASE PROCESSING SUMMARY

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Occupation * Awareness	100	100.0%	0	.0%	100	100.0%

TABLE 8 CROSS TABULATION BETWEEN OCCUPATION AND AWARENESS

		Awareness				Total
		Very low	Low	High	Very high	
Occupation	Home maker	2	0	0	0	2
	Employee	1	36	0	0	37
	Agriculture	0	3	1	0	4
	Profession	0	0	9	0	9
	Business	0	0	39	9	48
Total		3	39	49	9	100

Source: Output of SPSS.

TABLE 9 CHI-SQUARE TESTS

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	165.446(a)	12	.000
Likelihood Ratio	147.715	12	.000
Linear-by-Linear Association	88.351	1	.000
N of Valid Cases	100		

Source: Primary data, out put of SPSS.

INFERENCE

From Table 9, the calculated value of chi-square is .000 (Pearson's), which is less than the hypothetical value ($\alpha = 0.05$), hence we reject null hypothesis and accept alternative hypothesis. Hence, there is significant relationship between the occupation and awareness of private life insurance in Vellore District.

TABLE 10 DIRECTIONAL MEASURES

			Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.757	.049	7.996	.000
		Occupation Dependent	.731	.062	7.829	.000
		Awareness Dependent	.784	.059	7.845	.000
	Goodman and Kruskal tau	Occupation Dependent	.628	.060		.000(c)
		Awareness Dependent	.698	.055		.000(c)

Source: Primary data, out put of SPSS.

TABLE 11: SYMMETRIC MEASURES

	Value	Approx. Sig.
Nominal by Nominal Contingency Coefficient	.789	.000
N of Valid Cases	100	

Source: Primary data, out put of SPSS.

LAMBDA VALUE

From Table 10, the Lambda asymmetric value (with occupation dependent) is 0.731. The lambda value tells us that there is 73% reduction in predicting the occupation of the respondent with awareness of private life insurance in Vellore District.

CONTINGENCY CO-EFFICIENT

From Table 11, the contingency co-efficient value (0.789) is greater than + 5. Hence, there is strong association between occupation and awareness of private life insurance.

FINDINGS

1. 58% (majority) of the respondent stated that there is high awareness (49% high awareness and 9% very high awareness) on private life insurance.
2. 42% of the respondent stated that there is low awareness (39% low awareness and 3% very low awareness) of private life insurance.

CONCLUSION

The Indian insurance sector has plenty of growth opportunities for the private insurers to capitalize on. In spite of the awareness about life insurance among Indians, close to 42%

Penetration levels remained unimpressive. This survey also revealed that majority of the respondents still viewed insurance as a tax saving device and risk coverage became a secondary objective. Still there is a vital opportunity for Indian insurance industries to create more customer awareness regarding private players in life insurance in tier three cities

REFERENCES

1. Achamma Samuel (Sep.2004), "Insurance: The Indian Experience," *Economic Development In India*, Vol.10. pp 71.
2. Azhagaiah (July, 2003), "Investors' Preference in Life Insurance Policies," *A Journal of Shri Ram College of Commerce*, Vol.24, No.2, pp.93-95.
3. Joy Chakraborty (March, 2007), "Private Life Insurance Companies in India: Growing Prospects and Challenges," *Insurance Chronicle, the ICFAI University Press*, Vol.VII, Issue.VIII, pp.29-39.
4. Ramakrishna Reddy (July 2007), "Risk Assessment of Investment Avenues," *Treasury Management*, Vol.VII, Issue.7.
5. Krishnamoorthi (Jan-March, 2007), "A Study on Investors' Satisfaction with Special Reference to the Nilgiris District," *Organizational management*, Vol.XXII, No.4, pp 9-12.
6. Krishnamurthy (2007), "Life Insurance: Less Rigid Norms May Help," *The Hindu, Survey of Indian Industry*.
7. Reuters (2007), "Life Insurance Market to Double in 5 Years," *The Hindu, Business Line*, Tuesday, September 11, pp 6.
8. Sabera (Jan. 2007), "Privatization of Insurance Industry in India," *Insurance Chronicle, the IFAI University Press*, Vol.VII, Issue I,
9. Sheela and Arti (Sep.2007), "A Study on the Awareness of Life Insurance Policies in Visakhapatnam," *Insurance Chronicle, The ICFAI University Press*, Vol.VII, Issue.IX, pp 61-67.

AWARENESS AND PERCEPTIONS OF E-BANKING CUSTOMERS IN CHHATTISGARH (INDIA)

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ABSTRACT

Arne Floh & Horst Treiblmaier [2006] studied that at first sight the Internet is the ideal medium for carrying out banking activities due to its cost savings potential and speed of information transmission. From a technological and cost-driven standpoint it may seem quite logical for banks to shift as many banking activities online as possible. This paper presents a study of Consumer Behavior on E-Banking. Paper concludes that what problems consumers are facing with using the e-banking Opportunities with special reference to Bhilai chhattisgarh. The chi-square statistical test has been used to determine the association between consumer and awareness and use of e-banking. This research also gives opportunities to conduct the further development in e-banking and helps to the banking professional.

KEYWORDS

Awareness, Chi-square test, Consumer Behavior, e-Banking, Perceptions.

INTRODUCTION

The new world of electronic banking is changing day by day. It is important to understand the customer's perception on internet banking. Today, many financial services organizations are rushing to become more customer focused. Many companies in the financial services sector have been quick to implement Internet capabilities, and electronic. Online banking, which can be defined as the provision of information or services by a bank to its customers over the Internet [Daniel 1999], has been one of the major developments in the financial service sector in recent years. Internet banking has become the self-service delivery channel that allows banks to provide information and offer services to their customers with more convenience via the web services technology.

The challenging business process in the financial services pressurized banks to introduce alternate delivery channel to attract customers and improve customers' perception. Many banks have implemented Internet banking to offer their customers a variety of online services with more convenience for accessing information and making transactions. Customer satisfaction and customer retention are increasingly developing into key success factors in e-banking (Bauer et al, 2005). There will be huge acceptance of online banking with the passage of time with growing awareness and education. A great many people are shifting to online banking and are readily accepting the usefulness of this bounty. Online banking service allows customers to manage their accounts from any place at any time for minimum cost; it gives abundant compensation to the client in terms of price and ease.

The banking industry has followed this trend in recent years, and sometimes called e-banking referring to all banking transactions completing through internet applications. It is believed that m-banking will provide another new channel for banking services, especially for certain remote areas where online internet is still unavailable. Strategic implications and customer perception of m-banking services are explored (Laukkanen and Lauronen, 2005) with a focus on the consumer value creation and a better understanding about the customer-perceived value of m-banking services.

There are several major challenges and issues facing the e-banking industry today. Customers are certainly concerned of giving their bank account number online or paying an invoice through internet. Another challenge facing e-banking industry and the e-business in general is the quality of delivery service – including both delivery speed (i.e., short advance time required in ordering) and delivery reliability (i.e., delivery of items/services on time) which caused many e-business failures in the earlier dot.com era. Limited online payment options have resulted in many customers to drop out in the last stage of the purchasing process due to dissatisfaction and inconvenience (Furash, 1994). Finally, the issue of customer unfamiliarity with the internet, which is prominent among senior citizens, has recently caught some attention, because these customers believe that they are left at a disadvantageous position and become very reluctant in doing business online (Johnson, 1999).

The lack of finance resource and weak in technical expertise have been cited currently as two major obstacles in developing and maintaining e-banking services for many local smaller community banks located in remote and rural cities or counties. As such, research effort, especially an empirical study on the development of e-banking application for those local smaller community banks is apparently in need, and is the primary motivation of this research.

While Internet banking has grown rapidly, there is not enough evidence of its acceptance amongst consumers. Empirical studies from the consumer side of e-banking have been reported recently, such as one focusing on the quality of customers on the utilisation of current e-banking services (Hitt and Frei, 2002), and another recent one examining the customer attitudes towards e-banking and concluding that online banking marketing will gain importance at a faster rate in the coming years (Kaynak and Harcar, 2005). Other new e-banking services have targeted mortgage lending, consumer lending, and small business loan products.

There are 38.5 million internet users in India and in the number is set to grow to 100 million in the next two years. An estimated 4.6 million people bank online and the number is expected to grow to 16 million by the end of the current fiscal (2010-11). Banking online may be either personal computer or mobile phone that is mobile banking.

TABLE 1.1: STATE WISE % OF PEOPLE USING BANKING ONLINE

State	% of people banking online
Maharashtra	28.7
Delhi	17.7
Tamilnadu	10.3
Karnataka	8.3
Uttarpradesh	5.3
Andhrapradesh	4.6
West Bengal	4.6
Gujrat	3.3
Rajasthan	3.2
Madhya Pradesh	3.1
Kerala	1.8
Haryana	1.7
Bihar	1.6
Uttarpradesh	1
Others	4.7

Source: According to an internet & mobile association of India (IAMAI)

This study intends to find out consumer awareness towards e-banking and its impact on Indian consumer with special reference to Bhillai chattisgarh, India.

- To study the E-banking system.
- To study the consumer awareness in E-banking System.
- To study the consumer perception towards E- Banking system.
- To study the risk involved in E-banking system

The chattisgarh population includes variations among people. The variation consists the education, social economic, geo-graphical, living of standard and occupation but the education and economics variation is the most important because it determines the awareness and know how about the technology and the develop the consumer behavior about the particular object. The ration of education level among the people is low in the rural area of chattisgarh. So this creates problem to operate the technology and problem in developing positive behavior for the object. This paper presents a study of Consumer Behavior on E-Banking. Paper concludes that what problems consumers are facing with using the e-banking Opportunities with special reference to Bhillai chattisgarh.

SERVICES IN E-BANKING

The following are services which are used by customers in chattisgarh:

Bill payment service: Each bank has tie-ups with various utility companies, service providers and insurance companies, across the country. You can facilitate payment of electricity and telephone bills, mobile phone, credit card and insurance premium bills. To pay your bills, all you need to do is complete a simple one-time registration for each biller. You can also set up standing instructions online to pay your recurring bills, automatically. One-time standing instruction will ensure that you don't miss out on your bill payments due to lack of time. Most interestingly, the bank does not charge customers for online bill payment.

Fund transfer: You can transfer any amount from one account to another of the same or any another bank. Customers can send money anywhere in India. Once you login to your account, you need to mention the payee's account number, his bank and the branch. The transfer will take place in a day or so, whereas in a traditional method, it takes about three working days. ICICI Bank says that online bill payment service and fund transfer facility have been their most popular online services.

Credit card customers: Credit card users have a lot in store. With Internet banking, customers can not only pay their credit card bills online but also get a loan on their cards. Not just this, they can also apply for an additional card, request a credit line increase and God forbid if you lose your credit card, you can report lost card online.

Railway pass: This is something that would interest all the aam janta. Indian Railways has tied up with ICICI bank and you can now make your railway pass for local trains online. The pass will be delivered to you at your doorstep. But the facility is limited to Mumbai, Thane, Nashik, Surat and Pune.

Investing through Internet banking: Opening a fixed deposit account cannot get easier than this. You can now open an FD online through funds transfer. Online banking can also be a great friend for lazy investors.

Moreover, some banks even give you the facility to purchase mutual funds directly from the online banking system.

Recharging your prepaid phone: Now you no longer need to rush to the vendor to recharge your prepaid phone, every time your talk time runs out. Just top-up your prepaid mobile cards by logging in to Internet banking. By just selecting your operator's name, entering your mobile number and the amount for recharge, your phone is again back in action within few minutes.

Shopping at your fingertips: Leading banks have tie ups with various shopping websites. With a range of all kind of products, you can shop online and the payment is also made conveniently through your account. You can also buy railway and air tickets through Internet banking.

BENEFITS TO CONSUMERS

- General consumers have been significantly affected in a positive manner by E-banking. Many of the ordinary tasks have now been fully automated resulting in greater ease and comfort.
- Customer's account is extremely accesses able with an online account.
- Customer can withdraw can at any time through ATMs that are now widely available throughout the country.
- Beside withdrawing cash customers can also have mini banks statements, balance inquiry at these ATMs
- Through Internet Banking customer can operate his account while sitting in his office or home. There is no need to go to the bank person for such matter.
- E banking has also greatly helped in payment of utility bill. Now there is no need to stand in long queues outside banks for his purpose. All services that are usually available from the local bank can be found on a single website.
- The Growth of credit card usage also owes greatly to E-banking. Now a customer can shop world wide without any need of carrying paper money with him. Banks are available 24 hours a day, seven days a week and they are only a mouse click away.

RISK INVOLVED N E-BANKING

- Transactional risk
- Credit risk
- Liquidity Risk
- Legal Compliance Risk
- Strategic Risk
- Reputation Risk

RESEARCH METHODOLOGY

The project studies the consumers perception towards e-banking system related to consumer awareness towards e- banking system with special reference to Durg-Bhilai. Through the questionnaires 100 respondents were the sample size. Universe of this research project is Durg-Bhilai City.

HYPOTHESIS TESTING OF USE OF E-BANKING AND AWARENESS

Beri [2006] uses the chi-square test of independence. In this, determining whether the number of observations or responses that all into various categories differ from chance. With the help of this technique, we can test whether or not two or more attributes are associated.

TABLE 3.1: CONTINGENCY USE OF E-BANKING AND AWARENESS

	Using	Not Using	Total
Aware	46	34	80
Not aware	0	20	20
Total	46	54	100

Ho = Use of e-banking and awareness are not related. i.e. people are not aware and not using E-banking service.
 Ha= peoples are aware and uses the E-banking services.

TABLE 3.2: CALCULATION OF EXPECTED FREQUENCY

On the basis of this hypothesis, the expected frequency corresponding to the no of person aware and using e-banking service would be:

	Using	Not using	Total
Aware	$(46 \times 80) / 100 = 36.8$	$(54 \times 80) / 100 = 43.2$	80
Not aware	$(46 \times 20) / 100 = 9.2$	$(54 \times 20) / 100 = 10.8$	20
Total	46	54	100

Now to calculate chi-square a table is to put as follows:

TABLE 3.3: WORKSHEET FOR CALCULATION OF CHI-SQUARE

Row	Column	Observed Frequency O	Expected Frequency E	(O-E)	(O-E) ²	$\frac{(O-E)^2}{E}$
1	1	46	36.8	9.6	92.16	2.56
1	2	34	43.2	-9.2	84.64	1.95
2	1	0	9.2	-9.2	84.64	9.20
2	2	20	10.4	9.6	92.16	8.86
Total						22.57

It is now necessary to compare this value with the critical values of chi-square. The degree of freedom is $(2-1)(2-1) = 1$. The critical value of chi square with 1 degree of freedom of 5% level of significance is 3.841. Since the calculated value is much greater than the critical value of chi-square, the null hypothesis people are not aware and not using E-banking service is rejected. Thus, most of the respondent aware and using E-banking service.

MAJOR FINIDNGS

The research report is based on primary data. The research report is useful to know the consumer awareness of e-banking system. & what type of risk involved in e-banking system.

In India 4.6 million people bank online & no. is expected to grow 16 million by the current fiscal year 2010-11. But most of the people not aware the risk involved in e- banking .Banking institution should have to aware & inform the people about the risk.

1. After the survey, find that most of the banking customers are aware of the e-baking system. Among the 100 respondent 80 are aware of e-banking system.
2. Most of the respondents are know about the e-banking system by the television aid.& their relatives& friends.
3. Among the 80 respondents only 46 respondents are using e- banking for banking transaction.
4. Among the 46 respondents only 4 are using e-banking since last 2 years. While 14 respondents are using e-banking since last 1 years.
5. E-banking system very easy to use & fast. That's the reason most of the respondents attract towards e-banking system.
- 6 Most of the respondents use e-payment & electronic fund transfer in e-banking system.
7. Among the 46 respondents only 10 respondents are know about the risk involved in e-banking system. Most of the respondents are not aware of the risk .
8. Most of the respondent opt e-banking system.

LIMITATIONS

The reposes to questionnaire by the customers view may be their personal view and hence do not always reflect the e-banking practices used through the county. The present study conducted in Durg-Bhilai (Chattisgarh) and it may not reflect to other cities.

CONCLUTIONS AND RECOMMENDATIONS

The research report is based on primary data. The research report is useful to know the consumer awareness of e-banking system and what types of risk involved in e-banking system. Since the calculated value is much greater than the critical value of chi-square, the null hypothesis people are not aware and not using E-banking service is rejected. Thus, most of the respondent aware and using E-banking service.

The following are recommendation of this research:

1. Banking institution should have to aware the customer about the risk.
2. Most of the bank reluctant to give the information about e-banking. Banking institution should have to inform the customer through the aids & news papers.
3. Most of the respondent knows about the e-banking system. But they don't use it. Because they don't know about the procedure how to use it .so banking institution should have to aware the customer about the procedure of e-banking system.
4. Some services of e-banking are very complicated. Banking institution should have to develop user friendly services.
5. Customer should have to know about the security during the use of e- banking system,

E-banking in India is in budding stage with the high penetration of electronic as a growth driver. The use of e-banking is win-win proposition for both banks and banks customers. India has a long way to rich the level of e-banking; however it is an easier path to tread now as the security standard and the transaction protocols have been developed and tested. This research paper also gives opportunities to conduct the further development in e-banking and helps to the banking professional.

REFERENCES

1. Arne Floh and Horst Treiblmaier, (2006) *Journal of Electronic Commerce Research*, Vol. 7, NO.2, pp.45-50
2. C B. Beri (2009), "*Marketing Research*". Tata Mc Gra Hill New Delhi.
3. Daniel E. (1999), "Provision of electronic banking in UK and republic of Ireland", *International journal of bank marketing* Vol 17, No 2 pp. 2-8.
4. Furash, E. E. (1994) "Payments system under siege: customer's wants information along with monetary transfers, non-banks are providing it, *ABA Banking journal*, Vol 86. No 6, PP. 55.
5. Hitt L M and Frei, F. X. (2002) 'Do better customer utilize electronic distribution channel? The case of PC banking", *Management Science*, Vol. 48, No. 6, PP. 732-748.
6. Johnson J R (1999), "Raising relation ship: the art and science of connecting with customers", *Banking Marketing*.
7. Kaynak E and Harcar, T D (2005) 'Consumer value creation in mobile banking services. *International journal of Technology marketing* , Vol.1, No. 1, pp. 62-78
8. Laukkanen T. and Lauronen, J (2005), "Consumer value creation in mobile banking services", *International journal of Mobile communication*. Vol 3. No 4. PP. 325-338



COMPARATIVE STUDY OF PERAMETRIC AND NON-PARAMETRIC VALUE AT RISK (VaR) METHODS

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ABSTRACT

Investment nowadays is become a very hectic task. Most of the time people think about how much they can lose on their investment. Value at Risk is a way to give answer of these questions, at least within a reasonable bound. However, in this paper, I am going to calculate VaR of an equity portfolio using parametric as well as non-parametric approaches and going to do the comparison between these VaR methods. In this study, I will examine the inputs to VaR: market data and find out, using this data how we can calculate the VaR using different VaR methods. In this paper I am taking return data and applying Variance-Covariance, Historical Simulation and Monte Carlo Simulation method on that data. For comparing all these VaR method I am using Back-Testing method. Based on the result of back testing method we can find out which method is most suitable for the perticular situation.

KEYWORDS

Investment, Risk, VaR.

INTRODUCTION

Value at Risk (VaR) has been an important component of financial risk management. It has become commoditized, such that VaR systems solutions can be bought 'off the shelf'. It has become enshrined within the financial regulations of the world's banks. In this thesis, I am going to calculate VaR of an equity portfolio using parametric as well as non-parametric approaches. Risk management is defined as the process of monitoring the risks that a financial institution is exposed to, and taking action to maintain this exposure within levels set by the board's risk appetite.

VaR is defined as the portfolio loss that will not be exceeded with a given level of confidence, over a given trading horizon. This is not an absolute limit on loss and must not be read as such. In this study, we will examine the inputs to VaR: market data and using this data how we can calculate VaR. The report also considers the problems that can occur when putting this data together. We describe different approaches of calculating VaR, using the common classifications of variance-covariance, historic simulation and Monte Carlo. The text assesses the differences in the way they process data, the different data requirements and the qualitative requirement for computational power. Also, the description highlights circumstances that lead to favoring one approach over another, the type of market (normal or non-normal), and the type of instrument (linear or non-linear).

This study also looks at the outputs of VaR, when using each of the approaches described above. Some approaches will offer a consolidated number only, but others offer more insight into the sources of risk. We outline how financial institutions can use the back testing approach to validate their VaR process, which consists of data, models and procedures.

MOTIVATION AND REAERCH OBJECTIVE

Value at Risk has been a developing science for more than a decade. The regulators around the world apply pressure to financial institutions, large or small, to provide Value at Risk measures as part of their regulatory returns. The cost of developing an internal methodology is high. Many smaller financial institutions find that the cost of compliance with the regulatory regime is similar to larger institutions with deeper pockets. For this reason, they may turn to off the shelf methodologies built in to software packages. Such institutions must be wary of implementing an external methodology that is inappropriate for the types of risk. These risks may include exposure to options, financial instruments that present multiple dimensions of risk and headaches for the risk manager. There are plenty of methods available for calculating VaR. At the very basic level we can classify these methods into two groups-parametric and non-parametric approaches. We take the most popular methodologies, variance-covariance, historical simulation and Monte-Carlo simulation to calculate VaR, and assess suitability of these methods for risk measurement of equity portfolio. In particular, we examine these methodologies, and ask whether these approaches will provide risk measures consistent with the other more complicated approaches. The framework used to produce result can in fact be used more generally, for any portfolio for which a variance-covariance matrix can be derived. These methods have dominated the Value at Risk literature, as a central reference point for academic interest. Much of the research published on the methodology has focused on the techniques used to collect the data, assessing the data and calculating the final value of VaR. Other things which have been taken care of are distribution of return data, assumption of normality and simulation techniques to generate data set.

LITERATURE REVIEW

As Value at Risk has long been a central focus of risk measurement and management, there has been a huge array of literature. We have referred a few major studies with its appropriateness with our present study. Amongst earlier studies, Crnkovic and Drachman (1995) developed a metric and compared relative performance comparison between standard variance-covariance method and historical simulation approach. Studies by Schinassi(1999) dwell on dependency of VaR models on historical relationships between price movements in different markets and their trend to break down during times of stress and turbulence in event of structural breaks in relationships across markets.

In the Indian context, some remarkable researches have been carried out on VaR. Srinivasan, Shah, Ganti and Shah (2000) pointed that the computational cost involved as one of the drawbacks of the method and proposed the computational geometry techniques. Sarma, Thomas and Shah (2000) evaluated performance of a few alternative VaR models, using India's Nifty stock market index as a case study and adopted a bi-direction approach i.e., statistical model selection and model selection based on a loss function.

Dharba (1999) presented a new method for computing the VaR for a set of fixed-income securities based on extreme value theory that models the tail probabilities directly without making any assumption about the distribution of entire return process.

Nath & Reddy (2003) worked on foreign exchange market in India and studied various VaR methods using the Rupee-Dollar exchange rate data to understand which method is best suited for Indian system.

Varma (1999) empirically tested of different risk management models in the Value at Risk (VaR) framework in the Indian stock market with special emphasis on EWMA model and GARCH-GED specification. Samanta & Nath (2003) studied three categories of VaR methods, viz., Variance-Covariance (Normal) methods including Risk-Metric, Historical Simulation (HS) and Tail-Index Based approach.

Raina & Mukhopadhyay (2004) found out optimal allocation of a unit capital between the portfolio elements so as to maximize VaR. The algorithm has been validated using a three-asset portfolio example.

Samanta G.P. and Thakur, S.K. (2006) assess the accuracy of VaR estimates obtained through the application of tail-index. The database consists of daily observations on two stock price indices. BSE Sensex and BSE 100 from 1999 to 2005. Results show that tail index based methods provide relatively more conservative VaR estimates and have greater chances of passing through the regulatory backtesting. Among a plethora of studies only broad contours of related literature are presented here.

In a survey of VaR disclosure by major international banks between 1996 and 2005,

Perignon and Smith (2007) find that 73% of the banks which disclosed their VaR methodology use HS. They offer two reasons for the popularity of this method. First, as noted above, banks want to avoid model or estimation risk. For large and complex portfolios driven by thousands of risk factors, they prefer not to depend on estimates of time varying volatilities and correlations. So, they choose a nonparametric and flexible method of VaR estimation, viz. HS. Second, banks and regulators want their capital charge estimates to be smooth over time and not to be widely different from day to day. Since HS uses the same unconditional distribution of returns over one or two years, internal capital estimates remain stable.

As noted in Basu (2006), an unintended consequence of using a nonparametric method is that very large losses, caused by sudden shocks, might lie way beyond 99% HSVaR. Even if the market suddenly becomes more volatile, since historical losses are much lower, HSVaR might not be able to respond to an increase in market risk (Pritsker 2006). While preserving the estimation benefits of the nonparametric technique, we want the VaR forecast to reflect (at least in part) higher current volatility.

This brings us to Volatility-weighted Historical Simulation (VWHS, Hull and White 1998). Since this also uses the empirical distribution of returns, it can accommodate fat tails if they are present in the data. Moreover, historical returns are adjusted or updated, in this method, as per the most recent market volatility. Since the adjusted returns are assumed to be repeated in future as well, the idea is that most recent volatility would continue for the chosen horizon. The level of capital would then be in line with the latest, rather than historical, market volatility. Therefore, the effect of any stress event, which leads to a temporary spike in volatility, will be felt on both VaR (capital) and Expected Shortfall (beyond VaR). This method is suitable for estimating the level of capital during an abnormal period, like the meltdown in Sensex as described at the outset, when volatility is not only supposed to be high but also clustered.

Simple historical simulation also puts equal weights on all past returns. As a result, periods of high and low volatility are bunched. Equal weighing overestimates risk during low-volatility phases and underestimate it during high-volatility phases. Secondly, event risk might not be captured. For instance, a one-time currency market crash might not be captured even at 99% VaR. Thirdly, ghost effects might occur if a few extreme events, from the past, are in the dataset. The VaR might be unduly high. It will fall drastically once such losses move out of the sample.

This brings us to BRW Historical simulation (Boudoukh et. al. 1998, Allen et. al. 2004). This method is a combination of simple HS and EWMA. So, it is also known as the hybrid method. In this method, older returns get lesser weights than more recent ones.

RESEARCH METHODOLOGY

In this study I have chosen the requisite confidence level, forecast horizon and historical observation period, which are enumerated below.

CONFIDANCE LEVEL

The confidence level is $p = (1 - \alpha)$, which defines the probability of the expected maximum loss. The market risk surface can be analyzed by varying the level of confidence. The most common confidence levels are between 95 % and 99 %, although they can vary between 90 % and 99.9% (Hendricks, 1996). The Basel Committee requires the use of 99 % confidence level in official reporting (Basel Committee, 2006), as it must be high enough for capital requirement calculations, but a lower level of confidence (e.g. 95 %) can be used for internal reporting. In my study, I have selected 95% and 99% level of confidence both in order to find out VaR for internal purpose and reporting purpose.

FORECAST HORIZON

The length of the period, for which the expected maximum loss is forecasted, is known as forecast horizon or holding period. Large deviations in the portfolio value are more probable over a long period than a short one, and VaR is usually greater for a holding period of one month than for a day, for instance. The portfolio composition is assumed to remain static for VaR over the holding period. The adequate length of the holding period depends on whether the risk is measured from a private or a regulatory perspective (Christoffersen et al., 1998). Trading activity and the liquidity of the assets (i.e. the time and ability to convert a position to cash) has also an impact on the adequate length of the holding period (Khindanova and Rachev, 2000). In practice, the holding period can vary from one trading day to some years, but the Basel Committee requires the use of 10-day holding period for official reporting. They still permit the use of a shorter holding period and scaling of VaR to correspond 10-day holding period¹ (Basel Committee¹⁵, 2006). As such I have taken 10- days horizon for computing VaR i.e. the reference data remains static for 10- day period.

HISTORICAL OBSERVATION PERIOD

The length of the data sample in VaR calculation is known as the historical observation period. This observation period connects VaR to the history of the market risk factors, as the volatility of the risk factors is determined based on the length of the historical observation period. In practice the observation. The regulatory standard sets a minimum length of one year for the historical observation period (Basel Committee, 2005), while the period may vary from a month to several years in practice. A one-period VaR can be scaled to a long horizon VaR by multiplying by the square root of the length of the horizon. For instance, a one-day VaR may be scaled to ten-day VaR by multiplying it by 10.

Hendricks²²'s (1996) results highlight the Basel Committee requirement for a minimum historical observation period of 250 days, as he finds shorter periods to produce inaccurate VaR measures. I have taken considerable long period from 2nd January 2007 to 30th Nov 2009 having 716 data points.

DATA SOURCE

The data set used is S& P CNX Nifty as available from National Stock Exchange website for the period from 2nd January 2007 to 30th Nov 2009 as for Historical Simulation Value at risk, time horizon should be 2 years at least.

METHODOLOGY

Through this project we can analyze various VAR methods. what are the various parametric and non parametric value at risk measures, how we can apply each of them to calculate value a risk of particular dataset and selecting the most appropriate measure based on performance evaluation and back-testing of each of the measure.

I am going to take return data of any leading stock or simply return data of any leading index (for ex. NIFTY) and calculate Value at Risk for single return data.

METHODOLOGY CONSIST OF FOLLOWING STEPS:

- I. Calculating the Value at Risk using Variance-Covariance Method.
 - Calculate mean and Std. Dev. Using some Volatility measure (for ex. GARCH or E-GARCH).
 - Find out the distribution for these values.
 - Calculate VAR for these inputs.
- II. Calculating the Value at Risk using Historical Simulation.
 - Collect the return data for period of 1 year.
 - Apply HS Method for calculating VAR
- III. Calculating the Value at Risk using Monte Carlo Simulation.
 - Generate random return for given mean and Std. Dev.
 - Calculate VAR for this return data
- IV. Applying the Back-Testing on the each of the above methods.
 - Select the appropriate back-testing method (for ex. COV and regression analysis).
 - Compare the given value at risk methods based on the out put of back-testing.
 - Select the most appropriate Value at Risk method.

A. Variance-Covariance Method-

Calculating VaR using this method includes following steps-

1. Define current portfolio value=1000000
2. Confidence level- 95% for internal purpose And 99% for credit rating and reporting purpose
3. Forecast horizon-10 days so we will calculate 10 day- VaR
- 10 Days-VaR= SQRT (10)*Daily VaR
4. Historical Observation Period-I am taking S&P CNX Nifty data from 1 Jan 2007 to 30 Nov 2009.
5. Define the return distribution as the normal distribution for the index return data.
6. Calculate the value of Mean and Std Dev for this index return data series.

1- Portfolio Mean Return,

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = \frac{1}{n} (x_1 + \dots + x_n)$$

Where x1, x2, x3 ...xi are P/L Return data.

2- Portfolio Std. Dev.

$$s = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (x_i - \bar{x})^2},$$

7. Using the distribution, Mean and Std Dev values calculate the 95 percentile and 99 percentile values by taking z-values .05 and .01 respectively. 95 percentile value at risk,

$$VAR = |\mu_p + z\sigma| V$$

Where, μ_p = expected return, V = portfolio value, σ = volatility

8. Using these percentile value calculate the 95 percentile and 99 percentile VaR of the index portfolio and than 10 Days-VaR for the same.

B. Advanced Variance-Covariance method using GARCH Volatility Estimate-

Here initial 6 steps are same as variance-covariance method. In 7th step while calculating Std Dev of return instead of using normal variance formula we will take use of GARCH Volatility Estimate.

Variance equation of GARCH model is

$$\sigma_t^2 = \omega + \alpha(\epsilon_{t-1} - \theta \sigma_{t-1})^2 + \beta \sigma_{t-1}^2$$

$\alpha, \beta \geq 0; \omega > 0.$

For index returns, parameter θ is usually estimated to be positive; in this case, it reflects the leverage effect, signifying that negative returns increase future volatility by a larger amount than positive returns of the same magnitude.

GARCH (1,1) ESTIMATION OF 0.414509010801167

Method: ML - BFGS with analytical gradient				
date: 03-28-10				
time: 17:04				
Included observations: 715				
Convergence achieved after 32 iterations				
	Coefficient	Std. Error	z-Statistic	Prob.
omega	1.470504	0.263769	5.574972	2.48E-08
alpha_1	0.352033	0.065858	5.345341	9.02E-08
beta_1	0.470891	0.055599	8.469351	0
Log Likelihood	-1566.36			
Jarque Bera	888.8842		Prob	0
Ljung-Box	2.053679		Prob	0.151839

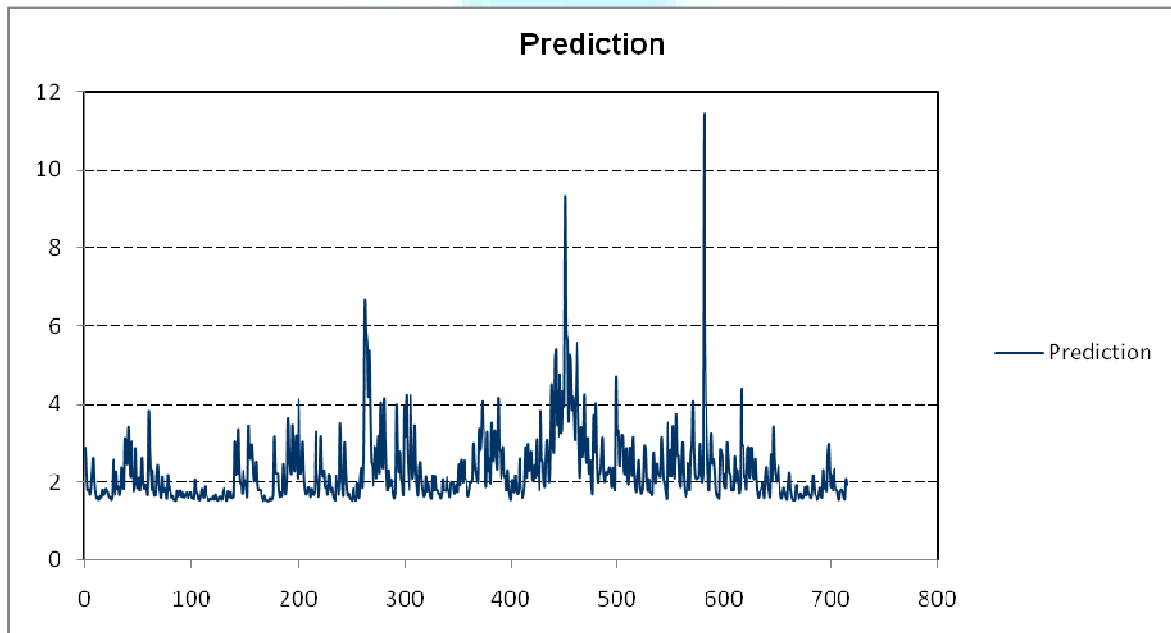
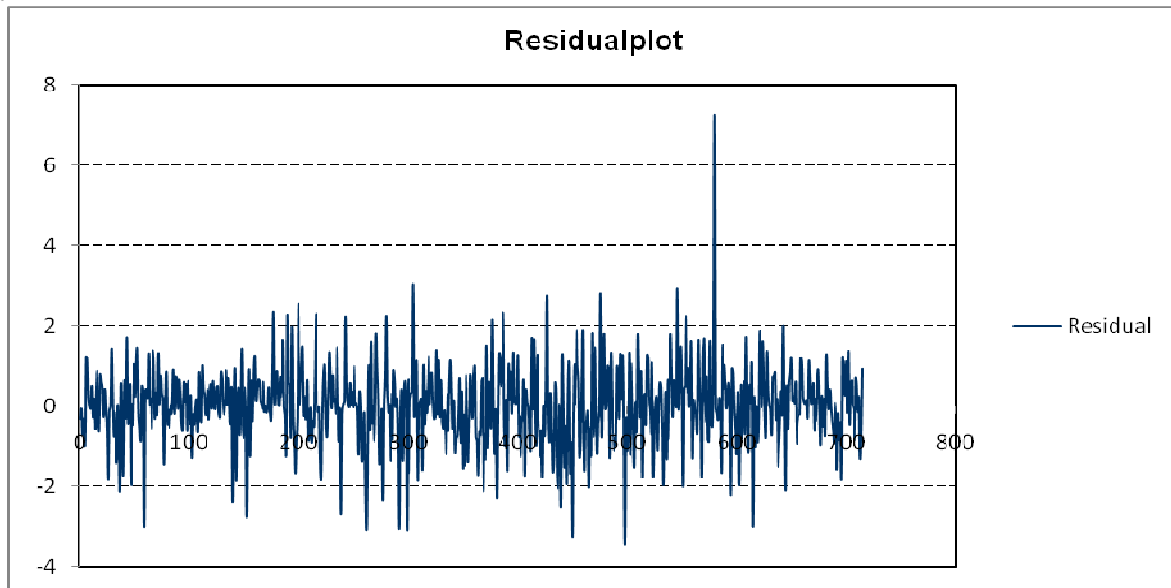
Using the distribution, Mean and Std Dev values calculate the 95 percentile and 99 percentile values by taking z-values .05 and .01 respectively.

95 percentile value at risk, where Z(0.05) = -1.64485, For 99 percentile VaR Z(0.01) = -2.32635

$$VAR = |\mu_p - z\sigma| V$$

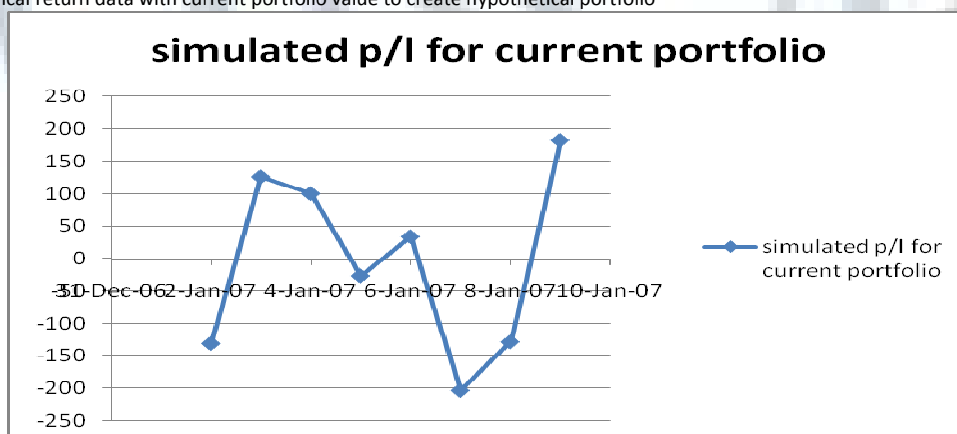
Using these percentile value calculate the 95 percentile and 99 percentile VaR of the index portfolio and than 10 Days-VaR for the same 10 Days-VaR= SQRT

(10)*Daily VaR



C- Historical simulation VaR Method-

1. Historical simulation method includes following Steps-
2. Define current portfolio value=1000000
3. Confidence level- 95% for internal purpose And 99% for credit rating and reporting purpose
4. Forecast horizon is 10 days so we will calculate 10 day- VaR
- 10 Days-VaR= SQRT (10)*Daily VaR
5. Historical Observation Period-I am taking S&P CNX Nifty data from 1 Jan 2007 to 30 Nov 2009
6. Calculating daily return data
7. Multiply this historical return data with current portfolio value to create hypothetical portfolio

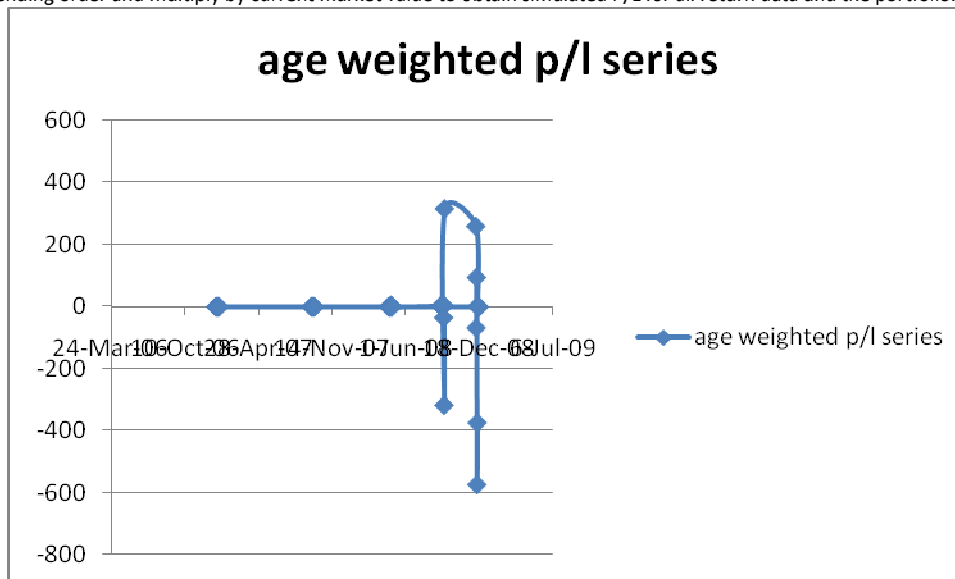


8. Arrange this in descending order and plotting histogram of this data
9. Calculate 95th and 99th percentile values using hypothetical return data.

D- Age-Weighted (BRW) Historical Simulation -

This method, also referred to as hybrid Historical simulation, is a combination of simple HS and EWMA. The steps for computing BRW HS VaR are as follows:

1. Give least weight to the oldest return and increase weights for more recent ones. Value taken for weight factor is 0.97.
2. Sort returns in ascending order and multiply by current market value to obtain simulated P/L for all return data and the portfolio.



3. The simulated loss corresponding to a cumulative weight of x% is the (100-x) % VaR. Linear interpolation might be used to find this number.
4. All other steps are like Historical Simulation Method.

E- Monte Carlo Simulation Method-

Computing VaR with Monte Carlo Simulations follows a similar algorithm to the one we used for Historical Simulations in our previous issue. The main difference lies in the first step of the algorithm – instead of picking up a return (or a price) in the historical series of the asset and assuming that this return (or price) can re-occur in the next time interval, we generate a random number that will be used to estimate the return (or price) of the asset at the end of the analysis horizon.

Monte Carlo Simulation incorporated following steps-

Step 1 - Take the length T of the analysis horizon 3 year and divide it equally into a large number N of small time increments Δt (i.e. Δt = T/N) as I am calculating 1 day VaR so Δt is 1 day.

For illustration, I am computing a daily VaR consisting of one trading day. Therefore N = 1 days and Δt = 1 day. The main guideline here is to ensure that Δt is large enough to approximate the continuous pricing we find in the financial markets. This process is called discretization, whereby we approximate a continuous phenomenon by a large number of discrete intervals.

Step 2 – Drawing a random number from a random number generator and updating the index value at the end of the first time increment.

It is possible to generate random returns or prices. In most cases, the generator of random numbers will follow a specific theoretical distribution. This may be a weakness of the Monte Carlo Simulations compared to Historical Simulations, which uses the empirical distribution. When simulating random numbers, we generally use the normal distribution.

In this study, I use the standard stock price model to simulate the path of an index return as defined by:

$$R_i = (S_{i+1} - S_i) / S_i = \mu \delta t + \sigma \phi \delta t^{1/2} \tag{1}$$

Where

- R_i is the return of the index on the ith day
- S_i is the index value on the ith day
- S_{i+1} is the index value on the i+1th day
- μ is the sample mean of the index number
- δt is the timestamp
- σ is the sample volatility (standard deviation) of the stock index
- ϕ is a random number generated from a normal distribution

At the end of this step/day ($\delta t = 1$ day), we have drawn a random number and determined S_{i+1} by applying (1) since all other parameters can be determined or estimated.

Step 3 – Repeat Step 2 until reaching the end of the analysis horizon T (3 years) by walking along the N time intervals.

At the next step/day ($\delta t = 2$), we draw another random number and apply (1) to determine S_{i+2} from S_{i+1} . We repeat this procedure until we reach T and can determine S_{i+T} . In this case, S_{i+n} represent the estimated (terminal) index value in three year of the sample.

Step 4 – Calculate the terminal index return for all the simulated paths.

Now as I have the daily index values for the given time period, we can calculate the index return by using continuous return formula as following.

Index return, $R_i = \ln(S_i/S_{i-1})$

Step 5 – Repeat Steps 2,3 and 4 for a large number M(1000) of times to generate 1000 different paths for the index over T.

Initially, I have generated one path for this index (from i to i+n). Running Monte Carlo Simulations means that we build a large number M of paths to take account of a broader universe of possible ways the index value can take over a period of three year from its current value (S_i) to an estimated terminal price S_{i+T} . Indeed, there is no unique way for the index to go from S_i to S_{i+T} . Moreover, S_{i+T} is only one possible terminal value for the index amongst an infinity. Indeed, for a index value being defined on \mathbb{R}^+ (a set of positive numbers), there is an infinity of possible paths from S_i to S_{i+T} .

It is an industry standard to run at least 10,000 simulations even if 1,000 simulations provide an efficient estimator of the terminal price of most assets. In this study, I ran 1,000 simulations for illustration purposes.

Step 6 – Rank the M terminal index return from the smallest to the largest, read the simulated value in this series that corresponds to the desired (1-α)% confidence level (95% or 99% in our case) and deduce the relevant VaR, which is the difference between S_i and the αth lowest terminal stock price.

As we want the VaR with a 95% and 99% confidence interval. In order to obtain it, I will need first to rank the M terminal stock prices from the lowest to the highest. Then we read the 1% and 5% lowest percentile in this series. This estimated terminal price, $S_{i+T}^{1\%}$ means that there is a 1% chance that the current stock

price S_i could fall to $S_{i+T}^{1\%}$ or less over the period in consideration and under normal market conditions. If $S_{i+T}^{1\%}$ is smaller than S_i (which is the case most of the time), then $S_i - S_{i+T}^{1\%}$ will correspond to a loss. This loss represents the VaR with a 99% confidence interval.

F- Back Testing Method-Regression Analysis

For conducting back testing of VaR methods we are using regression analysis on each VaR method by taking CV (coefficient of variation) as the independent variable and VaR measure as the dependent variable.

Back testing is consist of following steps-

In order to conduct regression analysis between VaR and CV we need series of value for these two variables. As we have 720 return data of index. We will divide this data series into 48 overlapping return data series of 250 return data.

Now we will calculate the Coefficient of variation and Value at Risk for each of the data series. First we calculate Analytical VaR, Monte Carlo VaR, and Historical VaR for each data set by applying techniques discussed above.

As now we have VaR data for each of the method, now we will calculate CV (coefficient of variation) for each dataset using following formula.

$$\text{Coefficient of Variation} = \frac{\text{Standard Deviation}}{\text{Expected Return}}$$

Now we will apply the regression analysis on the given 48 data series which will consist of following steps-

Step 1 – Applying Regression Analysis on VaR calculated by each of the method.

1.1 – Regression Analysis of 99 percentile VaR calculated by Variance-Covariance Method-

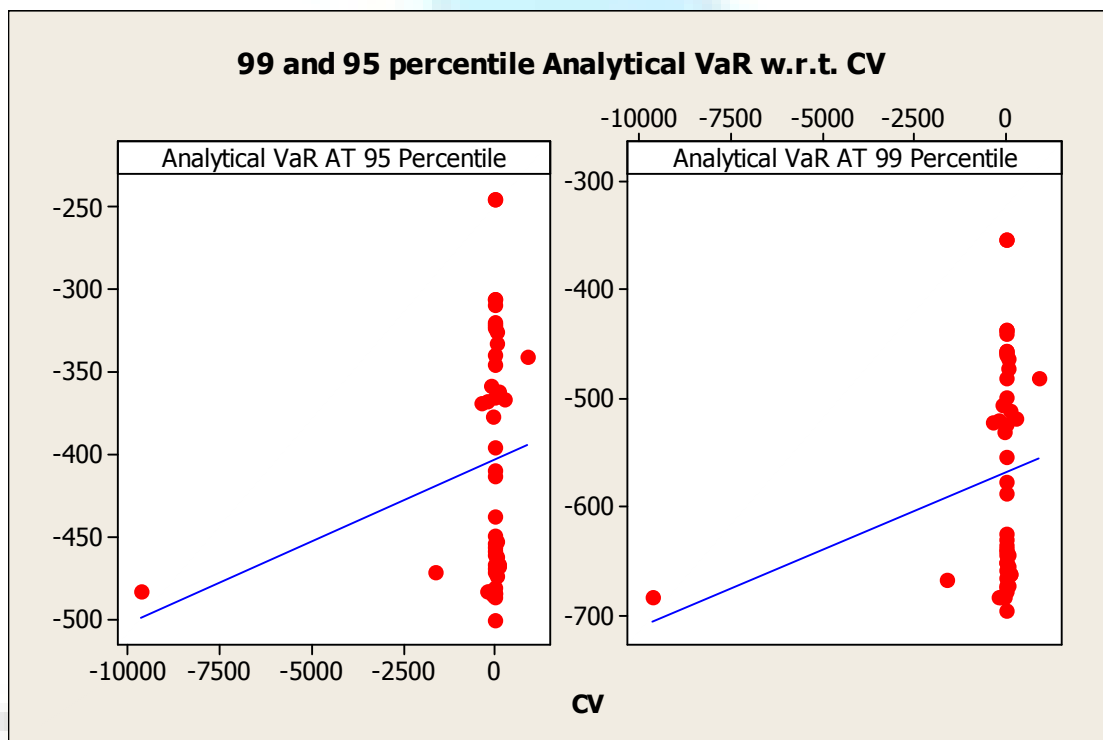
The regression equation is

$$\text{Analytical VaR AT 99 Percentile} = - 569 + 0.0142 \text{ CV}$$

REGRESSION ANALYSIS OF ANALYTICAL VAR AT 99% CONFIDENCE LEVEL

Predictor	regression Coefficient	SE Coefficient	T value	P value
Constant	-569.01	14.36	-39.62	0.000
CV	0.06424	0.01010	1.41	0.0165

S = 98.2846 R-Sq = 40.1%



1.2 – Regression Analysis of 95 percentile VaR calculated by Analytical VaR Method-

The regression equation is Analytical VaR AT 95 Percentile = - 403 + 0.0100 CV

REGRESSION ANALYSIS OF ANALYTICAL VAR AT 95% CONFIDENCE LEVEL

Predictor	regression Coefficient	SE Coefficient	T value	P value
Constant	-403.17	10.59	-38.06	0.000
CV	0.010013	0.007447	1.34	0.0185

S = 72.4981 R-Sq = 30.8%

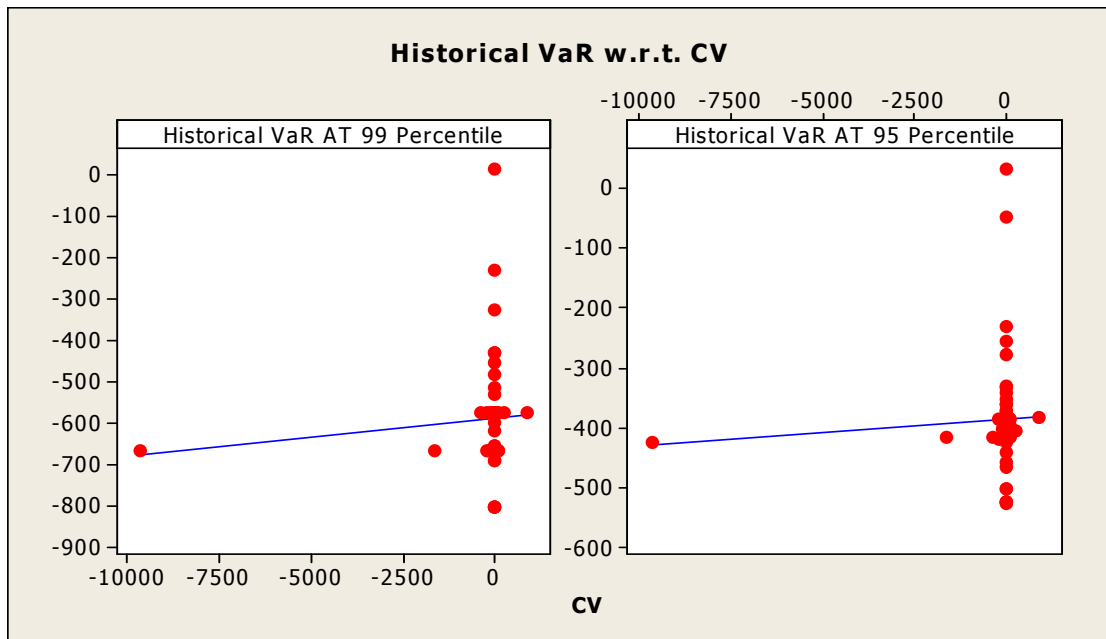
1.3 – Regression Analysis of 99 percentile VaR calculated by Historical Simulation Method-

The regression equation is Historical VaR AT 99 Percentile = - 590 + 0.0090 CV

REGRESSION ANALYSIS OF HISTORICAL VAR AT 99% CONFIDENCE LEVEL

Predictor	regression Coefficient	SE Coefficient	T value	P value
Constant	-590.22	20.92	-28.22	0.000
CV	0.0895	0.01470	0.61	0.0546

S = 143.133 R-Sq = 28%



1.4 – Regression Analysis of 95 percentile VaR calculated by Historical Simulation Method-

The regression equation is Historical VaR AT 95 Percentile = - 385 + 0.0046 CV

REGRESSION ANALYSIS OF HISTORICAL VAR AT 95% CONFIDENCE LEVEL

Predictor	regression Coefficient	SE Coefficient	T value	P value
Constant	-385.18	14.99	-25.69	0.000
CV	0.0456	0.01054	0.43	0.0667

S = 102.593 R-Sq = 16%

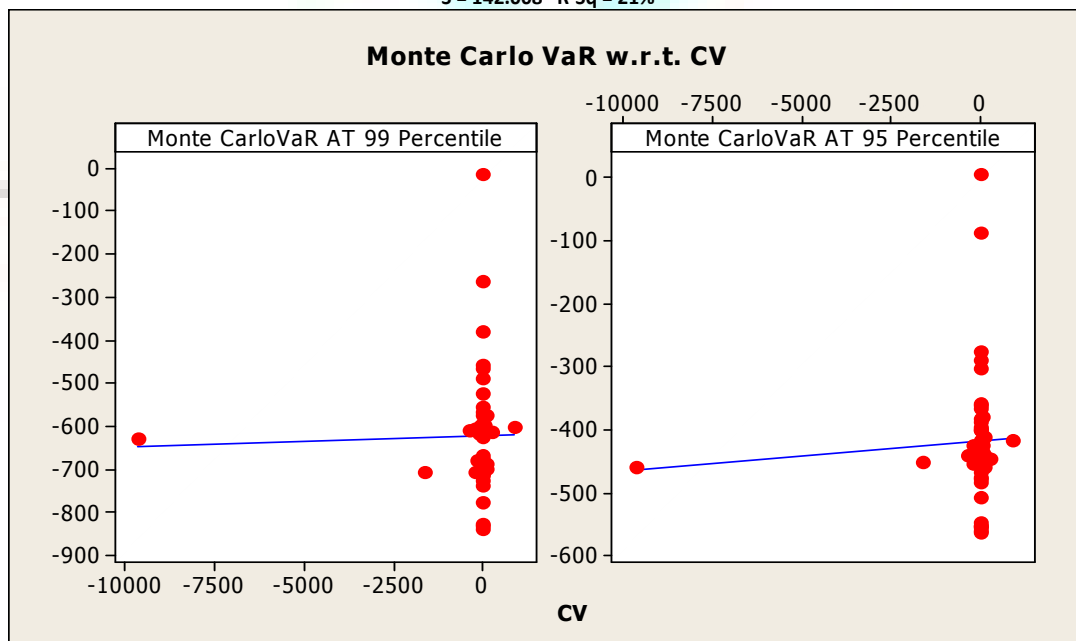
1.5 – Regression Analysis of 99 percentile VaR calculated by Monte-Carlo Simulation Method-

The regression equation is Monte Carlo VaR AT 99 Percentile = - 622 + 0.0025 CV

REGRESSION ANALYSIS OF MONTE CARLO VAR AT 99 % CONFIDENCE LEVEL

Predictor	regression Coefficient	SE Coefficient	T value	P value
Constant	-622.40	20.75	-29.99	0.000
CV	0.0255	0.01459	0.17	0.0862

S = 142.008 R-Sq = 21%



1.6 – Regression Analysis of 95 percentile VaR calculated by Monte-Carlo Simulation Method-

The regression equation is Monte Carlo VaR AT 95 Percentile = - 418 + 0.0049 CV

REGRESSION ANALYSIS OF MONTE CARLO VAR AT 95 % CONFIDENCE LEVEL

Predictor	regression Coefficient	SE Coefficient	T value	P value
Constant	-418.48	15.26	-27.42	0.000
CV	0.0489	0.01073	0.46	0.0651

S = 104.442 R-Sq = 14%

RESULT AND ANALYSIS

We begin the analysis with VaR Calculation. First, we compute VaR using variance-Covariance method. Next, we apply Historical simulation and Monte Carlo method and estimate the VaR once again. The results are summarized in the following tables.

VALUE AT RISK BY DIFFERENT METHODS

Variance-Covariance method		
Confidence Interval	VaR at given percentile	10 Days VaR
95%	-370.0422	-1170.176
99%	-524.871	-1659.79

Advanced Variance-Covariance method using GARCH Volatility Estimate		
Confidence Interval	VaR at given percentile	10 Days VaR
95%	-372.8808	-1179.153
99%	-528.8863	-1672.485

Historical Simulation method		
Confidence Interval	VaR at given percentile	10 Days VaR
95%	-363.296	-1148.84
99%	-602.237	-1904.44

Age-Weighted Historical Simulation method		
Confidence Interval	VaR at given percentile	10 Days VaR
95%	-366.8529	-1184.9163
99%	-677.63	-1961.715

Monte Carlo Simulation method		
Confidence Interval	VaR at given percentile	10 Days VaR
95%	-370.583	-1190.356
99%	-682.9273	-1994.745

After calculating VaR by these three methods next we performed Back Testing. In this we applied regression analysis on these VaR with CV (coefficient of variation). In doing so first we make 48 subsets of data and calculated CV and VaR for these datasets. After that we apply regression analysis on this data.

REGRESSION ANALYSIS OUTPUT

	Historical VaR AT 99 Percentile	Historical VaR AT 95 Percentile	Analytical VaR AT 99 Percentile	Analytical VaR AT 95 Percentile	Monte Carlo VaR AT 99 Percentile	Monte Carlo VaR AT 95 Percentile
regression Coefficient	0.0895	0.0456	0.06424	0.010013	0.0255	0.0489
R-square	28 %	16%	40.1 %	30.8 %	21 %	14 %

COMPARING THE RESULT OF REGRESSION ANALYSIS OF DIFFERENT VAR METHOD

As now we have regression coefficient and R-square of coefficient of variation and VaR calculated by each of the method. The closer its R squared value is to one, the greater the ability of that model to predict a trend. We will compare these values and find out which is the most accurate, most efficient and most suitable method for calculating the VaR of given Index. Values of R^2 outside the range 0 to 1 can occur where it is used to measure the agreement between observed and modeled values and where the "modeled" values are not obtained by linear regression.

As we can see from the table, R-square values are given; R-square for variance covariance VaR is higher than other which indicates that Variance Covariance VaR is the best predictor of risk. R^2 is often interpreted as the proportion of response variation "explained" by the repressors in the model. Thus, $R^2 = 1$ indicates that the fitted model explains all variability in y, while $R^2 = 0$ indicates no 'linear' relationship Higher R-square indicates higher sensitivity of that parameter w.r.t. independent variable which in this case is CV (coefficient of variation). R-square for Variance Covariance VaR is more close to one which means it is best among all VaR measures. Monte Carlo is least, which signify that Monte Carlo is not appropriate for calculating VaR of the given equity index.

CONCLUSION

The outcome of this study shows that Variance Covariance VaR method is best suitable method for given equity index. Result generated by this method is in line with Coefficient of variation in comparison to other method.

In this study I have taken Equity index portfolio which consists of linear components so this is basically a linear portfolio. So we can conclude that Variance Covariance is the best fit method for linear portfolios.

Historical simulation failed to generate the desired result because of its dependency on past data. By seeing our result we can say that in Index portfolio dependency on past data is very poor and risk is independent of past data up to an extend.

Monte Carlo is very complex method. It consists of so much simulation part and is very much calculation oriented and very much complex. In this study this method has derived least significant result which indicates that Monte Carlo is not suitable for linear portfolio like equity index. It is well suited for non-linear complex portfolios.

So finally we can say that Analytical VaR method is the best method for calculating VaR of an equity index.

REFERENCES

1. Alexander, C and E. Sheedy (2007): Model-based Stress Tests: Linking Stress Tests to VaR for Market Risk, *ICMA Centre Discussion Papers in Finance DP2007-02*, University of Reading.
2. Allen, L., J. Boudoukh and A. Saunders (2004): *Understanding Market, Credit and Operational Risk: The Value at Risk Approach*, Blackwell Publishing, Oxford, U.K.
3. Aragonés, J.R, C. Blanco and K. Dowd (2001): Incorporating Stress Tests into Market Risk Modelling, *Derivatives Quarterly*, Spring, 44-49.
4. Bams, D., T. Lehnert and C.C.P. Wolff (2005), An Evaluation Framework for Alternative VaR Models, *Journal of International Money and Finance*, 24, 944 – 958
5. Basu, S. (2006): The Impact of Stress Scenarios on VaR and Expected Shortfall, mimeo.
6. Berkowitz, J. (1999): *A Coherent Framework for Stress-Testing*, Board of Governors of the Federal Reserve, July.
7. BIS (2006): *International Convergence of Capital Measurement and Capital Standards: A Revised Framework*, Comprehensive Version, June, Bank for International Settlements.
8. BIS (2009): *Principles for Sound Stress Testing Practices and Supervision*, January, Bank for International Settlements.
9. Boudoukh, J, M. Richardson, and R. Whitelaw (1998): The Best of Both Worlds, *RISK*, May, 64-67.
10. Crnkovic, C. and Drachman, J., 1997, "Quality Control in VaR: Understanding and Applying Value-at-Risk", Risk Publications, ISBN 189933226X
11. Dharba, Gangadhar(2002); Value-at -Risk for Fixed Income portfolios - A comparison of alternative Models ; Technical Paper , National Stock Exchange, India, www.nse-india.com.
12. Dowd, K. (2005): *Measuring Market Risk*, 2nd Edition, John Wiley and Sons, Chichester, England.
13. Finger, C. (2005): What's the worst that could happen? *Riskmetrics Group Research Monthly*, March.
14. FSA (2005): *Stress Testing*, Discussion Paper 05/2, Financial Services Authority.
15. Hull, J. and A. White (1998): Incorporating volatility updating into the historical simulation method for VaR, *The Journal of Risk*, 1(1), 5-19.
16. Nath, Golaka; Reddy, Y. V. (2003). Value at Risk: Issues and Implementation in Forex market in India : November, pages 26 ; www.nse-india.com
17. Perignon, C and D. Smith (2007): The Level and Quality of Value-at-Risk Disclosure by Commercial Banks, mimeo, November.
18. Pritsker, M (2006): The hidden dangers of Historical Simulation, *Journal of Banking and Finance*, 30(2), 561-582.
19. RBI (2007): Guidelines on Stress Testing, *DBOD. No. BP. BC.101 / 21.04.103/ 2006- 07*, Reserve Bank of India.
20. Raina, Ajoy and Mukhopadhyay, C (2004), "Optimizing a Portfolio of Equities, Equity Futures and Equity European Options by Minimising Value at Risk – A simulated Annealing framework", *ICFAI Journal of Finance*, May 2004, Vol 10, No. 5. 10 Samata, G.P. and Thakur, S.K., "On Estimating Value at Risk Using Tail Index: Application to Indian Stock Market", *ICFAI Journal of Applied Finance*, Vol 12, No. 6, June 2006
21. SSG (2008): Observations on Risk Management Practices during the Recent Market Turbulence, March 6, Senior Supervisors Group.
22. Schinassi, G. (1999), "Systemic Aspects of Recent Turbulence in Mature Markets", *Finance and Development*, March, 30-33, IMF, Washington.
23. Srinivasan, Ashok; Shah, Viral; Ganti, Phanindra V. R. ; Shah, Ajay ; (2000). Application of Range Searching to Fast Financial Risk Estimation: January, pages 16

A STUDY TO DETERMINE THE EFFECTIVENESS OF THE TRAINING PROGRAMMES AT ONE OF THE NAVRATNA COMPANY IN ELECTRONIC INDUSTRY

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ABSTRACT

Electronics industry is a technology based industry where consistent update of technology is compulsorily required. The employees also have to be updated with the technology adopted by the organization and this is possible only when there is regular training for the employees. So most of the electronic companies conduct regular training programmes to improve technical, conceptual, behavioural and managerial skill of the employees. In order to study the effectiveness of the training programmes in Electronics industry, the present study was undertaken in one of the nav ratna company related to electronic industry. The main objective is to study the effectiveness of the training programmes at one of the Navratna Company in electronic industry. The data for the purpose of the study is collected using a structured questionnaire constituting different aspects like training programme and job relevance, contribution to career development, faculty, methods and facilities provided, improvement in performance and feedback. The sample comprising 38 executives of different cadres was selected using stratified random sampling technique. The collected data is analysed using different statistical tools like mean, correlation and simple percentages

KEYWORDS

Training Programme, Navratna Compnies, Electronic Industry.

INTRODUCTION

 Electronics industry is a technology based industry where consistent update of technology is compulsorily required. The employees also have to be updated with the technology adopted by the organization and this is possible only when there is regular training for the employees. So most of the electronic companies conduct regular training programmes to improve technical, conceptual, behavioural and managerial skill of the employees. In order to study the effectiveness of the training programmes in Electronics industry, the present study was undertaken in one of the nav ratna company. The main objective is to study the effectiveness of the training programmes at one of the Navratna Company.

NEED FOR THE STUDY

The human resource is considered as the organisation's most important asset that helps in the organisation goal achievement to a greater extent. In order to make the employees competent and techno friendly, regular training is essential that makes the employees comfortable with the work environment and work equipment. The importance of training programmes is increasingly felt by the organizations and the amount spent on training programmes is considered as an investment rather than as cost by the organizations. It is very important to ensure that the training programmes are effective otherwise the very purpose of conducting training programmes is lost. In this context, the study of the effectiveness of training programmes is undertaken.

OBJECTIVES OF THE STUDY

Primary objective: To study the effectiveness of training programmes in one of the Navratna Company located at Machilipatnam.

Secondary objectives:

1. To identify the relevance of training programmes to the job.
2. To study the contribution of training programmes to individual and organisational development.
3. To study the adequacy and effectiveness of training facilities, methods and trainers.
4. To determine if there is a significant difference in the opinions expressed by the executives of different cadres regarding the training programmes.

METHODOLOGY

Research design: 'A research design is the arrangement of conditions for collection and analysis of data in a manner. The time period taken to collect the data is two months. Employees constitute the universe for the present study. There are 108 executives of different cadres working in the organization. Out of them 38 executives have attended the training programmes in the past three years and they are the sample respondents for the present study. To enable the sample to represent all the executive cadres, the sample has been drawn using stratified random sampling technique.

Methods of data collection: In this project the data collected is of two types

Primary data: The opinions of the executives regarding different aspects of the training programme are gathered through opinion survey. A structured questionnaire was used to collect the primary data.

Secondary data: The company profile and conceptual information was collected using other sources like company records, books, journals, magazines, internet, etc.

Data Analysis: The collected data is analysed using different statistical tools like mean, correlation and simple percentages.

SCOPE OF THE STUDY

The study is conducted among the executives who have attended the training programmes during the past three years. The study is conducted to the executive class of employees.

LIMITATIONS

1. The study is confined to Machilipatnam branch only.
2. The executives who have attended the training programmes in the past three years only are considered for the purpose of the study.
3. The study is limited to the executive cadre employees only.
4. Since it is restricted to only two months and in depth study is not undertaken.

The effectiveness in Training process will depend on the Accuracy of Training need identification, Training need assessment, Training need justification, Budgeting and controlling the cost, Selection of learning process & training methodology, Planning, designing & conducting the process, Evaluation of programme, the trainee & the feedback Records.

TABLE 1: THE STRUCTURED TRAINING PROGRAMMES REGULARLY IMPLEMENTED FOR THE EXECUTIVE LEVEL EMPLOYEES ARE LISTED BELOW

S.NO	TITLE OF THE TRAINING PROGRAMME	LEVEL OF THE EXECUTIVES	DURATION OF THE TIME PERIOD
1	Executive development programme	E I EII	1 WEEK 2 WEEKS
2	Junior executive development programme	EII EIII	2 WEEKS 3 WEEKS
3	Executive development programme	EIV	4 WEEKS
4	Managerial effectiveness programme	EV	1 WEEK
5	Change management programme	E VI AND ABOVE	2 WEEKS
6	360 Degrees feedback and leadership development workshop	E VI AND ABOVE	3 DAYS
7	Strategic finance programme	E VI AND ABOVE	3 DAYS
8	Business Orientation programme	MARKETING EXECUTIVES	4 DAYS

From the Table 2, it can be interpreted that the training need identification process helps to evaluate the employee requirements and the organisational needs, further it simplifies the identification of the trainees and specifies the required skills for an employee to be adequate with his present job with regard to this about 85 percent of the employees are satisfied with the training need identification process which is done through competency mapping by the immediate superior.

TABLE 2 TRAINING NEED IDENTIFICATION PROCESS

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	3 (0.60)	1 (0.20)	1 (0.20)	- (0.0)	- (0.0)	5
E3	2 (0.40)	3 (0.60)	- (0.0)	- (0.0)	- (0.0)	5
E4	2 (0.22)	7 (0.77)	- (0.0)	- (0.0)	- (0.0)	9
E5	- (0.0)	9 (0.10)	- (0.0)	- (0.0)	- (0.0)	9
E6	5 (0.62)	2 (0.25)	1 (0.12)	- (0.0)	- (0.0)	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	- (0.0)	2
Total	13	23	2	0	0	38
Percentages	(0.34)	(0.60)	(0.5)	(0.0)	(0.0)	(1.0)

TABLE 3: TRAINING PROGRAMME RELEVANCE FOR JOB

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	3 (0.60)	1 (0.20)	1 (0.20)	- (0.0)	- (0.0)	5
E3	3 (0.60)	2 (0.40)	- (0.0)	- (0.0)	- (0.0)	5
E4	4 (0.44)	5 (0.55)	- (0.0)	- (0.0)	- (0.0)	9
E5	6 (0.66)	3 (0.33)	- (0.0)	- (0.0)	- (0.0)	9
E6	5 (0.62)	1 (0.12)	2 (0.25)	- (0.0)	- (0.0)	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	- (0.0)	2
Total	22	13	3	0	0	38
Percentages	(0.58)	(0.34)	(0.7.89)	(0.0)	(0.0)	(1.0)

From the Table 3, For any employee to perform his job efficiently a consistent improvement is required which can be achieved by the training programme, so the training programme is always associated with the fulfilment of the job requirement and majority of the employees agreed that the training programme is relevant for their job which contributes for their effective performance .

TABLE 4: OPPORTUNITIES PROVIDED BY THE ORGANISATION TO USE THE LEARNED SKILLS AND KNOWLEDGE

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	2 (0.40)	3 (0.60)	- (0.0)	- (0.0)	- (0.0)	5
E3	2 (0.40)	2 (0.40)	1 (0.20)	- (0.0)	- (0.0)	5
E4	2 (0.22)	6 (0.66)	1 (0.11)	- (0.0)	- (0.0)	9
E5	5 (0.55)	4 (0.44)	- (0.0)	- (0.0)	- (0.0)	9
E6	4 (0.50)	4 (0.50)	- (0.0)	- (0.0)	- (0.0)	8
E6a	- (0.0)	2 (0.10)	- (0.0)	- (0.0)	- (0.0)	2
Total	15	21	2	0	0	38
Percentages	(0.39)	(0.56)	(0.05)	(0.0)	(0.0)	(1.0)

From the table 4, it can interpreted that when the training is given to the employees, simultaneously the organisation must provide opportunities for the employees to exhibit the learned skills and knowledge, and about 90 percent of the employees agreed that the organisation provides opportunities to exhibit their skills and knowledge.

TABLE 5: APPLICATION OF THE ACQUIRED SKILLS AND KNOWLEDGE

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	3 (0.60)	2 (0.40)	- (0.0)	- (0.0)	- (0.0)	5
E3	3 (0.60)	1 (0.20)	1 (0.20)	- (0.0)	- (0.0)	5
E4	7 (0.77)	2 (0.22)	- (0.0)	- (0.0)	- (0.0)	9
E5	4 (0.44)	4 (0.44)	1 (0.11)	- (0.0)	- (0.0)	9
E6	5 (0.62)	2 (0.25)	1 (0.12)	- (0.0)	- (0.0)	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	- (0.0)	2
Total	23	12	3	0	0	38
Percentages	(0.60)	(0.32)	(0.08)	(0.0)	(0.0)	(1.0)

From the table 5, it can interpreted that, when the learning takes place, the learner acquires knowledge and skills and the employees must be able to apply these skills and knowledge in the work place and most of the employees are satisfied with their applicability of knowledge in the work place.

TABLE 6: ACCEPTANCE OF RESPONSIBILITIES

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	1 (0.20)	4 (0.80)	- (0.0)	- (0.0)	- (0.0)	5
E3	3 (0.60)	1 (0.20)	1 (0.20)	- (0.0)	- (0.0)	5
E4	4 (0.44)	3 (0.33)	2 (0.22)	- (0.0)	- (0.0)	9
E5	5 (0.55)	3 (0.33)	1 (0.11)	- (0.0)	- (0.0)	9
E6	3 (0.37)	5 (0.62)	- (0.0)	- (0.0)	- (0.0)	8
E6a	2 (1.0)	- (0.0)	- (0.0)	- (0.0)	- (0.0)	2
Total	18	16	4	0	0	38
Percentages	(0.47)	(0.42)	(0.10)	(0.0)	(0.0)	(1.0)

From the table 6, it can interpreted that, training always helps in the improvement of skills and knowledge and there by performance and this improvement in the performance helps to take up challenges and responsibilities and with regard to this more than 85 percent of the employees agreed that the training helps to take responsibilities.

TABLE 7: PERFORMANCE IMPROVEMENT

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	3 (0.60)	2 (0.40)	- (0.0)	- (0.0)	- (0.0)	5
E3	1 (0.20)	4 (0.80)	- (0.0)	- (0.0)	- (0.0)	5
E4	7 (0.77)	2 (0.22)	- (0.0)	- (0.0)	- (0.0)	9
E5	2 (0.22)	6 (0.66)	1 (0.11)	- (0.0)	- (0.0)	9
E6	7 (0.87)	1 (0.12)	- (0.0)	- (0.0)	- (0.0)	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	- (0.0)	2
Total	21	16	1	0	0	38
Percentages	(0.55)	(0.42)	(0.03)	(0.0)	(0.0)	(1.0)

From the table 7, it can interpreted that employees get adequate with their working condition by the improvement in their performance and this improvement can be achieved by the training and with regard to this statement more than 97 percent of the employees agreed that there is an improvement in their performance.

TABLE 8: ACHIEVEMENT OF TRAINING OBJECTIVES

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	1 (0.20)	4 (0.80)	- (0.0)	- (0.0)	- (0.0)	5
E3	2 (0.40)	3 (0.60)	- (0.0)	- (0.0)	- (0.0)	5
E4	5 (0.55)	3 (0.33)	1 (0.11)	- (0.0)	- (0.0)	9
E5	3 (0.33)	5 (0.55)	1 (0.11)	- (0.0)	- (0.0)	9
E6	2 (0.25)	6 (0.75)	- (0.0)	- (0.0)	- (0.0)	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	- (0.0)	2
Total	14	22	2	0	0	38
Percentages	(0.37)	(0.58)	(0.05)	(0.0)	(0.0)	(1.0)

From the table 8, it can interpreted that, the training programme mainly aims to fulfil the gaps between the organisation requirements and the employee skills and 36 percent of the employees strongly agree and about 57 percent agree that the training programme achieved its intended objectives.

TABLE 9: ORGANISATION'S GOAL ACHIEVEMENT

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	3 (0.60)	2 (0.40)	- (0.0)	- (0.0)	- (0.0)	5
E3	3 (0.60)	2 (0.40)	- (0.0)	- (0.0)	- (0.0)	5
E4	6 (0.66)	2 (0.22)	1 (0.11)	- (0.0)	- (0.0)	9
E5	2 (0.22)	6 (0.66)	1 (0.11)	- (0.0)	- (0.0)	9
E6	5 (0.62)	3 (0.37)	- (0.0)	- (0.0)	- (0.0)	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	- (0.0)	2
Total	20	16	2	0	0	38
Percentages	(0.53)	(0.42)	(0.05)	(0.0)	(0.0)	(1.0)

From the table 9, it can interpreted that Training programme improves the performance and this improvement in the performance helps in job perfection, working efficiency and performing the job in a better manner and there by contributes for the organisations goal achievement and about 90 percent of the employees agreed that the training programme contributes for the goal achievement.

TABLE 10: CONTRIBUTION OF TRAINING PROGRAMME FOR CAREER DEVELOPMENT

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	4 (0.80)	1 (0.20)	- (0.0)	- (0.0)	- (0.0)	5
E3	2 (0.40)	3 (0.60)	- (0.0)	- (0.0)	- (0.0)	5
E4	6 (0.66)	1 (0.11)	2 (0.22)	- (0.0)	- (0.0)	9
E5	3 (0.33)	5 (0.55)	1 (0.11)	- (0.0)	- (0.0)	9
E6	6 (0.75)	2 (0.25)	- (0.0)	- (0.0)	- (0.0)	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	- (0.0)	2
Total	22	13	3	0	0	38
Percentages	(0.58)	(0.34)	(0.8)	(0.0)	(0.0)	(1.0)

From the table 10, it can interpreted that Career development is a long term goal for the employee and it can be achieved by continuous learning, and this takes place by training that helps in the improvement in the performance and with regard to this majority of the employees accept that the training programme contributes for the career development.

TABLE 10: EFFECTIVE AUDIO AND VISUAL PRESENTATIONS

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	1 (0.20)	3 (0.60)	1 (0.20)	- (0.0)	- (0.0)	5
E3	4 (0.80)	1 (0.20)	- (0.0)	- (0.0)	- (0.0)	5
E4	4 (0.44)	4 (0.44)	1 (0.11)	- (0.0)	- (0.0)	9
E5	4 (0.44)	4 (0.44)	1 (0.11)	- (0.0)	- (0.0)	9
E6	4 (0.50)	3 (0.37)	1 (0.12)	- (0.0)	- (0.0)	8
E6a	2 (0.10)	- (0.0)	- (0.00)	- (0.0)	- (0.0)	2
Total	19	15	4	0	0	38
Percentages	(0.50)	(0.39)	(0.10)	(0.0)	(0.0)	(1.0)

From the Table 10, it can interpreted that the audio and visual presentations are the key aspects for the training and the effective presentation contributes for the effective learning as the learning is done by observing and by seeing and almost all the employees agreed that the audio and visual presentations in the training programme are effective.

TABLE 11: SATISFACTION WITH FACILITIES PROVIDED

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	2 (0.40)	3 (0.60)	- (0.0)	- (0.0)	- (0.0)	5
E3	- (0.0)	4 (0.80)	1 (0.20)	- (0.0)	- (0.0)	5
E4	7 (0.77)	2 (0.22)	- (0.0)	- (0.0)	- (0.0)	9
E5	2 (0.22)	6 (0.66)	1 (0.11)	- (0.0)	- (0.0)	9
E6	4 (0.50)	4 (0.50)	- (0.0)	- (0.0)	- (0.0)	8
E6a	- (0.0)	2 (1.0)	- (0.0)	- (0.0)	- (0.0)	2
Total	15	21	2	0	0	38
Percentages	(0.39)	(0.55)	(0.05)	(0.0)	(0.0)	(1.0)

From the Table 11, it can be interpreted that, the facilities provided for the employees are also considered as one of the major aspects that include the classroom facilities like seating, ventilation batch size and the provision of these facilities makes the employees feel comfort and majority of the employees are satisfied with the facilities provided in the training programme.

TABLE 12: RELEVANCE OF STUDY MATERIAL

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	3 (0.60)	2 (0.40)	- (0.0)	- (0.0)	- (0.0)	5
E3	3 (0.60)	1 (0.20)	1 (0.20)	- (0.0)	- (0.0)	5
E4	5 (0.55)	3 (0.33)	1 (0.11)	- (0.0)	- (0.0)	9
E5	4 (0.44)	5 (0.55)	- (0.0)	- (0.0)	- (0.0)	9
E6	5 (0.62)	3 (0.37)	- (0.0)	- (0.0)	- (0.0)	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	- (0.0)	2
Total	21	15	2	0	0	38
Percentages	(0.55)	(0.39)	(0.05)	(0.0)	(0.0)	(1.0)

From the table 12, it can be interpreted that the process of learning occurs by observing, listening and by watching, so the study material provided for the training programme plays a key role in learning and about 90 percent of the employees accepted that the study material provided is relevant to the training programme.

TABLE 13: PROVISION OF EXCELLENT FACULTY

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	3 (0.60)	2 (0.40)	- (0.0)	- (0.0)	- (0.0)	5
E3	4 (0.80)	1 (0.20)	- (0.0)	- (0.0)	- (0.0)	5
E4	3 (0.33)	4 (0.44)	2 (0.22)	- (0.0)	- (0.0)	9
E5	4 (0.44)	4 (0.44)	1 (0.11)	- (0.0)	- (0.0)	9
E6	5 (0.62)	2 (0.25)	1 (0.12)	- (0.0)	- (0.0)	8
E6a	- (0.0)	2 (1.0)	- (0.0)	- (0.0)	- (0.0)	2
Total	19	15	4	0	0	38
Percentages	(0.50)	(0.39)	(0.10)	(0.0)	(0.0)	(1.0)

From the table 13, it can be interpreted that training is the learning process between the trainer and the trainee where the trainee observes, follows and learns by imitating the trainer, therefore the faculty provided is also considered as one of the key elements for effective training and majority of the employees agreed that the faculty is excellent.

TABLE 14: EFFECTIVENESS OF TRAINING METHODS

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree(1)	Total
E2	3 (0.60)	2 (0.40)	- (0.0)	- (0.0)	- (0.0)	5
E3	1 (0.20)	3 (0.60)	1 (0.20)	- (0.0)	- (0.0)	5
E4	4 (0.44)	5 (0.55)	- (0.0)	- (0.0)	- (0.0)	9
E5	4 (0.44)	4 (0.44)	1 (0.11)	- (0.0)	- (0.0)	9
E6	5 (0.62)	3 (0.37)	- (0.0)	- (0.0)	- (0.0)	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	- (0.0)	2
Total	18	18	2	0	0	38
Percentages	(0.47)	(0.47)	(0.05)	(0.0)	(0.0)	(1.0)

From the Table 14, it can be interpreted that the training methods include on the job and off the job training and these methods are implemented based on the work or the training objectives. These methods help to learn by practice and most of the employees agreed that the methods implemented in the training programme are effective.

TABLE 15: LENGTHY TRAINING SESSIONS

Executive level	Strongly agree(5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Total
E2	- (0.0)	- (0.0)	3 (0.60)	2 (0.40)	-	5
E3	2 (0.40)	- (0.0)	1 (0.20)	1 (0.20)	1 (0.20)	5
E4	1 (0.11)	1 (0.11)	2 (0.22)	5 (0.55)	-	9
E5	- (0.0)	1 (0.11)	- (0.0)	8 (0.88)	-	9
E6	- (0.0)	1 (0.12)	3 (0.37)	4 (0.50)	-	8
E6a	1 (0.50)	1 (0.50)	- (0.0)	- (0.0)	-	2
Total	4	4	9	20	1	38
Percentages	(0.10)	(0.10)	(0.24)	(0.53)	(0.03)	(1.0)

From the table 15, it can interpreted that training sessions includes the time period for the training programme and this might be some times too short or adequate or too long based on the content of the training programme and majority of the employees agreed that the training sessions are adequate and not lengthy.

Overall rating of the training programme indicates the rating of the training programme as a whole that includes the facilities, faculty, methods, and material and this rating explores the analysis of the training programme in general and this can be considered as the final opinion of the employees and about 90 percent of the employees rated that the training programme is excellent.

TABLE 16 SHOWS THE CORRELATION OF OVERALL RATING WITH DIFFERENT CATEGORIES AND WITH EACH VARIABLE

Correlation between overall rating and variables	Value of correlation
Variables category wise	
Training need identification and job relevance	0.274333
Contribution for career development	0.290803
Faculty methods and facilities	0.316053
Individual variables	
Training need identification process	0.223909
Training programme relevance for job	0.242244
Opportunities provided by the organisation to use the learned skills and knowledge	0.118064
Application of the acquired skills and knowledge	0.076563
Acceptance of responsibilities	0.175313
Performance improvement	0.088913
Achievement of training objectives	0.215471
Organisation's goal achievement	0.177773
Contribution of training programme for career development	0.242244
Effective audio and visual presentations	0.24697
Satisfaction with facilities provided	0.207792
Relevance of study material	0.173046
Provision of excellent faculty	0.265966
Effectiveness of training methods	0.101075
Lengthy training sessions	0.121888

From the table 16, it can interpreted that, the correlation is a statistical tool that establishes the relation between two different variables and explains how they are related that is either positive or negatively related this further helps in the analysis of the variables. The correlation between the overall rating with various categories and with individual statement variables establishes the relation between the overall rating and the other variable and indicates whether there exists a positive relation between them or negative relation, and among the categories 'faculty, methods and facilities' is more positively related with the overall rating followed by 'contribution for career development', 'training need identification and job relevance'. With regard to the individual statement variables, the overall rating is more positively related with faculty provided, followed by audio and visual presentations, contribution for career development, training programme relevance for job and least related with the acquired skills and knowledge and with the performance improvement.

FINDINGS OF THE STUDY

Based on the analysis of the data collected the following are the findings of the study regarding the effectiveness of training programmes.

- A note worthy finding of the study is 90 percent of the sample respondents expressed that the training programmes conducted in the organisation is excellent.
- Out of the total employees, 94 percent of the employees are satisfied with the need identification process which is mainly done through competency mapping by the immediate superior.
- Majority of the employees agreed that the training programme is relevant for their job which contributes for their effective performance.
- 95 percent of the employees agreed that the organization provides opportunities to exhibit their skills and knowledge.
- 97 percent of the employees agreed that there is an improvement in their performance after attending the training programme.
- 92 percent accepted that the training programme contributes for their career development.
- 94 percent of the employees are satisfied with the facilities provided in the training programme.
- 95 percent of the respondents agreed that the methods implemented in the training programme are effective.
- 92 percent of the employees agreed that the employee feedback is taken into consideration.
- The correlation between overall rating for the training programme and different dimensions of training indicated positive relationship. The highest is for the dimension of training indicated positive relationship. The highest is for the dimension 'faculty, methods and facilities' with the value 0.32. This indicated that the effectiveness of training to a greater extent depends on trainer, facilities and methods of training.
- The correlation between overall rating for the training programme and different individual dimensions of training indicated the positive relationship and the value is relatively high for the dimension 'provision of excellent faculty' with the value of 0.2659.

- The mean score of training excellence is high for level 'E6' followed by 'E6A', 'E2', 'E4', 'E5' and E3 level employees. This indicates that E6 cadre executives are more satisfied with the training programme when compared to others.
- The mean scores of training programmes of E3 and E5 executive cadres are relatively low when compared to other executive cadres.
- The mean score is high for the variable 'application of the acquired skills and knowledge followed by 'performance improvement', 'training programme relevance to job', 'contribution for the career development', relevance of the study material'. This implies that the employees are more satisfied with these variables of the training programme.
- The mean score of all levels of executives for the category 'training programme and job relevance' is 4.43 and the score is high for E6 level with the value 4.52.
- The mean score of all levels of executives for the category 'contribution for career development' is 4.45 and relatively the mean score is high for E6 level with the value 4.54.
- The mean score of all levels of executives for the category 'career and development' is high for the dimension 'contribution for career development' with the value 4.52.
- The mean score for the category 'facilities, methods and faculty' is 4.39 and the mean score value is relatively high for E6 level with the value 4.52 when compared to other executive cadres.
- The mean score for the category 'improvement and feedback' is 1.8 and the mean score is high for the level E3 with value 2.1.

SUGGESTIONS

Though majority of the sample respondents rated the training programmes as excellent, still there is scope for further improvement in different dimensions of training. The following are certain suggestions that may help in further improvement in the effectiveness of training programmes.

1. Training need identification process has to be improved further by finding out the gap between current skills and knowledge of the employees and the required skills and knowledge. In this context involvement of the employees in training need identification process is required.
2. The organisation has to ensure that after attending the training programme the employee should be in a position to apply the learned skill and knowledge. Otherwise the very purpose of conducting training programme is not served.
3. The training sessions should neither be too lengthy nor too short. The sessions should be adequate enough to retain the interest of the trainees and to impart necessary skill and knowledge.
4. Based on the study it is observed that the mean scores of training programmes of E3 and E5 executive cadres are relatively low when compared to other executive cadres. Certain steps have to be taken by the organization to improve Junior Executive Development Programmes conducted for E3 executives and Managerial Effectiveness Programme conducted for E5 executives.
5. For E3 level training facilities provided must be improved further.
6. The organization must provide more opportunities for application of learned skills and knowledge and help them in the performance improvement of E3 level executives.
7. The organisation should ensure that the training programmes help in career advancement of E5 level of executives.
8. The facilities, methods and the faculty have to be more strengthened for Junior Executive Development and for Managerial Effectiveness Programme.

REFERENCES

1. K. Ellis, 'The Mindset That matters: Linking learning to the business,' *Training* (May 2005): 38-43
2. K. Oakes, 'Grand Central Training', *TD* (May 2005): 30-32
3. J. Gordon, 'Selling it on the Side', *Training* (December 2005): 34-39
4. S. Boehle, 'Get Your Message Out', *Training* (February 2005): 36-41
5. Sussman, 'What HPLOs know', *TD* (August): 35-39
6. www.Training Outsourcing.com
7. T. Gainey and B. Klass, 'The Outsourcing of Training and Development: Factors Affecting Client Satisfaction', *Journal of Management* 29, no.2 (2003): 207-229
8. S. McCartney, 'The Air-Traffic Cops Go to School', *The Wall Street Journal*, March 29,2005:D1,D7
9. J. Salopek, 'Best 2005: EMC Corporation', *TD* (October 2005): 42-43
10. W. Webb, 'Who Moved My Training?' *Training* (January 2003), 22-26.
11. T. Seagraves, 'The Inside Pitch', *TD* (February 2005); 40-45.
12. M. Eisenstein, 'Test, Then Train', *TD* (May 2005): 26-27.
13. Dubois and W. Rothwell, 'Competency -Based or a Traditional Approach to Training', *TD* (April 2004): 46-57
14. S. Allen, 'Water Cooler Wisdom', *Training* (August 2005): 30-34
15. K. Tyler, 'Promoting the Teacher from Within', *HR Magazine* (October 2005), 101-106.
16. Steelcase, 'Workplace Issues: one in a series. Learning Environment for the Information Age', available from the Steelcase website, www.steelcase.com (March 1,2006).
17. J. Zenger, J. Folkman and R. Sherwin, 'Phase 3', *TD* (January 2005): 30-35.
18. J. Gordon, 'Getting Serious about Supervisory Training', *Training* (February 2006): 27-29.
19. S. Thurm, 'Companies Struggle to pass On Knowledge That Workers Acquire', *The Wall Street Journal*, January 23, 2006: B1
20. A Dugan Laird, Sharon S Naquin, Elwood F Holton, Approaches to Training and Development (2007), Rawat Books.
21. Subhash Sarma, Published in Indian Journal of Training & Development, April- June 2005, 'Mgt thought, social disposure and Mgt education: towards developing holistic professionals' Vol.35, No.2,Pp 5-12
22. P. Dwarakanath &M.Mala, TCS, Chennai, India, 'Effective learning and development programs- best practice.
23. Mohan Bangaruswamy, Measuring the effectiveness of training, *I.T. People evolve*, 2000: Indian Express Group (Mumbai, India).
24. HR Download - Training & Development, Dhiren Shantilal, Enhancing hiring effectiveness, Posted On Thursday, October 15, 2009 at 03:53:45 PM
25. Jerry W. Gilley, Steven A. Egglund, Principles of Human Resource Development, (1998), Perseus Publishing.
26. Nancherla, Aparna, 'Never Stop Training', *Training & Development*(Nov 2009)
27. Salopek, Jennifer J, Harris, Paul, Ketter, Paula, Laff, Michael, Llorens, Juana, Nancherla, Aparna, Pace, Ann, (Oct 2009) 'A high-touch, low-tech approach to training, *Training Development*.

IMPLEMENTATION OF CRM WITH INFORMATION TECHNOLOGY IN HIGHER EDUCATION

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ABSTRACT

Colleges at higher education levels are increasingly challenged to maintain student enrollment levels. Enrollment management programs to market the institution are growing in number and their efforts are paying off. Though enrollments in India might be rising on an average for almost all colleges due to demographical shifts, the quality of students is not standardized across all the colleges. Some colleges are more preferred while some lie at the bottom. The challenge is not only at the initial admission level. Once students arrive on campus, however, the challenge is to keep them there. Retention activities had focused traditionally on comprehensive orientation programs, in-depth student advising, and a variety of student-focused activities. Students expect information technology (IT) to be an integral part of their entire educational process and anticipate a higher level of access to information. From the "student-as-customer" perspective, an educational customer relationship management (CRM) system would provide interaction with all the traditional student touch points- admissions, registration, financial aid, etc. - through a single system that would facilitate a complete understanding of each student's unique situation. The paper describes that how customer relationship management practices can be successfully implemented by the use of information technology in the field of higher education. To support his views and literature the author also conducted a survey on different types of respondents and findings of the same have been presented here.

KEYWORDS

customer, higher education, information technology, relationship, student.

INFORMATION TECHNOLOGY AND CRM

Customer relationship management practices require support of information technology for successful implementation. Bose and Sugumaran (2003) have referred to Kohli (2001) and Shoemaker (2001) to point out that for information technology driven relationship management, the firm should obtain a customer's behavior, preference, needs, and buying patterns and on using that knowledge to set prices, negotiate terms, tailor promotions, add product features, and otherwise customize its entire relationships with each customer. Bose and Sugumaran (2003) have also pointed out that by integrating operational CRM data with knowledge an organization can make truly customer-centric business decisions.

Although more and more organizations and companies have "begun to use the internet to obtain customer information in their database marketing processes to enhance customer relationship management" very few have employed sophisticated customer relationship management information systems as stated by Rowley (2002). Sanjay S. Kaptan (1998) in his study focused upon the role of growing technological systems, which have led to the close interaction between the consumers and organization. He concluded the customer relationship management is based on valuing customers on current and potential values by defining the new horizons, unleashing the power of customer information, creating values in the eyes of the customers, delivering the exceptional experience.

Peppers and Rogers (1993) highlighted a more popular approach with recent application of information technology is to focus on individual or one-to-one relationship with customers that integrate database knowledge with a long-term customer retention and growth strategy. The information technology systems that support the customer relationship management initiatives need to be chosen with careful consideration. They also discussed the issue of implementation of customer relationship management program as it is well known that implementation of a plan is more important than the plan. Well implementation of customer relationship management program results into increase in customer satisfaction, increase in customer loyalty, decrease in customer complaints, identifying profitable customers, measuring customer profitability, and measuring customer lifetime value. Dibb S. (2001) examined the impact of customer relationships on the performances of organizations (banks) and found that technological advances are changing the nature of marketing channels and finally concluded that organizations (banks) should treat the individual customer differently as every customer has different needs.

IMPACT OF INFORMATION TECHNOLOGY ON HIGHER EDUCATIONAL INSTITUTES

Emerging CRM process and technologies will drive the growth of new types of resources and services. Within the higher education enterprise, much of this new functionality is focused on student area. This exciting new level of student-related functionality and performance is having an impact on students as well as the administrative staff and management, the faculty, and the institution as a whole. The impact on each of the affected areas is detailed below (Kotler, Fox, 1995):

Students – The use of information technology in the implantation of CRM strategies allows students (1) higher level of access of information about their options, performance, and future, (2) technology resources are an integral part of students learning experience, and (3) virtual access to faculty and student services through web sites and email.

Administrator – A CRM business strategy for the administrative system of a college or university allows (1) self service system empowers administrators to rethink the investment of administrative resources, (2) responsibility shifts from administrators to students and faculty for information maintenance with self service system, and (3) administrative staff can focus on more productive, rewarding and satisfying activities such as, making personal connections with students and helping them plan for the future.

Faculty – The new learning environment supported by information technology can have a positive impact on the faculty members in many ways, such as (1) closely linked faculty and students services, dynamically sharing resources and strategies to enable student learning, (2) faculty can prepare custom learning options for students who are having difficulty, (3) faculty members can make immediate student referrals to key support programs, and (4) faculty curriculum planners develop an accurate picture of which technology resources truly make a difference in student learning.

Advancement – A CRM approach supported with Information technology helps an institution in advancement in many ways, such as (1) individualized marketing and sales techniques are applied to prospective donors whose connections to the institution have been established through some other relationship, such as that of an athletic supporter or music lover, (2) list of targeted customers can be automatically generated, and (3) advanced customer services and marketing techniques can be implemented which will entice donors to contribute in the future without direct solicitation.

The Institution – From the perspective of an institution, information technology delivers information to attract and retain various customers, such as (1) students, alumni, faculty and staff can access and update information from any web-enabled device, anywhere in the world, (2) the evolution from point-to-point integration between applications to a single institution-wide database with integrated business rules and a workflow process library will blur the distinction between students, finance, alumni and human resource systems, (3) the needs of the customer base become the focus, rather than a focus on the rigid process structure of today's system, and (4) administrative systems are seamlessly integrated with instructional computing and commutations systems.

Most importantly is the ability of a truly robust set of institutional processes and tools to bring the entire institution together around its people. The work of higher education should be focused on the people it serves, not on its administrative systems.

IT AND ITS ROLE IN THE IMPLEMENTATION OF CRM PRACTICES

The role of information technology (IT) in CRM is of immense importance and the following functions are expected to be fulfilled through the use of IT:

CAPTURING OF DATA – System created for the use of IT should be able to capture right data form the identified sources. The challenge here is that of capturing data in diverse formats. The data that has to be captured should be authentic and error free. This means that data accuracy should be ensured as well as the incidences of errors creeping into the data during the capture process should be eliminated.

ASSIMILATION OF DATA INTO DATABASE – Data that has been captured need to be incorporated into a database and assimilated. Therefore, databases having proper design and structure needs to be created. They could be part of the CRM tool or custom-designed or bought off-the-shelf. Database should fulfill the following capabilities:

Robust: The database should be robust and enable transactions as and when desired by the users. It should be able to support the number of users transacting with the database and ensure that the waiting time not more than desired limit for a transaction. Also, the robustness should insure that there is no loss of data during the transaction.

Scalable: The database should be such that as the customer volume grows and number of users increases, it should be able to manage the increased load. This may require some additional IT applications and programmes but the database should be scalable. Therefore, before selecting the database, adequate consideration should be given to the issue of the future projections made by the company with regard to the customer base, number of users expected to use of IT systems, etc.

Secure: The database should be secure and data security should be ensured. For example, if identity numbers (ID) of customers are stored in the database, users querying in the database should not be able to get hold of such sensitive data since the database would become vulnerable.

DATA PROCESSING (GENERATING DESIRED OUTPUT) – The output expected form the system should be taken into account while planning it. After taking into account of the CRM strategy, a comprehensive list of desired outputs may be created. However, it should be noted that users may requires ad-hoc queries to be answered and provision should be kept for the same.

MAKING OUTPUTS AVAILABLE TO USERS – The users should be able to access the system whenever and wherever they desire. The system therefore should be able to generate outputs on a 24/7 basis as will as offer the outputs in formats recognizable by all users.

OBJECTIVE OF THE STUDY

Higher educational institutes are also like the other business organizations who want do develop better relationships with their customers. In the field of higher education students are their customers and receive educational services from them as described by the Consumer Protection Act. Information technology plays a vital role in developing and implementing customer relationship programme in higher educational institutes. Therefore, the basic objective of the study is to analyze the role of information technology in the implantation of customer relationship management in higher education.

RESEARCH METHODOLOGY

The research design of the study is exploratory cum descriptive. The research is exploratory due to the fact that the field of higher education has not been deeply touched by the earlier researcher. Therefore, in this case, extensive preliminary work needs to be done to gain familiarity with the phenomena in the situation to understand what is occurring, before developing a model and setting up a rigorous design for comprehensive investigation. The study is descriptive because the area of research that has been chosen by the researcher explains the attributes, which are associated with customer relationship management implication in the management education sector in India. The research is a two-tier study and seeks to explore the responses from director/administrator, who manages the various resources and activities within the institute and students, who avail education service form the management institutes. To fulfill the objective of the study two sets of questionnaires were prepared one for students and another one for directors/administrators. The questionnaires related to students (N=400) and director/administrators (N=40) were put forwarded to respondents of different higher educational institutes and observations are presented in the form of tables. The research has been carried out in the NCR region comprising the state of Haryana, UP, & Delhi as NCR has emerged as a prominent center higher education. Further, to solve the purpose of the study both descriptive as well as inferential statistical techniques were applied. In the descriptive, Means and Standard Deviation were calculated and to test the significance level of the difference between Means of the criterion variables Mann-Whitney Test and Karl Pearson's Coefficient of Correlation (r) were applied.

RESULT OF SUVEY

Today, information technology has become an integral part of higher education. Either it is the interaction between students and institutes, students and faculty, students and academic section, or faculty/staff and administrator, the importance of information technology cannot be ignored. Keeping these in view different variables by which the role of information technology or its importance can be understood are identified and presented before to respondents. The role of information technology has been discussed in relation to the students, faculty/staff/administrator, and institution as it benefits all of them in many ways. It is necessary to mention here that if faculty/staff and institutions are benefited through the use of information technology in the implementation of CRM practices, it directly affects the satisfaction level of the students and their relationships with institutions positively. This part of the survey is related to the various benefits which students get by the use of information technology in the implementation of customer relationship management strategies in higher educational institutes. The researcher has surveyed both of the respondents, directors/administrators (N=40) and students (N=400) and collected the responses.

PERCEPTION ABOUT GENERAL INFORMATION TECHNOLOGY BENEFITS TO STUDENTS

DIRECTOR/ADMINISTRATOR'S RESPONSE (N=40): Integration of information technology in the implementation of customer relationship management practices in management institutes offers many benefits. In the questionnaire, directors/administrators of different management institutes were asked to indicate their opinion about various advantages which students get by using information technology. Through the literature survey and discussion with experts in the field different benefits were identified and respondents were asked to indicate their opinions. The results of survey are presented in the Table 1.1.

**TBALE 1.1: PERCEPTION OF DIRECTOR/ADMINISTRATOR ABOUT GENERAL INFORMATION TECHNOLOGY BENEFITS TO STUDENTS
(Number of Respondents = 40)**

S. No.	Variables	Mean Scores	Standard Deviation
1	Higher level of access of information	3.82	1.244
2	Integral part of learning experience	3.74	1.223
3	Virtual access to faculty and students services	3.64	1.331

Source: Computed on the basis of Field Data

From the table it is evident, that through the use of information technology the students can have higher level of access of information about their options, performance, and future (Mean = 3.82, Std. Dev. = 1.244), technological resources are an integral part of their learning experience (Mean = 3.74, Std. Dev. = 1.223), virtual access to faculty and student services through websites and e-mail (Mean = 3.64, Std. Dev. = 1.331). As far as the standard deviation values are concerned there is divergence of opinion among the respondents as it appears from the survey results, integral part of learning experience (1.223), higher level of access of information (1.244), and virtual access to faculty and student services (1.331).

The respondents were asked to give their viewpoint about different given variable on a five point likert scale. Nearly 3/5th respondents are in agreement that information technology helps students in higher level of access of information about their options, performance, and future. With the help of the internet any

information is just one click away. Any student sitting any where in his/her home or in the campus can access information regarding various courses available, future potential of these courses, performance level of different institutes, etc. Among respondents 64% have mentioned that technological resources are an integral part of students' learning experience. From the study, researcher has found that in every learning step or process either it is classroom study or outside, students used to interact with technological resources on regular basis directly or indirectly such as, a teacher is delivering lecture through LCD projector or video conferencing in the classroom, a students is sending his queries to faculty through using mail, students doing there assignment work by using computer, or students searching different subjects related information on the internet. About 70% respondents are in agreement that information technology helps students in virtual access to faculty members and availing students related services through websites and e-mail. In management institutes it is becoming common that students are interacting with their faculty members through e-mail and in the same way faculty used to give assignments or asking to submit through mail only. Students also avail information regarding institute or details of faculty through institute's website. In this part the researcher has discussed the general IT benefit which students get in management institutes.

STUDENT'S RESPONSE (N=400): The responses of students were also collected on the same parameters and the results of the survey are presented the Table 1.2. From the table it is evident, that through the use of information technology the students can have higher level of access of information about their options, performance, and future (Mean = 3.69, Std. Dev. = 1.361), technological resources are an integral part of their learning experience (Mean = 3.52, Std. Dev. = 1.159), but in case of virtual access to faculty and student services through websites or e-mail (Mean = 2.53, Std. Dev. = 1.386) the response of students is not so encouraging. As far as the standard deviation values are concerned there is divergence of opinion among the respondents as it appears from the survey results, integral part of learning experience (1.159), higher level of access of information (1.361), and virtual access to faculty and student services (1.386).

TABLE 1.2: PERCEPTION OF STUDENTS ABOUT GENERAL INFORMATION TECHNOLOGY BENEFITS TO STUDENTS
(Number of Respondents = 400)

S. No.	Variables	Mean Scores	Standard Deviation
1	Higher level of access of information	3.69	1.361
2	Integral part of learning experience	3.52	1.159
3	Virtual access to faculty and students services	2.53	1.386

Source: Computed on the basis of Field Data

To ascertain level of difference among the responses of respondents (Director/Administrator and Students) Mann-Whitney Test was conducted. High value (Mann-Whitney Test Value closer to 1.000) indicates that there is not any significant difference between the opinions of both of the respondents (Students and Directors/Administrators) while less value indicates (Mann-Whitney Test Value closer to 0.000) that there is a significant difference between the opinions of respondents (Table 1.3).

TABLE 1.3: RELATIONSHIP AMONG THE RESPONSES OF RESPONDENTS ABOUT BENEFITS TO STUDENTS

S. No.	Variables	Mean Scores (N=400)	Mean Scores (N=40)	Significance level of Mann Whitney Test
1	Higher level of access of information	3.69	3.82	0.571**
2	Integral part of learning experience	3.52	3.74	0.386**
3	Virtual access to faculty and students services	2.53	3.64	0.117*

Note: *, ** indicate Mann-Whitney Test value is significant at 5% and 1% levels respectively.

Source: Computed on the basis of Field Data

The responses of both of the respondents are similar in case of higher level of access of information (0.571) and integral part of learning experience (0.386) and it is well justified by Mann-Whitney Test Value. While as indicated by Mean values and Mann-Whitney Test value it appears that there is a difference in the opinions of respondents in concerned with virtual access to faculty and students service (0.117).

PERCEPTION ABOUT INFORMATION TECHNOLOGY BENEFITS TO FACULTY/ STAFF /ADMINISTRATOR

DIRECTOR/ADMINISTRATOR'S RESPONSE (N=40): Integration of information technology in the implementation of customer relationship management practices in higher education also offers many benefits to the faculty/staff and the people who are working at the administration level. The respondents were asked to assess their opinions about various advantages due to the use of information technology in the implementation of customer relationship management practices. Through literature survey and discussion with experts in the field different benefits were identified and respondents were asked to indicate their opinions. The results of the survey are presented in the Table 1.4.

The results of the survey indicated that faculty members make immediate student referrals to key support programs (Mean = 4.45, Std. Dev. = 0.985), faculty curriculum planner develop an accurate picture of which technological resources truly make a difference in students learning (Mean = 4.05, Std. Dev. = 0.845), self service system empowers administrators to rethink the investment of administrative resources (Mean = 4.02, Std. Dev. = 0.861), and responsibility shifts from administrators to students and faculty for information maintenance with self service system (Mean = 3.57, Std. Dev. = 1.412). From the survey result it is also very much evident that the standard values are consistent in case of curriculum planners for students learning (0.845), empowers administrators review administrative resources (0.861), and immediate student referrals to key support programs (0.985), which show a favorable response from the respondents where as in case of information maintenance with self service system (1.412), there is divergence of opinions among the respondents as it appears from the survey results.

TABLE 1.4: PERCEPTION OF DIRECTOR/ADMINISTRATOR ABOUT BENEFITS TO FACULTY/STAFF/ADMINISTRATOR
(Number of Respondents = 40)

S. No.	Variables	Mean Scores	Standard Deviation
1	Immediate student referrals to key programs	4.45	0.985
2	Curriculum planners for student learning	4.05	0.845
3	Empowers administrators review admin. resources	4.02	0.861
4	Information maintenance with self service system	3.57	1.412

Source: Computed on the basis of Field Data

Faculty, staff members and administrators are at the receiving end of various benefits due to the use of information technology and managing the relationship management activities more effectively. Among the respondents 4/5 are in agreement that faculty members make immediate student referrals to key support system. During the interaction with the respondent in more detail it was found that through the use of information technology responses of students can be taken easily in concerned with any activity to know about its acceptance among students or any proposed suggestion. In management institutes, it was found that faculty members prepare their lesson plan in advance mentioning how the syllabus will be covered during semester and the teaching aids used by faculty members. The same is conveyed to students also through mail or website so that they are well aware about course being taught to them during semester and through which teaching aids. From the results of survey, it is evident also that nearly 86% respondents are in agreement that faculty curriculum planner makes a difference in students learning. About 3/4 respondents are in agreement that use of information technology at administrative and academic level helps an administrator to minimize the investment. In the management institutes due to the use of information technology a lot of academic work is also done by faculty members themselves such as, filling the attendance of students, submitting sessional tests and internal assessment marks, etc. Therefore, such types of administrative work empower an administrator to rethink or minimize investment in employing administrative and academic manpower. About 3/5 respondents

are in agreement that due to the use of information technology responsibility shifts from administrators to faculty and as far as information maintenance is concerned. As in most of the cases faculty and staff members are responsible to update information on the website of institute or providing information to students through e-mail.

In the study, an attempt has been made to gain insight into the major information which the faculty/staff/administrator through the use of different approaches of information technology. To identify the relationship among the means values of key information received by the faculty/staff/administrator through the use of different approaches of information technology and the average of information received by faculty/staff/administrator coefficient of correlation has been calculated. High value of 'r' (Towards +1.0) indicates benefits with high significant level and less value of 'r' (Towards 0.0) indicates benefits with less significant level due to use of information technology in the implementation of customer relationship management strategies and results are presented in the Table 1.5.

TABLE 1.5: RELATIONSHIP BETWEEN THE KEY INFORMATION RECEIVED AND AVERAGE OF INFORMATION RECEIVED
(Number of Respondents = 40)

S. No.	Variables	Mean Scores	Standard Deviation	r value
1	Immediate student referrals to key programs	4.45	0.985	0.857**
2	Curriculum planners for student learning	4.05	0.845	0.892**
3	Empowers administrators review admin. resources	4.02	0.861	0.918**
4	Information maintenance with self service system	3.57	1.412	0.827**

Notes: r-value indicates value of Karl Pearson's Coefficient of Correlation.

** indicates Correlation is significant at 1% level.

Source: Computed on the basis of Field Data

The results indicate that faculty members make immediate student referrals to key support programs ($r = 0.857$), faculty curriculum planner develop an accurate picture of which technological resources truly make a difference in students learning ($r = 0.892$), use of information technological tools also empowers administrators to rethink the investment of administrative resources ($r = 0.918$), and responsibility shifts from administrators to students and faculty for information maintenance with self service system ($r = 0.827$), have been identified as key information for faculty/staff/administrator and the same is supported by the correlation results also as the values indicate significant and positive correlations.

SUMMARY

Concerns over to compete globally and maintain the quality of our higher education system are mounting. A robust higher education system is critical to the future economic competitiveness of students. In this environment, the focus on meeting minimum quality standards is no longer sufficient to develop better relationships with the students. It is necessary to put higher education on the journey to performance excellence in a highly competitive educational environment. In the paper, the researcher has made an effort to discuss the role of information technology in the implementation of customer relationship management practices successfully in higher education. The results of the survey also indicate the importance of information technology in establishing relationships through its different tools such as, website and e-mail has been acknowledged by respondents across different management institutes.

REFERENCES

- Bose, Ranjit, Vijayan Sugumaran (2003), "Application of Knowledge Management Technology in Customer Relationship Management," Knowledge and Process Management, 10(1), pp. 3-17.
- Dibb, S. (2001), "Personal Knowledge," University of Chicago Press, pp. 77-82.
- Kaptan, Sanjay S. (1998), "Speedy Delivery," Information World, Vol. 19, Issue 4, pp. 88-90.
- Kohli, R. (2001), "Managing Customer Relationships Through E-business Decision Support Applications: A Case of Hospital-Physician Collaboration," Decision Support System, 32(2).
- Kotler, Philip and F.A. Fox (1995), "Strategic Marketing for Educational Institutions," Second Edition, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.
- Peppers, Don and Martha Rogers (1999), "Enterprise One-to-One: Tools for in the Interactive Age," New York, Doubleday.
- Rowley, Jennifer (2000), "Is Higher Education Ready for Knowledge Management," International Journal of Educational Management. Vol. 14, Issue 7, pp. 325-333.
- Shoemaker, M. E. (2001), "A Framework for Examining IT Enabled Market Relationships," The Journal of Personal Selling & Sales Management, 21(2), pp. 177-185.

PERFORMANCE ANALYSIS OF SOFTWARE INDUSTRIES THROUGH VALUE ADDED APPROACH - AN EMPIRICAL STUDY ON INFOSYS LTD.

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ABSTRACT

The degree of survival of an enterprise is determined by the level of performance they attained. The parameter of performance measure of an enterprise may be the variables of financial or non- financial nature. Any how the financial variables get the final determinant of the business progress among the other variables. The analysis of value added approaches gets more important than the other, especially in the IT industries. Value added is meaningful measure of corporate performance than conventional measures. In this context this paper tries to explain performance evolution by Infosys Ltd by the value added reporting for the period of 2001-02 to 2010-11. The analysis of VAS proves that the company is in a right direction.

KEYWORDS

VAS, Cost of Bought – in –Goods, Gross Value Added (GVA) ,Value Added Ratios and Value Added Reporting.

INTRODUCTION

The degree of survival of an enterprise is determined by the level of performance they attained. The parameter of performance measure of an enterprise may be the variables of financial or non- financial nature. Any how the financial variables get the final determinant of the business progress among the other variables. The analysis of value added approaches gets more important than the other, especially in the IT industries. The main reason is the value added approach exhibits the clear picture of the distribution of funds to the stake holders such as owners, capital providers, employers, and governments. Value added is a basic and important measurement to judge the performance of an enterprise. It indicates the net value or worth created by the manufacture during a specific period of time. No enterprises can survive and grow, if it fails to generate wealth. An enterprise may exist without profit, but can not survive without adding value. Value added is meaningful measure of corporate performance than conventional measures based on traditional financial accounting and can be particularly useful for employee's oriented approach, which will allow more fruitful discussion with employees and can be especially useful in productivity arrangement. The value added is a basic and broad standard comprises investment by shareholders, debentures holders, creditors and specialized financial institutions. If such investment not creates wealth (value addition), it means that is misuse of public funds. Therefore the concept of value added has a direct linkage with the concept of performance of the business.

RATIONAL OF THE STUDY

Every business has the responsibility of accountability towards their mobilization of funds they made. It may be in the form of employers, capital providers, governments, and retained by the firm itself, towards development and expansion of activities.

The growth of business is depends on the accomplishment of effective capital utilization, further the yardstick of the performance of business is not only to earn profit but also the way it disclose the profit or earnings to its stack holders. As such the value added techniques is considered to be a effective tool for measuring the performance on enterprises in this regard.

Looking to the significance of the measure of value added techniques the increasing numbers of enterprises in Western Countries are presenting the value added statement (VAS) in their annual reports. This practice is yet to be set in India. Presentation of value added state in annual reports is neither statutory nor obligatory for companies in India. Although for better disclosed and transparency point of view some companies have started presenting value added statement in their annual reports keeping this context in background researcher try to explain performance evolution of Infosys ltd by the value added reporting, from 2001-02 to 2010-11.

This research paper is dividing four sections.

- 1st section includes introduction of Sample Company, rational of study and objectives of the study.
- 2nd section deals research methodology of the study including hypothesis and limitation of the study.
- 3rd section deals with data analysis including various ratios and co- efficient of correlation of variables and student T-test and
- 4th section is for conclusion and suggestion.

PROFILE OF THE COMPANY

Infosys technologies are a pioneering company in the field of information technology. The company started its operations in 1981 as a private limited company with seven promoters and later on became a public limited company in the year 19992. Infosys completed its initial public offering of equity shares in India in 1993 and its initial public offering of ADSs in the United States in 1999. It became the first Indian software company to be added to the NASDAQ-100 index. It has received capability maturity model level (CMM-5) status which indicates that the company has a high quality of organization management system and processes and methodology.

The company has five subsidiaries globally-Infosys BPO Limited, Infosys technologies (Australia), Infosys Technologies (China), Infosys technologies(US) and Infosys technologies (Latin America).Infosys BPO previously known as progenies a subsidiary BPO of the company. In 2007, Infosys increased its stake in progeon to 98.9 Percent after acquiring shares from Citicorp International financial company and a subsequent buyback offer to its share holder. The company has presence across the globe with 52 global development centers spread over USA, Europe, Australia, and Asia. Infosys and its subsidiaries had 94,379 employees as on 94,379 employees as on 30 June 2008.

Infosys provides software services like application development and maintenance, consulting services and package implementation, infrastructure management systems integration product engineering and BPO. These services are provided to more than 500 active clients across industry segments like banking, financial services, insurance, manufacturing, telecom, retail, transportation and others. Banking and financial services (BFSI) is the largest industry vertical contributing 36 percent to revenues. It is followed by telecom (21 percent), manufacturing (15 percent), and retail (12 percent). The company has developed a core banking application, Finacle, which caters to the large and medium sized bank in South Asia, parts of Africa, Europe and India.

Exports account for 92.5 percent of revenues. The US is the largest export destination of the company accounting for 62 percent of total revenues. it is followed by Europe which accounts for 28 percent of revenues.

During 2007-08 the company incurred capital expenditure amounting to Rs.1, 370 crore as against Rs.1, 443 crore in the previous year. The company plans to expand its operations by adding around 26,881 seats to its 77,754 completed seats. As per the CMIE capex survey, the outstanding investment5 projects of Infosys stood at Rs.6, 674 crore as on 23 October 2008. The investment projects include software parks and development centers.

DATA AND METHODOLOGY OF THE STUDY

This research paper is based on the 10 years financial performance of the Infosys Ltd which is one of the leading IT company in India, the data of Infosys limited for the year (2001-02 to 2010-11) used in this study have been taken from secondary sources e.g. published annual reports of the company. Editing, classification and tabulation of the financial data, which are collected from the above mentioned sources, have been done as per the requirement of the study. For the analysis of value added reporting data are analyze in a following ways.

1 Value added statement.

2 Value added ratios.

For assessing the behavior of data statistical techniques has been also used. Eg. Mean, Co-efficient of Correlation, Growth Rate, Regression Analysis, Student T-test and Chi-square Test in this study.

OBJECTIVES OF THE STUDY

This research paper is based on the following objectives:

1. To understand the concept of the value added reporting.
2. To evaluate performance of the sample company with value added accounting and Value added ratios
3. To study intra firm comparison of last 10 years performance of sample company.

HYPOTHESIS OF THE STUDY

The following hypotheses are framed for this study.

1. There is no significant relation between Gross value added and Sales revenue during the study period.
2. Value added reporting is better method for evaluation of performance analysis of sample company during the last 10 years.

LIMITATIONS OF THE STUDY

1. This research paper is a micro nature research based in the sample of Infosys Ltd.
2. This research paper is based on the 10 years financial performance of the sample company from 2001-02 to 2010-11.
3. For the analysis of financial data, as per the requirement data's are grouped and sub grouped.

VALUE ADDED REPORTING

Accounting procedure: In case of value added reporting accounting procedure will be divided into two parts;

1. Generation of value added and
2. Application of value added

GENERATION OF THE VALUE ADDED

Value addition is the increase in the market value brought by an alteration in the form, location and availability of a product or services excluding the cost of brought in material or services used in the product or services. In simple words the value added is an excess of turnover + income from services over the cost of brought in material and cost of the services. Here turnover indicates (Gross sales + sales tax and duties – (rebate+ return – (commission + discount goods used for self consumption). Income from services includes income in the form of dividend, rent, commission and other income. The word cost of brought in material includes purchases of material and consumes during the year adjustment of WIP and finished goods. The term cost of services represent the cost of services paid to the external parties for using the facilities given by them the employees cost excise duty and depreciation have not the included in the cost of brought material and services . There are certain non- value added items appear on the debit and credit side of profit and loss accounts ,e.g., profit and loss on sale of investment and fixed assets, provision for bad debts, provision for taxation on operating exp.(Donations) these items should carefully be treated.

$$Va = S+I-C$$

Here, Va means Value addition, S means Sales, I mean Income from services and C cost of brought in material and services.

APPLICATION OF VALUE ADDED

Value added will be shared by three segments, e.g. (1) Employees, (2) Government, (3) Capital providers and remaining share will be retained by the company for their development and expansion activities. The employees comprise all human resources e.g. workers and staff, the share available to salary and gratuity, to the PF bonus and remuneration to the top managerial person. The Government provides not only the infrastructural facilities but also condition conducive to operational activities, hence the share of value added had also to be given tom the government in form of custom duty, excise duty, sales tax and wealth tax. Shareholders are the ultimate claimant of value added. As such a share in the value added is to them in the form of dividend from the financial management point of view the profit ploughing back or retained earnings also belong as to them. But since they have not yet been paid out they are to be separately distributed under the heading, reinvestment in business. Providers of capital by outsiders' agencies like bank financial institution, debentures holders will be given in the form of interest.

SIGNIFICANCE OF THE VALUE ADDED REPORTING

Value added reporting is new concept and method in Indian corporate environment to evaluate the performance of corporate sector. Its significance not only for the external purpose it is equally important for internal purpose also. Significance of value added reporting is explained with following views.

1. Comparison of performance

Value added is an alternative performance measure to profits value added is superior performance measure because it bounces attention of inputs controllable by the management and value added by deducting material cost allows attention to be directed at more comparable items.

2. Productivity measurement :

For the measurement of productivity value added providers better information e.g value added per rupees of capital employed , value added per rupees of sales, value added per rupees of labour cost , value added per rupees of employees , value added per labour/ machine per hours.

3. Resources allocation :

Resources allocation is decisions are normally based on the concept of maximum appropriate criterion because it incorporates the rewards to the employees as well as to providers of capital fund. For profile maximization ranking insure the allocation are based in contribution per units of the limiting factors and for value added maximization ranking would be on value added per units limiting factors.

4. Incentive schemes for the employee:

The value added reporting is found useful by many companies for explaining company results to employees the value added concept of profit is often an motivating and employees may well find the concept of creating wealth or adding value more acceptable one of the significant uses of the value added concept its incorporates in companies incentives schemes or bonuses schemes . The schemes work by establishing a have ratio of value added to the pay roll and thereby creating a base index. If the index moves favorable in later period a bonus is payable to share members.

VALUE ADDED REPORTING ANALYSIS

Value added statement is new concept in Indian corporate environment for financial reporting. A typical statement of added value is prepared as routine part of management information system is largely a rearrangement of information contain in income statement. That rearrangement provides a better means of understanding an enterprise contribution to the society. Value added statement of Infosys ltd. reveals that way by which the company has generated value added for the various segments of the society.

As per **Table I** sales revenue of Infosys Ltd has been increasing from 2670 corers to 25385 corers between 2001 -02 to 2010-11. Indices show a growth of 100% to 950% during the study period. The total values addition by the company during the study period is significantly increasing during the period of 2006-07 to 2008-09. Whereas the values addition decreased during the period 2009-10 due to economic slowdown in western countries specifically in United States as they have more clients for Infosys Ltd in US only. The indices of value addition show the growth rate of 950.75 % during the study period. The simple reason is being the company has expand their activities during the study period in different live of technology such as BPO and Business solutions to various global industries. Highest contribution will be made in the year 2010-2011 (950.75) the year 2008-2009 (812.4%).

Application of value added: application of value added is very important for social object point of view. Under application of value added major segment are payment to employee contribution to Govt., payment to capital providers and amount which are retained by the company.

Payment to employees: Payments to employees are gradually increasing from 1117.87 corers to 15901.05 corers during the study period of 2001-02 to 2010-11. But in terms of percentage with disposal of value addition, highest percentage with disposal of value addition, highest percentages is in the year 2010-2011 (75.1%) followed by 2009-10 (72.7%) and 2005-2006(63.2%) and so on ,one of the observation between the years 2001-02 to 2003-04 and 2008-09 to 2010-11 the percentage of disposal of value added is increasing constantly. This shows during that period a constant growth is made by the company

Contribution to Government: in case of payment to Govt. it includes excise duty, local taxes income tax, wealth tax etc. as per table1 company contributed a large amount during the last 3 years of study period between 6.26% to 11.23% of the value added, further the table shows there must be a constant increase in the payment of tax during the study period, shows growth in the business activities. Highest contribution was made in the year 2010-11 (2378 corer) there it followed by 2009-10, 2008-09 and so on.

Payment to capital providers: it consists of two major factors such as interest to money lenders and dividend to the share holders in case of interest provided to money lender the indebt liability has been fluctuating during the study period in both respects of amount as well as percentage with total value addition. Further the table1 shows that there is no interest liability during the period 2007-08 and 2008-09. But the interest liability for the last 2 years of the study period is gradually increasing. The reason is the company the company wants to redeem the long term liability for the future benefits.

From the share holders' point of view, the percentage of dividend declared is 5.42% constantly during the study period. This shows the positive signs of performance in their business activities.

Retained earnings: the table shows the fluctuating trend for retained earnings during the study period. It varies between 4415 crore to 670.47 crore during the study period. One of the trend which is observed that the last two years there exists a decline trend due to change in the management policy as the company wants not to retained their profits where as they want to go for diversification of funds.

VALUE ADDED RATIO'S ANALYSIS

For apprising the performance and judging the productivity of the Infosys Ltd following ratios ratio are considered for analysis. Ratios are the important tools for analysis of financial statement but traditional ratios are not relevant for the analysis of value addition by the company. Therefore a few new value added ratios are developed to signify the value added reporting in modern Era.

1. **Gross value added to sales ratio:** reveals the contribution of companies' sales revenue towards the value addition. An effective sales promotion policy would enable a company to enhance the performance of the company in this regard. As per table II sales ratio reveals almost an increasing trend over the years, which reflect that the company has are effective sales promotion policy to enhance the performance of the company.
2. **Gross value added to material cost ratio:** focuses the material productivity of the company. Higher the ratio greater will be the efficiency of the enterprise in terms of utilization of materials. It is observed from the table that the gross value added ratio to material cost ratio shows fluctuation over the periods. It ranges from 1.19 to 1.43 times, indicate that the company is highly efficient in terms of utilization of materials.
3. **Gross value added to Fixed Assets:** indicates the capital productivity of the company. Greater the ratio higher will be the efficiency is highly efficient in terms of higher productivity. It is observed that the value added to fixed assets ratio registered the fluctuating trend during the study period, results poor management in handling the fixed assets.
4. **Gross value added to labour productivity ratio:** it reveals the labour productivity of the enterprise. A higher ratio indicates that the company is the highly efficient in terms of the labour productivity. Since it registered fluctuating trend during the study period. It reflects that there is needed of efficient labour management of the company.
5. **Value added to net worth ratio:** indicates the amount of wealth created per rupee to network greater the ratio higher will be the safety of provider of capitals. The table shows that the ratio of net worth is fluctuating trend specifically during the last quarterly there exists decreasing trend. This is due to economic slowdown in the Asian countries.
6. **Gross value added to capital employed ratio:** reflects the efficiency of capital utilization in generating the quantum of value added. It reflects that how much value added per unit of capital investments. It recognized as more significant than traditional ratio of net profit to capital employed as an index of managerial efficiency. The table shows the fluctuating trend during the study period.

That it is clear that the financial ratios using value added figures can be regarded as the index of managerial performance and they would be more sensitive to display the vivid picture about the efficiency of management of a highly complex and comparative business environment.

TESTING OF HYPOTHESIS

A coefficient of correlation is calculated between two variables Sales (X) and Value added (Y) it is 0.99 that shows higher degree correlation between sales and value addition. Significance of correlation will also be tested through Student T-test as:-

Null hypothesis (Ho): There is no significant relation between sales and value addition.

Alternative hypothesis (H1): There is significant relation between sales and value addition

$$T = \frac{r \sqrt{(n-1) \times \sqrt{n-2}}}{\sqrt{1-r^2}}$$

$$= \frac{0.99 \sqrt{1-0.99^2}}{\sqrt{1-0.99^2}} \times 10^{-2}$$

$$= 19.85$$

Calculated value of t = 19.85 which is more as compared to critical value of t=2.31 at 5% level of significance .Hence null hypothesis rejected that means there is significant correlation between sales and value addition.

Hence the generation of value added analysis reveals directly the performance of company. Further the value added generation and application are even during the study will not be proved. The main reason is behind the company increase their production and launch new product in Global Market as well as outsourcing of human resources which will decrease cost of production.

IMPLICATION OF THE STUDY

The following are the most important implication of the study.

1. Revenue from sales shows better performance it increases from 2670 cores to 25385 cores and registered 930.75% growth during the study period.
2. Cost of brought in material significantly managed especially in the last five Years of the study period
3. Payment to the government has been increase during study period results that the company discharges their social responsibility more by way of paying excises duty, custom duty and other taxes.
4. The company maintains liquidity position effectively during the study period except the last three years, sources that the company has an effective management of long term debt.
5. In case of shareholders the company declared dividend, constantly (5.42%) during the study period, reflects that the company follows a conservative dividend policy and most of the profit will be retained for development activities.

- Regarding the retained earnings the company allowed an appropriate amount for investment and development point of view it is in the form of both retained earnings and depreciation.
- As per the ratio concerns unlike traditional financial ratio, value added ratio are equally important and useful to judge the efficiency and effectiveness of the enterprises as regards sales promotion, utilization of fund, capital, productivity, labour productivity etc.

CONCLUDE REMARKS

From the analysis so far it may conclude that the performance analysis of the Infosys Ltd on the basis of value added reviews the distributive judgment in respect of the entire stake holders of the company. This is not possible through the performance analysis on the basis of net profit figure only. Further the empirical study on Infosys Ltd. shows that from the total value added, the major part of total value has been distributed among the employees, followed by government, finance institution, bankers and share holders. This shows the performance of the company is in a right path during the study period. As the VAS analysis is useful to judge the performance and productivity of a company, the managers can adopt this type of techniques in their managerial decision process. It is worthwhile to the mention further, the academicians, the professional body of accountants should come forward the focus the significance of value added statement with a view to popularize the statement among the uses of financial statement and to produce accounting standard for standardized presentation data in this statement.

REFERENCES

- C.R Kothari: "Research Methodology", New age international publishing company, New Delhi (2004).
- Diana R. Harrington: "Corporate financial analysis" (7th edition) 2004 Thomason south western publishing company.
- V.K. BHALLA: "Financial Management policy", Anmoi Publications 1st edition, New Delhi (1997).
- I.M.Pandey: "Financial Management Theory and Practice ". Vikas Publication, New Delhi (2009)
- MORLEY, M.F., 1978. The Value Added Statement- A Review of its in Corporate Reports, the Institute of Chartered Accountants of Scotland, Gee and co. Publishers Ltd., London.
- Rao, P.M., 2000. "Value Added Reporting: in Theory, Practice and Research", Deep and Deep Publications Pvt.. Ltd., New Delhi, pp 49-50
- Riahi- Belkaoui A, 1992. Value Added Reporting – lessons For the United States, Quorum BOOKS, Westport, Connecticut.
- Riahi- Belkaoui A 1996 Performance Result in Value Added Reporting, Quorum Books Westport, Connecticut.
- Van Staden C.J., 2000. Revising the Value Added Statement: To publish or Not to publish; In proceedings of the 12th Asian Pacific Conference on International Accounting issues, October 21-24, page20-23
- Annual Reports of Infosys Ltd (from 2000-01 to 2010-2011).
- Web Sites : www.google.com, www.infosys.com ,

TABLE – I: VALUE ADDED STATEMENT OF (VAS) INFOSYS LTD., FOR THE PERIOD OF 10 YEARS (2001-02 TO 2010-2011)

(Rs. In Crores)

Particulars	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Generation of Value Added										
Income-> Sales/Service rendered	2670	3722.3	4976.33	7416.54	9521	13893	16692	21693	21140	25385
Value of output(VO)	2670	3722.3	4976.33	7416.54	9521	13893	16692	21693	21140	25385
VO indices	100.00%	139.41%	186.38%	277.77%	356.59%	520.34%	625.17%	812.47%	791.76%	950.75%
Other income	0	99.61	123.38	123.9	139	378	704	473	910	1147
Gross Output	2670	3722.3	4976.33	7540.44	9660	14271	17396	22166	22050	26532
Less: Value of Input(VI) 1. Software development and B.P.O. Expenses	430.93	679.05	791.37	1200.7	1630	2392	2576	3093	13417	4498
Gross Value Added(GVA)	2239.07	3043.25	4184.96	6339.74	8030	11879	14820	19073	18633	22034
GVA Indices	100.00%	135.92%	186.91%	283.14%	358.63%	530.53%	661.88%	851.83%	832.18%	984.07%
Less: Depreciation	160.58	188.95	236.73	286.92	437	514	598	761	905	854
Net Value Added(NVA)	2078.49	2854.3	3948.23	6052.82	7593	11365	14222	18312	17728	21180
NVA Indices	100.00%	137.33%	189.96%	291.21%	365.31%	546.79%	684.25%	881.02%	852.93%	1019.01%
Distribution of NVA										
To Employees Cost/(Salaries/welfare)	1117.87	1677.12	2450.96	3539.16	4801	7112	8878	11405	12888	15901
	53.78%	58.76%	62.08%	58.47%	63.23%	62.58%	62.42%	62.28%	72.70%	75.08%
To providers of Capital(Interests Financial charges)	17.16	18.25	26.1	54.83	21	11	0	0	743	1068
	0.83%	0.64%	0.66%	0.91%	0.28%	0.10%	0.00%	0.00%	4.19%	5.04%
To Government(Tax (Direct & Indirect))	135.56	201	227.54	325.58	487	488	1008	1147	1717	2378
	6.52%	7.04%	5.76%	5.38%	6.41%	4.29%	7.09%	6.26%	9.69%	11.23%
To Owner's										
i) Dividend	137.43	191.11	972.96	356.55	1238	654	1902	1345	1674	1149
	6.61%	6.70%	24.64%	5.89%	16.30%	5.75%	13.37%	7.34%	9.44%	5.42%
ii) Retained earnings	670.47	766.82	270.67	1776.7	1046	3100	2434	4415	786	684
	32.26%	26.87%	6.86%	29.35%	13.78%	27.28%	17.11%	24.11%	4.43%	3.23%
Net Value Added(NVA)	2078.49	2854.3	3948.23	6052.82	7593	11365	14222	18312	17728	21180

Sources: Data are compiled on the basis of information available in Annual Reports of Infosys Ltd.

Note: Figures in percentage indicates the distribution of Net Value Added

TABLE – II: VALUE ADDED RATIOS FOR MEASURING PERFORMANCE AND JUDGING PRODUCTIVITY OF INFOSYS LTD. (IN TIMES)

YEAR → SET OF RATIOS ↓	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Mean
GVA/Sales	0.84	0.82	0.84	0.85	0.84	0.86	0.89	0.88	0.88	0.87	0.86
GVA/Material Cost	1.43	1.29	1.30	1.39	1.33	1.33	1.39	1.43	1.25	1.19	1.33
GVA/Fixed Asset	3.94	4.37	5.46	5.39	5.14	5.53	5.55	5.02	3.77	4.21	4.84
GVA/Labour Productivity	0.21	0.20	0.16	0.17	0.15	0.16	0.16	0.18	0.14	0.19	0.17
GVA/Network	1.08	1.06	1.29	1.21	1.16	1.06	1.10	1.07	0.81	0.85	1.07
GVA/Capital Employed	1.20	1.12	2.11	1.78	1.49	1.28	1.33	1.19	0.99	0.88	1.34

Source: Compiled and calculated from annual reports of Infosys Ltd (From 2001-02 to 2010-11)

TECHNOLOGICAL SERVICES IN RURAL BANKING: A STUDY WITH REFERENCE TO BANK BRANCHES IN TIRUNELVELI DISTRICT

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ABSTRACT

Banking sector has lot of scope for improvement through banking technology one area is the velocity of its business operations. Banking technology could also help in checking frauds of other type and also drawn attention to the need for information regarding willful defaulters being communicated to the RBI and then being exchanged between all the banks. And especially service the rural people. Banking technologies are used for development of the banks and banking technologies are mainly important to provide the service to the customer and to compete with other banks for reducing the cost of the banking technology. Banks play a very significant role and are key infrastructure of the financial sector of any economy. The efficiency of the banking sector also determines the efficiency of the economy not only banking with urban but also with rural and semi urban areas. The biggest challenge for banks today is to provide modern technological services to all the people especially to rural branches. Thus the study attempts to explore now technological services provide in rural banking. The study was carried out with the objectives to study various technological services provided by rural bank branches, to the study the benefits of banking technology to the banks. to study the perception of usage of banking technology by the employees and customers. To study the various strategies followed by banks to deliver banking technological services in rural banking. This study involved in exploring the involvement of banks in providing technological services to the rural customers.

KEYWORDS

Technological services, Rural banking.

INTRODUCTION

The Banking Industry has been highly sensitive to the technology factor especially from last one decade. When it comes to Information Technology initiatives, there has been a tendency to see the quantum of investment as a measure of keenness of particular bank in Information Technology. However, Investment alone cannot ensure a safe sailing for a bank and there are other vital aspects as well, according to experts. We should remember is that an ever-increasing Information Technology allocation is not the solution to achieve operational effectiveness through IT, in fact, investment in IT should actually be seen in terms of cost benefit. The cost of not investing in IT is much more than investing in IT. All this means an ever expanding role of IT in providing end-to-end Financial Products beyond traditional banking products and in providing a whole range of Financial Solution.

Information Technology has basically been used under two different avenues in Banking. One is communication and connectivity and other is Business Process Reengineering. Information Technology enables sophisticated product development, better market infrastructure, implementation of reliable techniques for control of risk and helps the financial intermediaries to reach geographically distant and diversified markets. The IT benchmarking profiled lending bank in India based on proprietary methodology assesses the level of IT capability and how it links to business performance across four parameters total spends on technology. Alignment of IT systems with corporate objective nullity and complexity of solutions governance and management processes. Today Indian banks are some of the most technologically advanced banks with vast networks of branches empowered by strong banking systems. Their product and channel distribution capabilities are on par with those of the lending banks in the world. Sustained improvement in infrastructure and a strong focus on technology have helped India become one of the most IT efficient countries in the world. Indian banks have a strong competitive advantage on several dimensions such as alignment between IT and business leads, management processes and the ability to streamline administrative overheads and to channel investments. But improvement opportunities exist for both new private and foreign banks and old private and public sectors banks. For instance, bank need to work towards streamlining commodity areas such as application maintenance and infrastructure.

To be a major player in the financial world at home and abroad with capabilities to deliver all customer services, it is necessary to cover the interactions among the various players under an open global network. Banks would have to also ensure that technologies are continuously updated to achieve a high degree of risk management capability. This would require strategies that involve asset and liability management, and take care of exchange, interest rate, liquidity and operational risks; these must be comparable with the international best. In addition, banks would need to take measures to have secure information and safe and quick retrieval. The RBI has done well in recent years to give the lead in payment and settlement systems and computerizing the government securities, money market and foreign exchange operations in the banking sector as a whole.

It encouraged the use of electronic debits and credits and electronic fund transfers; set up the Indian financial network covering all banks; and had a committee to examine issues relating to technology upgradation in banks. In the current context of the need to achieve average annual growth rates of 8-10 per cent to reduce unemployment, the RBI would do well to review IT investments in banks. It should constitute a group that evaluates the technologies in use in individual banks and makes suggestions on the required investments for upgrading them within a set period for reasons explained above. Banks should be encouraged to educate their customers about the use and benefits of new technologies. Incentives/disincentives could be set for complying with the time-frame for technology upgradation. For example, the non-complaint banks may be denied access to the capital market and may be pressured to consider offers of merger from other banks.

Currently, banking in India is generally fairly mature in terms of supply, product range and reach-even though reach in rural India still remains a challenge for the private sector and foreign banks. In terms of quality of assets and capital adequacy, Indian banks are considered to have clean, strong and transparent balance sheets relative to other banks in comparable economies in its region. The Reserve Bank of India is an autonomous body, with minimal pressure from the government. The stated policy of the Bank on the Indian Rupee is to manage volatility but without any fixed exchange rate-and this has mostly been true. With

the growth in the Indian economy expected to be strong for quite some time-especially in its services sector-the demand for banking services, especially retail banking, mortgages and investment services are expected to be strong. One may also expect M&As, takeovers, and asset sales.

Given the abysmal spread of formal credit facilities in the country, and more so in village India, it's hardly surprising that both the governments as well as the Reserve Bank of India are both talking of universal financial access or "financial inclusion" nowadays. That's perhaps why, a south India-based PSU bank is planning to adopt the union territory for "financial inclusion". The problem, however, is that unless this goes hand-in-hand with the overall development of village India, it's akin to growing grass without roots. Since financial inclusion means access to financial services, the best indicator is the proportion of families with a bank account. In the United Kingdom, about 5 per cent of the populations do not have bank accounts. In Australia, about 7-8 per cent of the populations do not do banking. In India, there are a total of 31 crore (Rs 310 million) savings bank accounts, but given the number of multiple accounts, the number of people having savings bank accounts cannot be more than 20 corer (Rs 200 million).

Rural banking has become a key driver for banks to increase their customer base as well as innovate in strategic directions. Traditionally banks were not keen to explore this market where the majority of the population is economically challenged. Today, different models are emerging to take on rural banking and IT companies like IBM are helping banks to put together software packages that would enable them to meet the challenges one faces in the rural banking domain. When you are looking at the rural banking scenario you first have to understand this – there is a farmer community (who has large tracts or a small piece of land) and the farm laborer, who has no land at all.

Indian banking industry, today is in the midst of technology revolution. A combination of regulatory and competitive reasons has led to increasing importance of total banking automation in the Indian banking industry. The growing competition, growing expectation idea to increased awareness amongst banks on the role and importance of technology in banking. The arrival of foreign and private banks with their superior state-of-the-art technology-based service pushed India Banks also to follow suit by going in for the latest technologies so as to meet the threat of competition and retain their customer base.

Banking sector has lot of scope for improvement through banking technology one area is the velocity of its business operations. Banking technology could also help in checking frauds of other type and also drawn attention to the need for information regarding willful defaulters being communicated to the RBI and then being exchanged between all the banks. And especially service the rural people. Banking technologies are used for development of the banks and banking technologies are mainly important to provide the service to the customer and to compete with other banks for reducing the cost of the banking technology. Banks play a very significant role and are key infrastructure of the financial sector of any economy. The efficiency of the banking sector also determines the efficiency of the economy not only banking with urban but also with rural and semi urban areas. The biggest challenge for banks today is to provide modern technological services to all the people especially to rural branches. Thus the study attempts to explore now technological services provide in rural banking.

OBJECTIVES OF THE STUDY

1. To study various technological services provided by rural bank branches.
2. To the study the benefits of banking technology to the banks.
3. To study the perception of usage of banking technology by the employees and customers.
4. To study the various strategies followed by banks to deliver banking technological services in rural banking.

HYPOTHESIS OF THE STUDY

Ho – There is no association between the locations of the bank on experience in providing technological services.

METHODOLOGY

The presents study was carried out with primary and secondary sources. The primary source was collected by administrating survey method. Convenience sampling method was adopted to select the sample which is bank branches located in rural and semi urban branches it Tirunelveli District. Questionnaire, a data collection to was used to collect data from the Branch Managers. The secondary sources were revived from related websites, Journals, Books, and Records. The analysis was carried out with the statistical tools like percentage analysis, mean score analysis, chi-square test and critical findings were explored and suggestions were also provided.

PERCEPTION ANALYSIS OF BANK BRANCH MANAGERS

In the five decades since independence, banking in India has evolved through four distinct phases. During Fourth phase, also called as Reform Phase, Recommendations of the Narasimham Committee (1991) paved the way for the reform phase in the banking. Important initiatives with regard to the reform of the banking system were taken in this phase. Important among these have been introduction of new accounting and prudential norms relating to income recognition, provisioning and capital adequacy, deregulation of interest rates & easing of norms for entry in the field of banking. Entry of new banks resulted in a paradigm shift in the ways of banking in India.

The presents study was carried out with primary and secondary sources. The primary source was collected by administrating survey method. Convenience sampling method was adopted to select the sample which is bank branches located in rural and semi urban branches it Tirunelveli District. Questionnaire, a data collection to was used to collect data from the Branch Managers. The secondary sources were revived from related websites, Journals, Books, and Records. The analysis was carried out with the statistical tools like percentage analysis, mean score analysis, chi-square test and critical findings were explored and suggestions were also provided.

BANKS WISE CLASSIFICATION

TABLE – 3.1: BANKS WISE CLASSIFICATION

Particulars	Number of respondents	Percentage of Respondents
Public Banks	28	77.78
Indian Private Bank	1	2.87
Foreign Private Bank	-	-
Co-Operative Bank	7	19.44
Total	36	100.00

In the Table 3.1, out of total respondents 77.78 percent were public sector banks, 19.44 percent of the respondents were co-operative banks, and 2.78 percent were Indian private banks and no respondents in the category of foreign private banks.

The private Banks were less than public sector and co-operative banks because in rural areas private banks started to establish in the recent time only and the Indian private sector & foreign banks must entering in to rural banking.

LOCATIONS OF BANKS BRANCHES

TABLE – 3.2: LOCATIONS OF BANK BRANCHES

Particulars	Number of respondents	Percentage of Respondents
Urban Banks	-	-
Semi Urban Banks	16	44.44
Rural Banks	20	55.56
Others	-	-
Total	36	100.00

In the table 3.2, out of total respondents, 55.56 percent were rural banks, 44.44 percent respondents were semi urban areas. Thus, in this district more areas are covered with rural than urban area. In a moral people this area are formers and yet other banks also should open their branch in this region.

EXISTENCE OF BANKS IN THE PRESENT LOCATION

TABLE – 3.3: EXISTENCES OF BANKS IN THE PRESENT LOCATION

Particulars	Number of respondents	Percentage of Respondents
Below 5	2	5.56
6 to 10	3	8.33
11 to 15	7	19.44
Above15	24	66.67
Total	36	100.00

The table 3.3 shows, that 66.67 percent of banks has been existing for more than 15 years, 19.44 percent of banks has been existing for 11-15 years, 8.33 percent of banks has been existing for 5-10 years, and 5.56 percent of banks has been existing for Below 5 years.

This shows that except 5.56 percent of banks, all banks has more then 5 years of existence. Yet there is more scope for new branches that will come out with needed and innovative services.

CUSTOMER BASE OF THE BANK BRANCH

TABLE – 3.4: CUSTOMER BASE OF THE BANK BRANCH

Particulars	Number of respondents	Percentage of Respondents
Below 5000	2	5.55
5001 – 10000	19	52.78
10001 – 15000	10	27.78
Above 15001	5	13.89
Total	36	100.00

Source: Primary data

Form the above table 3.4 It is very clear that banks have more customers out of 36 respondents 52.78 percent of the respondent have 5001 to 10000 customers, 27.78 percent of the respondents have 10001 to 15000 customers, 13.89 respondents have above 15000 and 5.55 percent of the respondents have below 5000 customers.

That means banks are having adequate numbers of customers which shows their commitment towards serving rural customers and there is more potential to the banks even though many people are not able to access the bank because of less earning and not a position to save.

MONTHLY AGGREGATE DEPOSITS

TABLE – 3.5: MONTHLY AGGREGATE DEPOSITS

Particulars	Number of respondents	Percentage of Respondents
Below 25 Lakh	7	19.45
26 to 50 Lakh	16	44.45
51 to 75 Lakh	8	22.22
Above 75 Lakh	5	13.88
Total	36	100.00

Source: Primary data

In the table 3.5, among total respondents 44.45 percent of the respondents have got deposits of 26-50 lakh from the customers, 22.22 percent of the respondents have got deposits of 51-75 lakh from the customers, 19.45 percent of the respondents have got deposits Below 25 lakh from the customers and, 13.88 percent of the respondents have got deposits above 75 lakh from customers.

Thus the banks are effectively mobilizing deposits from the customers. This is an evidence for future scope for new branches in this region.

KINDS OF LOAN PROVIDED BY THE BANK

TABLE – 3.6: KINDS OF LOAN PROVIDED BY THE BANK

Particulars	Number of Frequency	Percentage of Respondents	Ranks
Educational loan	22	61.11	4
Vehicle loan	20	55.56	5
Marriage loan	2	5.56	8
Property loan	22	61.11	4
Home loan	27	75.00	2
Industrial loan	7	19.44	6
Agricultural loan	36	100.00	1
Micro Credit loan	26	72.22	3
Foreign Investment loan	-	-	-
Others	6	16.66	7

From the table 3.6, among all the respondents 100 percent of the respondents has provided Agriculture loan, 75 percent of the respondents has provided home loan, 72.22 percent of the respondents has provided micro credit loan, 61.11 percent of the respondents has provided Education loan to students and properly loan, 55.56 percent of the respondents has provided vehicle loan, 19.44 percent of the respondents has provided Industrial loan, 16.66 percent of the respondents has provided others, 5.56 percent of the respondents has provided marriage loan and no respondents has provided Foreign Investment loan. Thus the Banks are highly concentration in provided Agriculture loan, because majority of the people are involved in agriculture in the region.

LOAN DISBURSED BY BANKS IN A MONTH

TABLE – 3.7: LOAN DISBURSED BY BANKS IN A MONTH

Particulars	Number of respondents	Percentage of Respondents
Below – 25 Lakh	12	33.33
26 – 50 Lakh	15	41.67
51 – 75 Lakh	8	22.22
Above 75 Lakh	1	2.78
Total	36	100.00

In the table 3.7 it is revealed 41.67 percent of the respondents provided loan to the customers between 26 to 50 lakh, 33.33 percent of the respondents provided loan to the customers less than 25 lakh, 22.22 percent of the respondents provided loan to the customers between 51 to 75 lakh and 2.78 percent of the respondents provided loan to the customers more than 75 lakh.

This shows that banks are much comfortable in giving loans to customers.

CUSTOMERS PROFILE OF THE BANK

TABLE – 3.8: CUSTOMERS PROFILE OF THE BANK

Particulars	Number of Frequency	Percentage of Respondents	Ranks
Government Employees	13	36.11	4
Private Employees	12	33.33	5
Self Employed	25	66.44	1
Business Man	18	50.00	3
Others	23	63.89	2

Source: Primary data

Table 3.8 shows that, 66.44 percent of the respondents are self employed, 63.89 percent of the respondents are others, like Agriculture coolies etc, 50 percent of the respondents are Business man, 36.11 percent of the respondents are Government employee and 33.33 percent of the respondents are private employees.

Hence, the rural and semi urban area more people work in their own business and agriculture.

SERVICES PROVIDE BY THE BANK

TABLE – 3.9: SERVICES PROVIDE BY THE BANK

Particulars	Number of Frequency	Percentage of Respondents	Ranks
A/C Related Operation	36	100.00	1
Credit Card	8	22.22	6
Debit Card	11	30.56	5
Phone Banking	3	8.33	8
ATM	15	41.67	3
Mobile Banking	2	5.56	9
Internet Banking	4	11.11	7
Core Banking	11	30.56	5
Foreign Exchange	-	-	-
Electronic Fund Transfer	13	36.11	4
Financial Assistance	18	50.00	2
Wealth Management	-	-	-
Others	1	2.78	10

Source: Primary data

Table 3.9 shows that, 100.00 percent of the respondents provided account related operations, 50 percent of the respondents provided Financial Assistance, 41.67 percent of the respondents provided ATM, 36.11 percent of the respondents provided Electronic fund Transfer, 30.56 percent of the respondents have Debit card and Core Banking, 22.22 percent of the respondents provided Credit card, 11.11 percent of the respondents provided Internet Banking, 8.38 percent of the respondents provided Phone Banking, 5.56 percent of the respondents provided Mobile Banking and not respondents provided foreign Exchange and Wealth Management.

This shows that Banks provided more non technological services than the technology related services.

COMPUTERIZED SERVICE FACILITY

TABLE – 3.10: COMPUTERIZED SERVICE FACILITY

Particulars	Number of respondents	Percentage of Respondents
Yes	30	83.33
No	6	16.67
Total	36	100.00

Source: Primary data

Table 3.10 indicates that, 83.33 percent of the respondents do provide computerized services and 16.67 percent of the respondents do not provide computerized services. Since they are a cooperative bank which doesn't have those facilities.

EXPERIENCE IN TECHNOLOGY ORIENTED SERVICES

TABLE – 3.11: EXPERIENCES IN TECHNOLOGY ORIENTED SERVICES

Particulars	Number of respondents	Percentage of Respondents
Below 3 years	12	33.33
3 -6 years	15	41.67
Above 6 years	9	25.00
Total	36	100.00

Source: Primary data

Table 3.11 indicates that experience in providing Technology oriented services to customers, 41.67 percent of the respondents have 3-6 years, 33.33 percent of the respondent have less than 3 years and 25 percent of the respondents have more than 6 years. Thus, one third of the respondents have been engaged in technological services for less than 3 years, which shows banks are just stated providing technological services than computerized services.

BANKING TECHNOLOGY SERVICES PROVIDED BY BANK**TABLE – 3.12: BANKING TECHNOLOGY SERVICES PROVIDED BY BANK**

Particulars	Number of Frequency	Percentage of Respondents
Debit Card	11	30.56
Credit Card	8	22.22
Phone Banking	3	8.33
Mobile Banking	2	5.56
ATM	15	41.67
Internet Banking	4	11.11
Core Banking	11	33.33
Electronic Fund Transfer	13	36.11
SMS Banking		–
Electronic Statement	4	11.11
E –Payment	5	13.89
Real Time Gross Settlement	10	27.78
Others	3	8.33

Source: Primary data

Table 3.12 shows that, 41.67 percent of the respondent are provides ATM, 36.11 respondent are provides electronic fund transfer, 33.33 percent of the respondent are provides core banking 30.56 percent of the respondent are provides debit card, 27.78 percent of the respondent provides real time gross settlement, 22.22 percent of the respondent are provide credit card, 13.89 percent of the respondent are provide e-payment, 11.11 percent of the respondent are provide electronic statement and internet banking, 8.33 percent of the respondent are provide phone banking and others, 5.56 percent of the respondent mobile banking and no respondent provides SMS banking.

BANKER'S PERCEPTION ON CUSTOMERS USAGE OF BANKING TECHNOLOGY**TABLE – 3.13 BANKER'S PERCEPTION ON CUSTOMER'S USAGE OF BANKING TECHNOLOGY**

Particulars	Number of respondents	Percentage of Respondents
Highly	4	11.11
Moderate	19	52.78
Low	13	36.11
Total	36	100.00

Source: Primary data

Table 3.13 shows that, 52.78 percent of the respondents are moderately using the technology, 36.11 percent of the respondents are using the technology is less and 11.11 percent of the respondents are able to use better.

Thus, banking technology is not fully utilized by the customers even bankers provide the facilities.

CUSTOMERS AWARENESS ON BANKING TECHNOLOGICAL SERVICES**TABLE – 3.14: CUSTOMERS AWARENESS OF BANKING TECHNOLOGICAL SERVICES**

Particulars	Number of respondents	Percentage of Respondents
Yes	31	86.11
No	5	13.89
Total	36	100

Table 3.14 shows that 86.11 percent of the respondents are aware of banking technology and 13.89 percent of the respondents are not aware of banking technology.

This show that customers awareness on technological Services is there. But still the effort has to be taken to make every customers know on banking technology.

LEVEL OF CUSTOMERS AWARENESS ON BANKING TECHNOLOGICAL SERVICE**TABLE – 3.15: LEVEL OF CUSTOMERS AWARENESS ON BANKING TECHNOLOGICAL SERVICE**

Particulars	Number of respondents	Percentage of Respondents
Highly	5	13.89
Moderate	23	63.89
Low	8	22.22
Total	36	100.00

Source: Primary data

Table 3.15 shows that 63.89 percent of the respondents moderately aware on banking technology, 22.22 percent of the respondents have less awareness on banking technology and 13.89 percent of the respondents are highly aware of banking technology. Hence, according to the bankers customers are yet to know about all the banking technology services provided by the bank.

AWARENESS PROGRAMS TO EDUCATE CUSTOMERS ON BANKING TECHNOLOGY**TABLE – 3.16: AWARENESS PROGRAMS TO EDUCATE CUSTOMERS ON BANKING TECHNOLOGY**

Particulars	Number of respondents	Percentage of Respondents
Yes	31	86.11
No	5	13.89
Total	36	100.00

Source: Primary data

Table 3.16 shows that 86.11 percent of the respondents are conducting awareness programs to educate customers on banking technology and 13.89 percent of the respondents are not providing awareness programs to educate customers on banking technology.

DETAILS OF AWARENESS PROGRAMS

TABLE – 3.17 DETAILS OF AWARENESS PROGRAMS

Particulars	Number of Frequency	Percentage of Respondents	Ranks
Awareness Week	12	33.33	3
Practical Training Programs	2	5.53	7
Advertisements	22	61.11	1
Road Shows	8	22.22	4
Work Shops	3	8.33	6
Seminars	4	11.11	5
Exhibitions	4	11.11	5
Personal counseling	19	52.78	2
Others	4	11.11	5

Source: Primary data

In the table 3.17 shows that 61.11 percent of the respondents promoted through Advertisements, 52.78 percent of the respondents provided personal Counseling, 33.33 percent of the respondents organized Awareness Week, 22.22 percent of the respondents conducted Road shows 11.11 percent of the respondents organized Seminars, Exhibition and others, 8.33 percent of the respondents organized work shops and 5.56 percent of the respondents given practical Training program to the customers to educate banking technology.

BENEFITS OF BANKING TECHNOLOGY TO THE BANKS

TABLE 3.18: BENEFITS OF BANKING TECHNOLOGY TO THE BANKS

Particulars	HA	A	N	DA	HDA	Percentage of respondents
Quick Service	100	48	6	4	—	4.39
Time Saving	75	52	15	—	2	4.00
Increase in Deposit	25	32	36	2	—	4.03
Durable Customer Relationship	80	48	12	8	—	2.39
Fast Transaction	90	36	12	10	—	4.11
Reduction in Errors	55	56	21	6	1	3.86
Reduce Expenditures	4	36	33	16	—	2.47
Increase Income	45	44	36	8	—	3.69
Transaction Accuracy	90	48	15	2	—	4.31
Convenience	95	32	24	2	—	4.25
Providing Bank Related Services	70	48	21	4	1	4.00

Source: Primary data

HA- Highly Agree, A- Agree, N- Neutral, DA- Disagree, HDA- Highly Disagree

In the table 3.18 out of the total respondent the various benefits of the banking technology to the banks is providing quick service (4.39), transaction accuracy (4.31), increase in deposits (4.03) time saving and providing banking related services (4.00) are agreed as benefits by the bankers than reducing errors (3.86) increase income (3.69) and bankers feel that reduce expenditures (2.47) durable customer relationship (2.39) are not that much as benefits in this region. Because attracting rural customers to use banking technology. In the beginning may nor create durable customer relationship and may be possible in the long run of the customers are educated on banking technology.

HYPOTHESIS TESTING

LOCATIONS OF THE BANK BRANCH ON EXPERIENCE IN PROVIDING TECHNOLOGICAL SERVICES

Ho: There is no association between the locations of the bank branch on experience in providing technological services

TABLE 3.19 LOCATIONS OF THE BANK BRANCH ON EXPERIENCE IN PROVIDING TECHNOLOGICAL SERVICES

Location of the Banks Technological Services	Rural	Semi urban	Total
Below 3 years	6	6	12
Above 3 years	14	10	24
Total	20	16	36

Source: Primary data

Chi- Square analysis(x2)

Calculated value : 0.22
 Table Value : 3.841
 Degrees of freedom : 1
 Level of Significance : 5%

The table 3:19 shows that, calculated value (0.22) is less than table value (3.841) at the 5 percent level of significant with one as a degree if freedom. Thus null hypothesis accepted. There four there is no association between the locations of the banks branches on experience in providing technological services.

SUMMARY OF THE STUDY

Banking sector has lot of scope for improvement through banking technology one area is the velocity of its business operations. Banking technology could also help in checking frauds of other type and also drawn attention to the need for information regarding willful defaulters being communicated to the RBI and then being exchanged between all the banks. And especially service the rural people. Banking technologies are used for development of the banks and banking technologies are mainly important to provide the service to the customer and to compete with other banks for reducing the cost of the banking technology. Banks play a very significant role and are key infrastructure of the financial sector of any economy. The efficiency of the banking sector also determines the efficiency of the economy not only banking with urban but also with rural and semi urban areas. The biggest challenge for banks today is to provide morden technological services to all the people especially to rural branches. Thus the study attempts to explore now technological services provide in rural banking.

The study was carried out with the objectives to study various technological services provided by rural bank branches. to the study the benefits of banking technology to the banks. to study the perception of usage of banking technology by the employees and customers. and study the various strategies followed by banks to deliver banking technological services in rural banking.

Present study was carried out with primary and secondary sources. The primary source was collected by administrating survey method. Convenience sampling method was adopted to select the sample which is bank branches located in rural and semi urban branches in Tirunelveli District. Questionnaire, a data collection tool was used to collected data from the branch managers. The secondary sources were revived from related websites, Journals, Books, Records, the

analysis was carried out with the statistical tools like percentage analysis, mean score Analysis chi-square test and critical findings were explored and suggestion were also provided.

FINDINGS OF THE STUDY

Banks Wise Classification:

Majority (77.78%) of the respondents were public sector banks, The private Banks were less than public sector and co-operative banks because in rural areas private banks started to establish in the recent time only and the Indian private sector & foreign banks must entering in to rural banking. **Locations of Bank Branches:**

Majority (55.56%) of the respondents were rural banks, Thus, in this district more areas are covered with rural than urban area. In a moral people this area are formers and yet other banks also should open their branch in this region.

Existences of Banks in the Present Location:

Majority (66.67%) of the respondents of banks has been existing for more than 15 years, Yet there is more scope for new branches who will come out with needed and innovative services.

Customer Base of the Bank Branch:

Banks have more customers out of 36 respondents (52.78%) of the respondent have 5001 to 10000 customers, That means banks are having adequate numbers of customers which shows their commitment towards serving rural customers and there is more potential to the banks even though many people are not able to access the bank because of less earning and not a position to save.

Monthly Aggregate Deposits:

Among total respondents (44.45%) of the respondents have got deposits of 26-50 lakh from the customers, thus the banks are effectively mobilizing deposits from the customers. This is an evidence for future scope for new branches in this region.

Kinds of Loan Provided by the Bank:

All the respondents has provided with agriculture loan, Thus the Banks are highly concentration in provided Agriculture loan, because majority of the people are involved in agriculture in the region.

Loan Disbursed by Banks in a Month:

Out of the despondence (41.67%) of the respondents provided loan to the customers between 26 to 50 lakh, this shows that banks are much comfortable in giving loans to customers.

Customers Profile of the Bank:

Majority (66.44%) of the respondents are self employed, 63.89 percent of the respondents are others, like Agriculture coolies etc, Hence, the rural and semi urban area more people work in their own business and agriculture.

Services Provide by the Bank:

Majority (94.44%) of the respondents provided account related operations, this shows that Banks provided more non technological services than the technology related services.

Computerized Service Facility:

Majority (83.33%) of the respondents do provide computerized services since they are a cooperative bank which doesn't have that facility.

Experience in Technology Oriented Services:

The experience in providing Technology oriented services to customers, (41.67%) of the respondents have 3-6 years, Thus, one third of the respondents have been engaged in technological services for less than 3 years, which shows banks are just stated providing technological services than computerized services.

Banking Technology Services Provided by Bank:

Among total respondents (41.67%) of the respondents are provides ATM, 36.11 respondent are provides electronic fund transfer, 33.33 percent of the respondent are provides core banking 30.56 percent of the respondent are provides debit card.

Banker's Perception on Customer's Usage of Banking Technology:

Out of total repentence, (52.78%) of the respondents are moderately using the technology, Thus, banking technology is not fully utilized by the customers even bankers provide the facilities.

Customers Awareness of Banking Technological Services:

Majority (86.11%) of the respondents are aware of banking technology this show that customer's awareness on technological Services is there. But still the effort has to be taken to make every customers know on banking technology.

Level of Customers Awareness on Banking Technological Service:

Majority (63.89%) of the respondents moderately aware on banking technology, hence, according to the bankers customers are yet to know about all the banking technology services provided by the bank.

Awareness Programs to Educate Customers on Banking Technology:

Majority (86.11%) of the respondents are conducting awareness programs to educate customers on banking technology and 13.89 percent of the respondents are not providing awareness programs to educate customers on banking technology.

Details of Awareness Programs:

Out of total resonance (61.11%) of the respondents promoted through Advertisements, The customers to educate banking technology.

Benefits of Banking Technology to the Banks:

Respondents expressed various benefits of the banking technology to the banks is providing quick service, because attracting rural customers to use banking technology. In the beginning may nor create durable customer relationship and may be possible in the long run of the customers are educated on banking technology.

Locations of the Bank Branch on Experience in Providing Technological Services:

There is no association between the locations of the banks branches on experience in providing technological services.

SUGGESTION OF THE STUDY

The suggestions were provided to banks, Customers, government and Information Technology Enabled Services (ITES) companies.

SUGGESTIONS TO BANKS

- The banks have responsibility to conduct and organize awareness programmes, promotional measures like advertisement, road shows, etc. for usage of banking technology for the rural customers.
- The Banks should provide all the technological oriented services to be utilized by rural customers.
- Bank may provide easy accessibility of banking technology like ATM centers to facilitate rural customers.
- Bank employees has to be trained in such way to help customers in the rural area.
- Banks may come forward to modernize their bank branches in rural areas with fully computerized.

SUGGESTIONS TO CUSTOMERS

- The bank customers have to learn to utilize the technological services provided by the branch.
- The customers have to clarify the doubts with the banker and customer care centers.

- The customers have to cooperate with the bank to implement and put in practice of banking technology in rural branches.

SUGGESTIONS TO GOVERNMENT & RBI

- The government and RBI have to encourage the banks to open more branches in the rural area with fully computerized facilities.
- The government should provide special privileges to the banks who are opening and serving to the rural customers, so that private companies will involve in providing technological services to rural customers.

SUGGESTION TO INFORMATION TECHNOLOGY ENABLED SERVICES (ITES) COMPANIES

- The ITES companies should come forward to design and formulate soft wares specifically focusing on banking technology to help rural customers.
- These companies may develop technology to suit the need of the rural customers.
- The ITES companies have to work with banks to help rural customers as a social responsibility of the business.

CONCLUSION

Technological usage in rural banking is at nascent stage in India. Today, technology plays a vital role in providing effective and efficient services to bank customers in the urban area. Banks located in urban area are highly involved in providing full technology oriented services to their customers living in urban area but the rural customers is not able to enjoy the same kind of privilege. This study involved in exploring the involvement of banks in providing technological services to the rural customers. This study was especially focused on perception of bank managers on usage of technology and rural banking, the study concludes that bank are providing less technological services to the rural customers and the reasons expressed was, the rural customers are less educated in understanding banking technology, the poor involvement of rural customers and also still believing on traditional way of banking than using technology for quality of services. Thus, the bank has to open fully computerized rural branches to facilitate rural customers by providing awareness and educating customers to use and get benefited out of banking technology.

BIBLIOGRAPHY

- State Bank of India, (1987), "Integrate rural Development Program Impact Evaluation Study". State bank of India monthly review vol.Xxvi.No.8P .371.
- Jaganath panda and R.K. Dash,(1985)"development Banking in India", Discovery publishing New Delhi,P.74.
- Malhotra R.N., "Institutional rural Development Program", (IRTA).an Evaluation Prajanam.Volxiv.No.4.
- Narayana Reddy, (1986)"Rural Dynamic and Development", Chugh publication, Allahabad.
- Pervineder Kaur, (1995), "Development Banking and Industrialization", Ammol publications (PVT,Limited),New Delhi.
- Shekhar K.C. (1995), Lakshmy Shekhar, "Banking Theory and Practice" Vikas Publishing House Private Ltd., P.552.
- Baskaran, (1997), "Role of Kamaraj District Central Co-operative Bank in Financing to Agricultural Sector", Tamilnadu Journal of Co-operation, The Tamilnadu Co-operative Union, Vol.89, No.4, Pp.36.38.
- Kandasamy, (1991) "Farm Credit Recovery in Periyar District", The Tamil Nadu Journal Of Cooperation Feb Pp.637-681.
- "Pathak S.M. and Tara Shukla, (1986), "Restructuring of Banking System in India", Economic Review, Monthly Economic Journal of Syndicate Bank, Vol.32, No 2, Pp.3-5.
- Leslie, And H. Helmers, (1983) "Industrial Development Banks and Social Benefit Cost Analysis", International Journal of Development Banking", Vol 1. No.1, P.78.

VICKS VAPORUB - MOTHER'S TOUCH THERAPY: A CASE STUDY

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ABSTRACT

FMHG industry in India is worth around ₹4500 crores. This market is dominated by products like Rubs & Balms, medicated skin treatments, cough syrup and drops, digestives and health. Vicks is a leading brand in the Fast Moving Health goods (FMHG). An exceptionally trusted brand - generations and generations of cold sufferers have used it for almost 100 years. Recognized all around the world - Vicks is available in more than 66 countries. Globally Vicks brand is worth around ₹3000 crores. Vicks commands a market share of over 60% in the cold balm/rub category¹. Vicks is the 25th most trusted brand in India². Yes, there are some controversies regarding usage of vicks vaporub but there is no doubt that it is the no 1 cough & cold brand in India.

The case study basically focuses on market position of Vicks vaporub. It describes the reasons for Vicks Vaporub to be a no 1 brand in cold rub market & the controversies regarding it. Some brands are not easy to forget. They setup in the minds of customers in such a way that as the related problem comes, immediately they strike in mind. There are number of examples, Like Vicks (for cold & winter), Itch guard (for heel cracking), Johnson & Johnson (Baby products), All-out/Good night (Mosquitoes) etc. As such above problem we face, the related product immediately strike in our mind. It is not that these products do not have competitors, but actually they have a very strong position in the market & it is not easy to wash these products from public mind & one among them is Vicks Vaporub, a very strong brand in cold rub market.

KEYWORDS

FMHG, Johnson & Johnson, Itch Guard, Vicks VapoRub.

VICKS VAPORUB: BETTER THAN ANY COLD RUB EVER USED

Vicks was launched in 1890 as Vicks Corp and Pneumonia Salve for babies by Lunsford Richardson in North Carolina. In 1918, the brand become famous as the world was suffering from enfluanja, that prove to be a big dream for the company & its demand increased so much that the company was not able to meet market demand even after the company started to work 24 hours. It was entered in India in 1951. In 1964, a public limited company, Richardson Hindustan Limited (RHL) was formed which obtained an industrial license to undertake manufacture of menthol & peppermint oil, the main elements of vicks vaporub. Vicks vaporub is colourless, but it is blue. The blue container means that the main colour for the vaporub thing is blue, but the rest of the vaporub in it dilutes the blue. Basically the blue colour represents spirituality, peace & happiness.

Vicks is India's No.1 Cough & Cold Brand. In the pain balm segment, the company faces tough competition from Zandu Balm. But now the overall balm market (including cold) is dominated by Vicks. Vicks commands a market share of over 60% in the cold balm/rub category.

Vicks VapoRub has been the market leader in the vaporub industry in India for long. It has ensured that competition does not creep up by considerably reducing its cost of marketing and distribution. However, there is still a considerable share of the market that needs to be tapped by the company. In 2009-10 the company P&G earned revenue of (in healthcare business) at ₹381 crores (vs. last years ₹344 crores) posted a growth of 11% this year across Vicks VapoRub, Vicks Cough Drops, Vicks Action 500 and Vicks Inhaler³. Vicks VapoRub had a record year posting the highest ever market share. The growth in the brand was driven primarily through continued focus and augmented media spends on the successful blanket of warmth advertising and on our ongoing strategy of upsizing consumers to drive consumption - viz. the timely promotions on jars which help in encouraging consumers to purchase larger packs⁴.

"NO WINTER MEAN NO VICKS"

The total business of Vicks Vaporub depends upon the winter season. If there is no winter, there is no requirement of any product of Vicks. The brand focus on special features, always prove to be a powerful brand. The value of Vicks brand in world market is ₹3000 crore & it adds 12% value in health cold business of P&G. In India, every year it earns around ₹170 crore. In 2005 the company completed its 100 years. Vicks pioneered the farming of Mentha Arvensis in India, and the manufacture of Menthol, which is the key active ingredient in all Vicks products and because of which today, India is the largest exporter of menthol in the world.

A good positioning helped the firm, Vicks Vaporub to emerge as the market leader. In early 1950s Richardson Hindustan Ltd. identified the need for a cold remedy in the market. At that time Amrutanjan was the market leader in the balm market. The company tried to carve out a separate niche and they decided to position it exclusively as a rub for colds. Realizing the fact that children's were the prime concern of parents. Vicks Vaporub was positioned as a rub for Childs cold. The product was clearly distinguished from balm was much stronger and hence suitable for adults and being a mild formulation Vicks Vaporub is more suitable for children.

In few years Vicks Vaporub became the largest selling brand for cold remedies and the success can be attributed to its proper initial positioning. That Vicks does not count solely upon its share as a market leader. It is aware of the presence of other competitors and thus it has not remained static in terms of its promotional strategy and has also simultaneously been incumbent upon increasing its market share by indulging into intensive promotions strategies such as free Vicks Inhaler along with Vicks Vaporub, discounts, 20% extra on each pack of 50g. Thus it has constantly tried to lure the consumers to stay with it while penetrating the market deeper Vicks vaporub is the market leader with a share of 60%. Vaporub was initially targeted at children but later the company found out that it is used mostly by adults. Vicks Vaporub is positioned along Mother's Love platform. Vaporub pioneered the concept of "Touch therapy" linking it to the rubbing of vaporub on the child's chest. Vaporub advertises itself as having 6 key benefits: Clearing blocked nose, Cough relief, Body ache relief, Head ache relief. Relaxing muscle stiffness, easing breathing difficulty.

Recently Consumer Research conducted by P&G and market research firm NFO-MBL (National Family Opinion? Market Bureau Ltd.) Consumers rated Vicks VapoRub comparatively higher on parameters such as: Fast and Long-Lasting Relief. In addition, they also rated Vicks VapoRub significantly better on key product attributes stating that it is less greasy and smells better and almost 80% of the respondents rated Vicks VapoRub as Better than any Cold Rub Ever Used. It was rated as 'India's Most Trusted Brand' by the 'Advertising & Marketing' Magazine and continues to be on top of the charts of Brand-Equity surveys till date. According to Procter & Gamble Hygiene and Health Care Ltd said, "Consumers have rewarded Vicks with sales of over ₹170 crores, annually making it the biggest health care brand in India⁵.

FEW SURPRISING USES OF VICKSVAPORUB

- **Decongest Your Chest**

The most common use of Vicks is to decongest your chest and throat area. When applied to the upper chest, it provides excellent relief of cough and congestion symptoms.

- **On Your Tootsies**

Applying Vicks to your feet provides nighttime cough relief. Generously rub VapoRub all over your feet and cover them with socks. Within moments your cough will subside.

- **Get Rid of Nasty Nail Fungus**

Rub VapoRub on your toenails if you suspect you have a fungus. Within days, the nail will turn dark—this means the Vicks is killing the fungus. As your toenail grows out, the dark part will grow off and you will have fungus-free feet

- **Headaches Be Gone**

Rub a small amount of Vicks VapoRub on your temples and forehead to help relieve headaches. The mentholated scent will release pressure in your head and instantly relieve pain.

- **Paper Cuts and Splinters**

To prevent infection and speed up healing time, dab a small amount of Vicks on any small cut or splinter.

- **Go Away Mosquitoes**

Vicks wards off mosquitoes. Apply small dabs of Vicks VapoRub to your skin and clothes and mosquitoes will steer clear.

INGREDIENTS OF VICKS VAPORUB

ACTIVE INGREDIENTS

Camphor 5.26% (Cough suppressant and topical analgesic)

Eucalyptol 1.2% (Cough suppressant)

Menthol 2.82% (Cough suppressant and topical analgesic)

INACTIVE INGREDIENTS

Cedarleaf oil 0.44%

Nutmeg oil 0.69%

Special Petrolatum

Turpentine oil 4.68%

Thymol 0.09%

COMPETITORS OF VICKS VAPORUB

1. Cold rub - Amarutanjan
2. Chest rub (Tea tree herbal)
3. Milan rubs (India mart- Milan trading co.)
4. Zandu Balm (The Zandu pharmaceutical works limited)
5. D'Cold (Paras Pharma)

MKT. MIX - VICKS VAPORUB

PRODUCT

1. Available in different sizes according to market demand
2. Emotional mkt. - Not selling Vicks, selling mothers love.
3. Unique shape of Vicks inhaler

PRICE

1. Low prized
2. Special coupons/offers during promotion

PLACE

1. Available all around India
2. Available almost at all general & medical stores in India

PROMOTION

1. Happy Birthday Mummy
2. Chotu ko sardi ay jayegi
3. The Vicks VapoRub Doll
4. A Mother touch Therapy

DISTRIBUTION CHANNELS OF VICKS VAPORUB

Vicks Vaporub is marketed by one single marketing channel, organized and regulated by the company namely, Proctor and Gamble Hygiene Products Ltd.

The commission for each intermediary is as follows⁶

(i) Dealer ± 16%

(ii) Distributor ± 4%

(iii) Super Distributor ± 1 - 1.5%

What is here important to note that the person who actually sells the product to the consumer gets the maximum i.e. 16% on the sale of the product. The distributor, who makes the goods available to the dealer gets 4% i.e. one-fourth of the share of the dealer. Also this fact has to be understood in the light of the peculiar fact of the existence of a Super Distributor. In our context, this implies the actual link between the company and the distributors. Generally there are only one or two of super distributors in each state, depending upon the size and demand in the state. These super distributors are bulk distributors and actually account for the market building of Vicks or P & G products as any increase in market share of Vicks or and increase in demand in the market earns them handsome incentives for Vicks. Thus without actually getting into the hassles of dealing with local dealers and distributors, Vicks Vaporub actually gets a higher share in market by using the area specific knowledge of these super distributors.

SWOT ANALYSIS

STRENGTH

1. Leading market position
2. Increasing demand in past years
3. An innovative product
4. No. 1 cold rub brand

WEAKNESS

1. Quality control problem
2. Decreased revenue in the northern Asian market

OPPORTUNITY

1. Developing markets
2. Increasing Health problems (specially cold problem in winter)

THREATS

1. Competitors
2. Increasing cost(as high prices of menthol)
3. Increasing controversies

CONTROVERSIES REGARDING VICKS VAPORUB**Avoid applying Vicks Vaporub to babies, pediatricians' says⁷**

According to WebMD, there have been a few complications in children when Vicks is used inappropriately. A few children reacted negatively and ended up hospitalized when Vicks was applied directly under the nose. According to a study; "The ingredients in Vicks can be irritants, causing the body to produce more mucus to protect the airway," Some of the ingredients in Vicks, notably the menthol, trick the brain into thinking that it is easier to breathe by triggering a cold sensation, which is processed as indicating more airflow," **"Vicks may make you feel better but it can't help you breathe better."**

According to Vicks vaporub, this is extremely rare and only happens to those who are sensitive to Vicks. consumers should use caution when applying it to the face or on young children. Parents should not apply Vicks VapoRub to children under the age of two. Procter & Gamble's product label also warns it is not indicated for children under two. But some parents may still choose to use it. Actually, the product is safe and effective when used according to package directions. Where marketed, it is in compliance with the applicable health and safety regulations."

Sumeet Vohra, marketing director of P&G India, told TOI, "Vicks VapoRub has a long standing history of being safe and effective when used according to package directions. Its safety and efficacy has been demonstrated in multiple human clinical trials, which have included more than a thousand children aged between one month to 12 years." Vohra added that a recent survey also found how seven out of 10 doctors trusted Vicks for their own cough and cold. Vicks VapoRub has about 5% of the Indian respiratory health market. About 60% of Indian households use Vicks for cold relief⁸. According to market sources, Vicks has an approximately 60 per cent share of the cold rub market, with players such as Amrutanjan's cold rub, Cold Snap, and Paras Pharma's D'Cold as competition.

CONCLUSION**Vicks Vaporub: "We don't sell Vicks VapoRub, we sell mother's love.**

Over the years, Vicks has launched various heart-tugging ad campaigns that have struck an emotional chord and left an impact of love and care for which the brand stands. According to a P&G spokesperson, "Ever since its launch in India in 1952, Vicks Vaporub was strategically positioned as a child cold rub, and all communication to consumers, employees, trade etc. has always centered round the mother child loving relationship." The brand surely reigns supreme on the trust parameter, which no competitor can take away from Vicks. The effect, accordingly, has been that the consumers have sought to rely on Vicks as a part and parcel of their daily lives as such. In almost each and every household, a pack of Vicks Vaporub can be located. And what is important to note is that where it is not present, consumers still refer the other ointments (which they use) as Vicks only. By this it can be understood as to how dominating the effect of Vicks has been. Vicks VapoRub has endeared itself to the Indian consumer and finds its place in every Indian home, due to its proven performance over the years against cold.

According to the company P&G, "We don't sell Vicks VapoRub, we sell mother's love. The Vicks portfolio caters to different consumer needs and Vicks has become an integral part of every home and family in India. The consumer-brand relationship has been built over many years of trust and care and Vicks has lived up to its promise of a superior quality cough and cold relief product that consumers can enjoy for another fifty years and many more, to come. Vicks will last as long as Mother's love lasts."

ENDNOTES

¹<http://www.financialexpress.com/news/p&g-to-increase-prices-board-to-mull-stock-split/694597/2>

²<http://hubpages.com/hub/Top-100-Brands-of-India>

³<http://www.moneycontrol.com/annualreport/procterandgamblehygienehealthcare/directors-Report/PGH>

⁴<http://www.financialexpress.com/news/p&g-to-increase-prices-board-to-mull-stock-split/694597/2>

⁵<http://pharmaceuticals.indiabizclub.com/catalog/220400~vicks+vaporub~mumbai/20/01>

⁶<http://www.cbc.ca/health/story/2009/01/13/vicks.html#ixzz1Ch112VUm>

⁷News<http://www.cbc.ca/health/story/2009/01/13/vicks.html> January 13, 2009

⁸<http://timesofindia.indiatimes.com/india/Vicks-can-cause-respiratory-distress-in-infants>

REFERENCES

1. <http://www.scribd.com/doc/43321155/Business-News-Analysis/12/15/2010>
2. http://www.ehow.com/facts_5251376_history-vicks-vapor-rub.html/01/13/2011
3. <http://pharmaceuticals.indiabizclub.com/catalog/220400~vicks+vaporub~mumbai/01/20/2011>
4. <http://www.scribd.com/doc/35139459/Vicks-Vaporub-or-for-That-Matter-No-Product-of-Vicks-Does-Not-Have-A/01/09/2011>
5. Introduction to Vicks: <http://www.scribd.com/doc/8156712/Vicks/01/11/2011>
6. <http://www.thehindubusinessline.com/2004/09/24/stories/2004092402260700/01/18/2011>
7. <http://www.cbc.ca/health/story/2009/01/13/vicks.html#ixzz1Ch112VUm/01/15/2011>
8. <http://timesofindia.indiatimes.com/india/Vicks-can-cause-respiratory-distress-in-infants/21/20/2011>
9. News<http://www.cbc.ca/health/story/2009/01/13/vicks.html/12/13/2010>
10. http://www.ehow.com/facts_5251376_history-vicks-vapor-rub.html#ixzz1BfETRbkf/02/02/2011
11. <http://www.moneycontrol.com/annualreport/procterandgamblehygienehealthcare/directors-report/PGH/02/12/2011>
12. www.marketingpracticeblogspot.com/02/09/2011
13. www.fmcgblogspot.com/11/05/2010
14. www.brandchannel.com/02/16/2011
15. <http://hubpages.com/hub/Top-100-Brands-of-India/02/17/2011>

THE RELATIONSHIP BETWEEN LOCUS OF CONTROL AND ROLE STRESS AMONG ENGINEERS AND PERSONNEL

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ABSTRACT

This paper has attempted to explore the relationship between internal- external locus of control and organizational Role Stress among Engineers and Personnel. The Ex-post facto research design was adopted to test the research hypotheses; the independent variable in the present study-locus of control has been studied in relation to dependent variable-organizational role stress of Personnel and Engineers with the control of extraneous variables of age, sex. The tools used in the Present Study was, Rotter's Internal-External Locus of control questionnaire to measure the Internality and Externality. Udai Pareek's Organizational Role Stress questionnaire to measure the ten dimensions of role stress experienced in Organizational life. In general Organizational role stress and Locus of control has shown relationship. Further the results indicate a significant difference on Inter-Role Conflict among Personnel and Engineers, whereas other dimensions doesn't reflect the difference. Both Personnel and Engineers don't differ significantly in Internal as well as External Locus of control.

KEYWORDS

Role Stagnation, Role Isolation, Personal Inadequacy, Resources Inadequacy.

INTRODUCTION

Modern life is full of stress. As organization become more complex the potential for and the amount of stress increases. This stress is the consequences or the accompaniments of rapid social change. Modernization, impact of mass media of communication, diffusion of innovations, influence of education and the changing social structure, Industrialization, urbanization, migration, unemployment have thrown up a series of stressful problems. Cary cherniss makes in his article that the environment in which professionals work has changed dramatically, social, political, economic, intellectual, and professional trends have combined to increase stress and decrease alternatives. Man is a working animal who's mental and Physical qualities must be employed sufficiently for him to remain healthy and prevent emotional and Physical atrophy. The increasing importance of stress in the human services these days is evidenced in books, scholarly journals, and popular magazines and on television. Stress has been the subject of investigation from different perspectives – Psychological, Physiological and Social Psychological (McGRATH, 1976). The present study is primarily concerned with social-psychological aspect as it operates within Organizational settings. The study sought to develop and measure diverse sources of Social-Psychological stress, which arise within complex administrative organizational role.

ORGANIZATIONAL ROLE STRESS

Organizational stress arises from interactions between people and their jobs and is characterized by changes within people that force them to deviate from their normal functioning (Bheer & Nawman, 1978). Organizational membership is a dominant source of stress covers a wide variety of stresses arising from one's membership in a work organization. The term 'Role' refers to the demands communicated by "significant" others, either in the organization or outside. "Role" is the position one occupies in a social system, as defined by the functions one performs in response to the expectations of the 'Significant' members of a social system, and one's own expectations from that position or office. When an individual is unable to perform or function in response to the expectations of the "significant" members of a social system, and one's own expectations from the position or office and when he is unable to meet the demands of jobs as well of his superiors he experiences "Organizational Role stress".

Research has shown that social and emotional support available to the person helps him to effectively cope with stress. Approach or effective strategies of coping include efforts to increase physical and mental preparedness for coping through personal counselling, physical exercises, yoga and meditation, diet management, creative diversions for emotional enrichment (music, art, theatre etc.), strategies of dealing with the basic problems causing stress and collaborative work to solve such problems.

The various coping strategies or styles used in role stress have been studied and the findings show that approach styles have a strong relationship with internality, optimism, role efficacy, job satisfaction and effective role behavior in organization.

To summarize, the effective management of stress through counseling which involved channelizing stress towards productive purposes, preparing role occupants to understand the nature of stress, helping them to understand their strengths and usual styles, and equipping them to develop approach strategies for coping with stress.

CONCEPT OF LOCUS OF CONTROL

There are many ways of describing and understanding personality – the wholistic approach, the type approach, the trait approach and the dimensional approach to name only a few. The Internal-External dimension (I-E) pertains to the degree to which an individual perceives reinforcements as resulting from his own actions or sees them as stemming from such forces as luck, fate or other powerful person in his life. Considerable research has demonstrated the utility of this construct and the predictive efficiency of a measure of this generalized expectancy Lefcourt (1966), Rotter (1966).

The concept of Internal-External control developed out of the social learning theory (Rotter1954). It refers to the extent to which an individual feels that he has control over the reinforcements that occur relative to his behaviour. Externalists felt that forces beyond their control are the essential factors in determining the occurrence of reinforcements. It is in short generalized expectancy relating behaviour to reinforcement in a wide variety of learning situations. According to Gore and Rotter (1963) the social learning theory suggests that these are stable personality differences between individuals in their generalized attitudes of attributing locus of control and that these differences have influences upon "higher level" learning skill affecting behaviour in a wide variety of problem solving situations.

In working situation the locus of control may be explained by whether employees perceive their outcomes as controlled internally or externally. Employees who perceive internal control feel that they personally can influence their outcomes through their own ability, skills or effort. Employees who perceive external control feel that their outcomes are beyond their own control, they feel that external forces control their outcomes.

REVIEW OF LITERATURE

Rotter's (1966) Internal External (IE) Locus of Control questionnaire was used. In the questionnaire survey as indicated by a self report measure was found to be positively associated with the teachers generalized belief in external control over reinforcement. (Measured using Rotter's Internal-External Locus of Control

Scales) as predicated. Margolis, Kroes and Quinn (1974) found a number of significant relationships between symptoms or indicators of physical and mental ill health with Role Ambiguity in their representative national sample (n = 1496). The stress indicators related to Role Ambiguity were depressed mood, lowered self-esteem, life dissatisfaction, low motivation to work and intention to leave the job.

Kyriacou and Sutcliffe (1979) conducted a study primarily designed to investigate the association between occupational stress in school teachers and a personality dimension. Stress has been noted as a factor for switching careers (Carcello et al. 1991; Trapp et al. 1989) and locus of control (Rotter, 1966) has been considered in participative budgeting (Murray, 1990; Licata et al. 1986; Brownell, 1981, 1982). While there has been no accounting research that links stress participative budgeting and locus of control, there is extensive research in psychology linking locus of control and stress management.

Daniels et al., (1992) control, information seeking preferences, occupational stressors and psychological well-being. Work and stress 221 academic and support staff at a University were being a measure of work-related LOC, and a modified version of the Miller behavioural style scale, which measures information-seeking preferences. Results suggest that psychological well-being in the work place may be increased by providing control, which should increase the employees belief in control. This main effects model may be an indication of a belief in control increasing feeling of competence.

Stress can lead to problems in the workplace, such as poor morale, job dissatisfaction, absenteeism, lowered productivity, and high medical care costs (Kedjidjian, 1995). (DeRobbio & Iwanicki, 1996 states that "Teaching can be a stressful occupation. The daily interactions with students and coworkers and the incessant and fragmented demands of teaching often lead to overwhelming pressures and challenges, which may lead to stress. Where work stress is unrelenting, some negative physiological, psychological, and behavioral consequences may result". Baskar and Vinayak (2000) concluded that stress is high at the middle level management executives of finance department, in age group of 40-50 years, executives with diploma qualifications and those belong to rural background.

PROBLEMS AND HYPOTHESES

PROBLEM OF THE STUDY

The problem of the present study is to find out the nature of relationship between Internal-External locus of control and organizational role stress among personnel and Engineers.

OBJECTIVE OF THE STUDY

1. The main objective of the study was to investigate the nature of relationship between Internal and External locus of control and the organizational Role Stress among executives.
2. It was also proposed to compare the Engineers and personnel on their Internal & External control and organizational Role Stress.
3. The study aimed at exploring the level of role stress in ten dimensions among Engineers and personnel.
4. To establish the need for counseling to reduce stress level and improve job performance.

HYPOTHESES OF THE STUDY

After the review of literature and theoretical inputs the investigator decided to adopt the following "null hypotheses" for the study.

I. Organizational Role stress in relation to Internal-External locus of control

1. There will be no significant relationship between Organizational Role Stress and Internal locus of control among Personnel.
2. There will be no significant relationship between Organizational Role Stress and External locus of control among personnel.
3. There will be no significant relationship between Organizational Role Stress and Internal locus of control among Engineers.
4. There will be no significant relationship between Organizational Role Stress and External locus of control among Engineers.

II. Difference in Organizational Role Stress among Personnel and Engineers

1. There will be no significant difference among Personnel and Engineers among all the factors of organizational role stress.

III. Difference in Internal-External locus of control among Personnel and Engineers

1. There will be no significant difference among Personnel and Engineers on Internal Locus of control.
2. There will be no significant difference among Personnel and Engineers on External Locus of control.

METHOD OF INVESTIGATION

The present study is to investigate the nature of relationship between Internal-External locus of control and Organizational Role Stress among personnel and Engineers. The Ex-Post facto research design was adopted to test the hypotheses.

VARIABLES

The independent variable in the present study-locus of control has been studied in relation to dependent variable-organizational role stress of personnel and Engineers and the control of extraneous variables of age, sex. The extraneous variables, age and sex were controlled by choosing professionals from an age range of 26 to 30 and the male population alone.

SAMPLE: ITS NATURE AND SELECTION

The total sample of the study comprised of 60 employees, 30 from L & T from Ti-cycles. They were selected by the purposive sampling method from 2 different companies in Chennai. The composition of the sample is listed in the following Table- 1.

TABLE 1

S. No.	Name of the Company	Size of the Sample	Composition
1.	L & T	N = 30	Engineer
2.	Ti-cycles	N = 30	Personnel

TOOLS USED IN THE STUDY

Considering the appropriateness the following questionnaire were selected as listed in table below:

TABLE 2

S. No.	Questionnaire Used	Variables Measured
1.	Rotter's Internal-External Locus of Control Questionnaire	Internal and External control
2.	Udai Pareek's organizational Role Stress Scale (to measure the different dimensions of role stress)	Organizational Role Stress

RESULTS AND DISCUSSIONS

I. ROLE STRESS IN RELATION TO INTERNAL-EXTERNAL LOCUS OF CONTROL

In order to find out the relationship between ten dimensions of role stress and Internal-External locus of control among Personnel and Engineers, the co-efficient of correlation was computed between each dimension of the Role Stress and Internal-External locus of control. The following table shows the relationship between Role stress and Internal-External locus of control among Personnel.

TABLE-3 REPRESENTS THE COEFFICIENT OF CORRELATION BETWEEN ROLE STRESS AND INTERNAL AND EXTERNAL LOCUS OF CONTROL AMONG PERSONNEL

Variable	ILOC	ELOC	Level of significance
IRD	.1123	-.1123	NS
RS	-.1172	.1172	NS
REC	.0283	-.0283	NS
RE	.3881	-.3881	NS
RO	-.4003	.4003	NS
RISO	.0305	-.0305	NS
PI	.3188	-.3188	NS
SRC	.0720	.0720	NS
RA	-.5144	.5144	*
RIn	-.2363	.2363	NS

Key: *: Significant at .01 level
 NS: Not Significant

II. DIFFERENCE IN ROLE STRESS AMONG PERSONNEL AND ENGINEERS

In order to, find out the difference in ten dimension of Role Stress among Personnel and Engineers, the analysis of variance was computed among personnel and engineers for organizational Role Stress.

TABLE-4 REPRESENTS THE COEFFICIENT OF CORRELATION BETWEEN ROLE STRESS AND INTERNAL AND EXTERNAL LOCUS OF CONTROL AMONG ENGINEERS

Variable	ILOC	ELOC	Level of significance
IRD	.0120	-.0075	NS
RS	.1737	-.1700	NS
REC	.1823	-.1502	NS
RE	.1183	-.1103	NS
RO	.0085	-.0104	NS
RISO	.4024	-.3807	NS
PI	.2826	-.2938	NS
SRC	.0776	-.0581	NS
RA	.1606	-.1044	NS
RIn	.3640	-.3601	NS

Key: NS: Not Significant

III. DIFFERENCE IN INTERNAL-EXTERNAL LOCUS OF CONTROL AMONG PERSONNEL AND ENGINEERS

In order to find out the difference between Personnel and Engineers, the 't' test was computed for Locus of Control and Organizational Role Stress..

TABLE-5 REPRESENTS THE 't' VALUE BETWEEN PERSONNEL AND ENGINEERS ON INTERNAL LOCUS OF CONTROL

Variable	Group	Mean	SD	SE	't' Value
Internal Locus of control	Personnel	14.4000	3.645	.665	1.18
	Engineers	15.6000	4.207	.768	

TABLE -6 REPRESENTS THE 't' VALUE BETWEEN PERSONNEL AND ENGINEERS ON EXTERNAL LOCUS OF CONTROL

Variable	Group	Mean	SD	SE	't' Value
External Locus of control	Personnel	8.6000	3.645	.665	1.06
	Engineers	7.5333	4.142	.756	

TABLE-7 REPRESENTS THE 't' VALUE BETWEEN PERSONNEL AND ENGINEERS ON RS, REC, RE, RO, RISO, PI, SRC, RA AND RIN.

Variable	Group	Mean	SD	SE	't' Value
Role Stagnation	Personnel	4.4000	2.568	.469	.16
	Engineers	4.2667	3.832	.700	
Role Expectancy conflict	Personnel	3.6333	2.141	.391	.06
	Engineers	3.6000	2.527	.461	
Role erosion	Personnel	6.5667	3.857	.704	1.42
	Engineers	8.0333	4.115	.751	
Role overload	Personnel	3.6333	2.236	.408	1.19
	Engineers	4.4000	2.711	.495	
Role Isolation	Personnel	5.0333	2.636	.543	.69
	Engineers	4.5333	2.977	.481	
Personal Inadequacy	Personnel	4.0667	2.083	.380	1.82
	Engineers	5.5667	3.997	.730	
Self Role Conflict	Personnel	3.5667	2.128	.389	1.03
	Engineers	4.3333	3.487	.637	
Role Ambiguity	Personnel	2.4667	1.795	.328	.11
	Engineers	2.5333	2.675	.488	
Resources Inadequacy	Personnel	3.6667	2.682	.490	.52
	Engineers	4.0667	3.216	.587	

GENERAL DISCUSSION

I. ROLE STRESS IN RELATION TO INTERNAL-EXTERNAL LOCUS OF CONTROL

The Role Stress and internal locus of control are negatively correlated among Personnel. So the null hypothesis that there will be significant relationship between Organizational Role Stress and internal locus of control among Personnel is rejected. Thus, there is a significant relationship between role stress and internal locus of control. When analyzing the results it is found that only one dimension of the role stress i.e., Role ambiguity is correlated significantly (-.5144) at .01 level. Hence the other dimensions of Role Stress viz., Role expectation conflict, Inter Role Distance, Role Stagnation, Role Erosion, Role Overload, Role

Isolation, Personal Inadequacy, Resources Inadequacy and self role conflict were found not to be significantly correlated with internal locus of control at .01 level.

It is found that the role stress and the external locus of control is positively correlate among Personnel. So the null hypothesis that there will be no significant relationship between organizational Role Stress external locus of control among Personnel is rejected. Thus, there is a significant relationship between role stress and external locus of control. When analysing the results it shows that only one dimension of the role stress i.e., Role Ambiguity is positively correlated at .01 level. Hence the other dimensions of the Role Stress viz., Inter Role Distance, Role Stagnation, Role Expectation Conflict, Role Overload, Role erosion, Role Isolation, Personal Inadequacy, Self Role conflict and Resources Inadequacy were found not to be correlated with external locus of control among personnel at .01 level.

The study shows the role stress and Internal locus of control among Engineers is not correlated significantly at .01 level. So the null hypothesis that there will be no significant relationship between organizational Role Stress and internal locus of control among Engineers is accepted. Thus there is no significant relationship between the ten dimensions and internal locus of control. When interpreting the results it is found that all the ten dimensions of organizational role stress and Internal locus of control among Engineers are not significantly correlated at .01 level.

The role stress and External locus of control is found to be not related. So the null hypothesis that there will be no significant relationship between organizational Role Stress and External locus of control among Engineers is accepted. Thus there is no significant relationship between the ten dimensions and external locus of control. When analysing the results it is found that all the ten dimensions of role stress and external locus of control among Engineers are not significantly correlated at .01 levels.

II. Difference in Organizational Role Stress among Personnel and Engineers

The study shows the difference among Personnel and Engineers on Inter Role Distance and they differ significantly at .01 level. This implies that there is a considerable difference among Personnel and Engineers on Inter Role Distance. So the null hypothesis that, there will be no significant difference among personnel and Engineers on Inter Role Distance is rejected. As analysis of variance shows the difference among Personnel and Engineers on Inter Role Distance the 't' test was computed to know the degree of difference. The interpretation of the result shows that Engineers have more conflict in Inter Role Distance than Personnel.

It is found that the difference among Personnel and Engineers on Role Stagnation, Role Expectancy Conflict, Role Erosion, Role Overload, Role Isolation, Personal Inadequacy, Self Role Conflict, Role Ambiguity and Resources Inadequacy is not significant at .01 level. And therefore the other null hypotheses concerning these dimensions are accepted.

III. Difference in Internal-External Locus of control among Personnel and Engineers

The study reveals the difference among Personnel and Engineers on External locus of control is insignificant. So the null hypothesis that there will be no significant difference among Personnel and Engineers on External locus of control is accepted.

OVERALL DISCUSSION

There has been no relationship between organizational Role Stress and Internal-External Locus of control except for Role ambiguity where in the personnel are having negative correlation with Internal Locus of control, positive correlation with external locus of control. If the person is having less internal control the Role Ambiguity is more for them. When the person is having more external control the role ambiguity is also more. This observation is in conformity with the previous research findings. Difficulty to the organizational stressors they encounter-extroversion, flexibility, authoritarianism, dogmatism, Locus of control and tolerance for ambiguity have all been identified as potentially important individual difference variables. Potential sources of Social-Psychological Stress that could arise from role conflict, role ambiguity and role overload and the Personality Characteristics could substantially moderate the amount of stress experienced by the individual.

In the case of Engineers the Internal-External locus of control and all the ten dimensions are not related. The internality and externality don't have any effect on organizational role stress among Engineers.

While considering the dimensions of organizational Role Stress among Personnel and Engineers, the Engineers are having more Inter Role Distance than Personnel. The Engineers are having more stress because the nature of their job has an inherent quantity of stress in itself. Due to excessive pressures in the nature of job there is distance from the other roles. This may be the reason for the Engineers having more Inter Role Distance. Compared to Engineers, Personnel are having less Inter Role Distance.

This study found that although there was a relationship between locus of control and stress, the correlation between the two was very weak and not significant in the case of Engineers. However, these results are not consistent within existing literature; therefore it shows that the results for this particular study were not very reliable. For that reason, the results from this study cannot be generalized to other studies within this context.

CONCLUSIONS

A brief summary of the Present Study followed by the conclusions and the implications drawn from it, are described below.

A cursory review of the literature in relation to organizational stress and Internal-External locus of control shows the contradictory results, so the investigator decided to take the present study. The independent variable in the present study-locus of control has been studied in relation to dependent variable-organizational role stress of Personnel and Engineers with the control of extraneous variables of age, sex.

The tools used in the Present Study was, Rotter's Internal-External Locus of control questionnaire to measure the Internality and Externality. Udai Pareek's Organizational Role Stress questionnaire to measure the ten dimensions of role stress experienced in Organizational life. The data obtained from the main study was analysed by the (correlation, analysis of variance and 't' test) in order to test the hypotheses of the study.

FROM THE ANALYSIS OF RESULTS, THE FOLLOWING CONCLUSIONS HAVE BEEN DRAWN FROM THE STUDY:

I. Role Stress in Relation to Internal-External Locus of Control

1. There is a significant negative relationship between organizational Role stress and Internal Locus of control among Personnel.
2. There is a significant positive relationship between organizational Role stress and External Locus of control among Personnel.
3. There is no significant relationship between organizational Role stress and Internal Locus of control among Engineers.
4. There is no significant relationship between organizational Role stress and External Locus of control among Engineers.

II. Difference in Organizational Role Stress among Personnel and Engineers

1. There is a significant difference among Personnel and Engineers on Inter role conflict.
2. There is no significant difference among Personnel and Engineers on role stagnation, Role expectation conflict, Role Erosion and Role over load.
3. There is no significant difference among Personnel and Engineers on Role Isolation, Personal Inadequacy, Self-Role conflict, Role Ambiguity, and Resources Inadequacy.

III. Difference in Internal-External Locus of Control among Personnel and Engineers

1. There is no significant difference among Personnel and Engineers on Internal locus of control.
2. There is no significant difference among Personnel and Engineers on External locus of control.

LIMITATIONS OF THE STUDY

The present study investigates only ten dimensions of role stress in an Organizational Setting and it should be further expanded and more dimensions have to be included for the further investigation (Role underload, Boundary role). The investigator studied only white collar Professionals. Further investigations among the

blue-collar workers and others have to be taken up. The holistic approach to reduce stress and develop quality of work life may be possible through this analysis of results.

SUGGESTIONS FOR FURTHER STUDY

The present study deals with Organizational Role Stress and Internal-External locus of control. Further study can be done with other variables like job satisfaction, job involvement, motivation, Personal effectiveness etc. The present study had been conducted without any coping strategy. The same study can be done by conducting counseling programme for coping with stress and its effects may be studied.

REFERENCES

1. Abdel-Halim, A. A. (1982). Social support and managerial affective responses to job stress. *Journal of Occupational Behavior*, 3, 281-295.
2. Andrews, G., Tennant, C., Hewson, D. M., & Vaillant, G. E. (1978). Life event stress, social support, coping style, and risk of psychological impairment. *Journal of Nervous and Mental Disease*, 166(5), 316-317.
3. Armr (1967): ICSSR (A survey of research in psychology) stress and job satisfaction. p.p.245.
4. Beehr. T and M. Gupta (1979) : "Job stress and Employees behaviour" organizational behaviour and Human Performance. p.p. 23;373;387. (1979).
5. Cooper C. L. and Marshal J (1980); White Collar and Professional Stress – sources, locus of control, stress intervention – p.p.25, 119, .125, 167, 171.
6. Davis; Keith (1981): Human behaviour at work, 6th edition p.p.28, 438-44.
7. Durand E. D. (1975) : Organizational behaviour and human resources – The journal of fundamental research and theory in Applied psychological pp. 14 (1975).
8. Fred Luthans (1995): Organizational Behaviour – LOCUS of control pp. 162-63.
9. Fred N. Kerlinger: "Foundations of Behavioural Research" (1964).
10. Higgins, N. C. (1986). Occupational stress and working women: The effectiveness of two stress reduction programs. *Journal of Vocational Behavior*, 29, 66-78.
11. John W Best: (1995) "Research is Education".
12. Jullian B. Rotter (1961): Personality theory and Personality measurement. Internal-External control as a personality variable, pp. 271-280.
13. Khan R. L.; Wolfe, D. M. (1964): Organizational Stress – Studies in Role Conflict and ambiguity.
14. Kyriakon Chris: John Sutscliffe: Association between occupational stress and a personality dimension, Internal ad External Locus of Control – Journal of soccupational psychological, p.p. 227-228 (1974).
15. Paine (1970): "Job stress and Burnout" problems stress and related concept. pp.13; 17; 61.
16. Pareek. U (1981): Organizational Role Stress Scale: Measuring Role Stress. (I. I. M. Ahmedabad, 19810.
17. Rao (1966) and Davis (1967): ICSSR (A survey of research in psychology) p.p. 305; 306.
18. Rotter, J. (1966). Generalized expectancies for internal versus external locus of reinforcement. *Psychological Monographs* (Whole No. 609).
19. Selye H. (1974) Stress Without Distress. Philadelphia, PA: Lippincott, 1974 p. 31.



THE LEGAL LACUNAS OF AN INDIAN CORPORATION'S CRIMINAL LIABILITY

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ABSTRACT

Although corporations are recognised as "persons" in certain legal contexts, it is not so easy to ascribe them as criminals. Recognition of criminal liability for corporate entities has been slow in coming in the law especially in the Indian context. We in India have had certain reservations to adopting the concept of corporate criminal liability. This is due to the fact that corporate criminal liability poses a serious challenge to the economics of enforcement. In this regard the prosecution of intent crimes is particularly problematic. The question of mens rea in relation to corporations has been a vexed one and, without doubt, the single most inhibiting factor in the development of corporate criminal liability. Today Indian corporations are held criminally liable for their criminal wrongs. However the question arises with regard to the punishment accorded to them. Since a corporation cannot be imprisoned the alternative under Indian law is the imposition of fine. But is fine an adequate punishment for a corporation? Does it have any deterrent effect? This paper analyses the difficulties faced on this account due to lack of any appropriate legal provision under the Indian law. It suggests alternate forms of punishment effectively used under various jurisdictions.

KEYWORDS

Corporation, corporate liability, criminal liability, fine.

INTRODUCTION

The society today is increasingly faced with types of economic criminality which were hitherto unknown to the nineteenth century society in which most criminal justice systems were shaped. Today the prosecutors and courts have to deal with economic and environmental criminality phenomena previously unheard of. The study of a corporation's criminal liability becomes relevant as the bulk of economic activity nowadays takes place through corporations and consequently economic criminality.

Even though the role of corporations in society has been expanding ever since the nineteenth century, it was only after the Second World War that the criminal law came to recognise the concept of corporate criminal liability. Though some jurisdictions (e.g. the United States) have taken this step earlier, other criminal law systems have been slow in incorporating the concept of corporate liability into their criminal law system.ⁱ

The issue of corporate liability in India is complex and the Bhopal gas tragedy has only added to the problem. The handling of the Bhopal issue has left a lot to be desired. The liability for thousands of deaths, damage to the environment and inter-generational health concerns was settled with a payment by Union Carbide of just US\$ 470 million in 1989.ⁱⁱ As compared to the US\$ 20 billion provided recently by BP to compensate victims of the Gulf of Mexico oil spill following pressure from the US government, it is something which is a shame.ⁱⁱⁱ

Earlier this year, seven of Union Carbide's executives were sentenced to two years in prison for their roles in the tragedy, but all were subsequently released on personal bond. Warren Anderson, the former chairman of the company, has not been brought to trial.^{iv} The result in the tragedy of Bhopal has failed to save the face of corporate liability in India despite large public protests. The country is no stranger to corporate mishaps but the law certainly needs to evolve to hold the guilty liable. This article deals with the history relating to acceptance of the issue of corporate liability in India and the other problems faced in the Indian context. The note ends with suggestions which could be incorporated into the Indian law regarding the sanctioning of the corporation.

HISTORICAL DEVELOPMENT OF CORPORATE LIABILITY

Countries around the world have struggled with the concept of corporate liability. To analyse the issue at hand we need to understand the beginning. Tracing the history of the development of the corporate and the criminal law in this respect we find that the general belief in the early sixteenth and seventeenth centuries was that corporations could not be held criminally liable.^v In the early 1700s, corporate criminal liability faced at least four obstacles.^{vi} The first obstacle was attributing acts to a juristic fiction, the corporation.^{vii} Eighteenth-century courts and legal thinkers approached corporate liability with an obsessive focus on theories of corporate personality; a more pragmatic approach was not developed until the twentieth century.^{viii} The second obstacle was that legal thinkers did not believe corporations could possess the moral blameworthiness necessary to commit crimes of intent.^{ix} The third obstacle was the ultra vires doctrine, under which courts would not hold corporations accountable for acts, such as crimes, that were not provided for in their charters.^x Finally, the fourth obstacle was courts' literal understanding of criminal procedure; for example, judges required the accused to be brought physically before the court.^{xi}

The early common law rejected the concept of collective or imputed guilt that was pervasive in medieval law. Only individuals who committed a harmful act with a guilty state of mind could be guilty of crime. In this scenario corporate guilt had no place. This was reiterated by the Chief Justice of England in 1701 when he announced that corporations could not be charged with crime.^{xii} Blackstone made it apparent in his famous commentaries published in 1765, when he said simply that "a corporation cannot commit treason, or felony, or other crime, in its corporate capacity."^{xiii} Blackstone treated the point as so obvious it needed no elaboration. After all how could anybody think differently? However by the mid-nineteenth century, things started changing slightly. Some courts held, for example, that corporations that were obligated by their corporate charters to maintain public bridges or highways could be criminally charged if they failed to discharge their duties.^{xiv} In upholding criminal liability in these circumstances, courts emphasized the strict liability nature of the offence, the distinction between nonfeasance and misfeasance, and the public nature of the duties that the defendant corporations failed to discharge. These cases, in short, were not much different from a breach of contract case where a corporation failed to live up to its agreed on obligation.^{xv}

CORPORATE INTENT IN COMMON LAW JURISDICTIONS

A corporation's physical existence was established long ago. The separate entity theory has been extensively practiced by the law courts. The problem however arises as to the mental state of a corporation. Is a company capable of possessing a criminal intent? Can a company commit a criminal act which requires *mens rea*? Since it is a person recognised by law, it follows that a company is capable of committing crimes. The difficulty arises in relation to the fault element.

Developments in the common law established a corporation capable of criminal acts around the 17th century.^{xvi} Eventually the courts reasoned that since a corporation was not a physical being, it could not commit positive acts—but it could fail to act.^{xvii} This view initially predominated in America as well as in England, but in the middle of the nineteenth century both countries dismissed the misfeasance/non-feasance distinction as arbitrary, and began to allow the prosecution of corporations for acts as well as omissions.^{xviii} The law courts took the view that while corporations could be criminally prosecuted, they could not be prosecuted for offences requiring intent.^{xix} This distinction rested on the characterization of intentional offences as deriving from the "corrupted mind."^{xx} Since corporations did not have a mind, they could not be guilty of crimes requiring criminal intent.

This distinction was again short-lived, as in 1909 the United States Supreme Court upheld a law that attributed criminal intent to a corporation.^{xxi} In *New York Central and Hudson River Railroad Co. v. United States*,^{xxii} the Court held constitutionally valid a provision of the Elkins Act that construed acts of the corporate

officers as both individual acts and as acts of the corporation, thus imputing intent from the individual to the corporation.^{xxxiii} While the Court found that corporations could be held responsible for a "large class" of offences based on conduct prohibited by statute, it noted that there were still "some crimes, which in their nature could not be committed by corporations."^{xxxiv} In other words, the Court seemed to adopt the position that corporations could be held responsible for general intent crimes but not for specific intent crimes.^{xxxv} Although the Court expanded the scope of corporate criminal liability, the distinction it fashioned ensured that prosecutions were primarily limited to those crimes for which either no intent was required or for which general intent could be imputed to the corporation by statute.^{xxxvi} At approximately the same time that the "intention barrier" was being dismantled, the courts were also eroding a less theoretical "punishment barrier."^{xxxvii} That "barrier" stemmed from the argument that if a statute prescribed imprisonment as punishment for a particular crime, a corporation could not be prosecuted because it could not be imprisoned. In *United States v. Union Supply Co.*,^{xxxviii} the Supreme Court held that since the statute also prescribed fines as a punishment, the penalties could be considered independent of one another.^{xxxix} Thus, as long as one of the punishments could be inflicted, prosecution was possible.^{xxx}

In Scotland the criminal intent was sought to be imputed to the human personalities of the directors of the corporation. In *Tesco Supermarkets v Natras*^{xxxi} it was held that in respect of offences requiring *mens rea* the criminal mind of the corporation is to be found or identified in the minds of those controlling the corporation (the directors). There was support for the earlier dictum of Viscount Haldane in *Lennard's Carrying Company Ltd v Asiatic Petroleum Company Ltd*,^{xxxii} where he had contended that a company is an abstraction. It has no mind of its own any more than it has a body of its own; its active and directing will must consequently be sought in the person of somebody who for the purpose may be called an agent, but who is really the directing mind and will of the corporation, the very ego and centre of the personality of the corporation.

In India recently it was held by the Delhi High Court that if a company allegedly indulges in wrongful deeds then not only its officials but the company itself can also be prosecuted on charges of criminal conspiracy. Dismissing the petition of a company M Tectronics' challenging a special CBI court order, which had allowed criminal proceedings against it in a forgery case, the high court rejected the company's plea that being a non-living body it cannot have *mens rea*, or criminal intent, the basic requirement for criminal prosecution.^{xxxiii} It has been established in India that a company is capable of possessing criminal intent if it commits a wrongful act. However the problem remains as to the punishment to be awarded in such cases.

FEASIBILITY OF FINE

Corporate intent was accepted in India some time back. The confusion in India related to whether a company could be convicted for an offence where the punishment prescribed by the statute was imprisonment and fine. Under sec. 420 of the Indian Penal Code the punishment prescribed is imprisonment. But can a company be indicted for such an offence and be given such a punishment. This issue was first addressed in *M.V.Javali Vs. Mahajan Borewell & CO. and Others*^{xxxiv} where the court held that mandatory sentence of imprisonment and fine is to be imposed where it can be imposed but where it cannot be imposed, namely on a company, fine will be the only punishment. Thereafter in, *The Assistant Commissioner Assessment-II Bangalore, and Others. vs. Velliappa Textiles Ltd. and Others.*^{xxxv}, Justice B.N. Srikrishna opined that corporate criminal liability cannot be imposed without making corresponding legislative changes. The court opined that where the statute provides for imprisonment or fine, it is not a problem but where the statute provides for imprisonment and fine, the court is not given the discretion to impose fine in lieu of imprisonment and therefore the company cannot be prosecuted as the custodial sentence cannot be imposed upon it.

Finally in *Standard Chartered Bank & Others vs. Directorate of Enforcement and Others.*^{xxxvi} The court held that the legislative intent should be considered and all penal provisions should be construed like all other statutes fairly to bring out the legislative intent expressed in the enactment. It was stated, "It is sheer violence to commonsense, to think that the legislature intended to punish the corporate bodies for minor and silly offences and extended immunity of prosecution to major and grave economic crimes. If an enactment requires what is legally impossible it will be presumed that parliament intended it to be modified so as to remove the impossibility element".

Since a corporation cannot be hanged or imprisoned it has been said that this limits the corporate liability. The conclusion drawn is that a corporation can be prosecuted and punished only in cases where a fine is the prescribed punishment. What happens in those cases where fine is not an option for punishment. After all as it was once said, "Can you hang the common seal?"^{xxxvii}

As stated above the Supreme Court in 2005 in *Standard Chartered Bank v. Directorate of Enforcement*^{xxxviii} in majority decision of 3:2 expressly overruled the *Velliappa Textiles case*^{xxxix}. Justice K.G. Balakrishnan, (as he then was) for the majority held^{xl} "We hold that there is no immunity to the companies from prosecution merely because the prosecution is in respect of offences for which the punishment prescribed is mandatory imprisonment (sic and fine). We overrule the views expressed by the majority in *Velliappa Textiles*^{xli} on this point...."

The question for consideration before the Court was: whether a Company or a Corporation being a juristic person can be prosecuted for an offence for which mandatory punishment prescribed is imprisonment and fine. In this case the judges of the Supreme Court differed in their views. The majority view was taken by Justice K.G. Balakrishnan, Justice D.M. Dharmadhikari, and Justice Arun Kumar, (concurring). Justice N. Santosh Hegde and Justice B.N. Srikrishna, delivered the minority view. Justice K.G. Balakrishnan, taking the majority view said that, it could not be said that there is blanket immunity for any Company from any prosecution for serious offences merely because the prosecution would ultimately entail a sentence of mandatory imprisonment. The intention of the legislature is not to give complete immunity from prosecution to the corporate bodies for these grave offences. Consequently, even for offences under Section 56(1)(i), FERA, the Company can be prosecuted. The court can ignore the provision that the defaulter should be punished with imprisonment as it is impossible to send the Company to prison. He also relied on the *Oswal Vanaspati case*^{xlii}, wherein it was said that legal sentence is the sentence prescribed by law. A sentence that is in excess of the sentence prescribed is always illegal; but a sentence that is less than the sentence prescribed may not be illegal.

Justice B.N. Srikrishna, who delivered the minority view for himself and on behalf of Justice N. Santosh Hegde, said that it is not open to the Court to read the words "imprisonment and fine" as "imprisonment or fine"; such a construction is impermissible. Firstly, it virtually amounts to rewriting Section 56 of FERA. The Court would be reading the section as applicable to different situations with different meanings. Whatever the interpretation, it must be uniformly applied to all situations. If the conjunction "and" is read disjunctively as "or" then the intention of Parliament would definitely be defeated as the mandatory term would not be available even in case of a natural person. It is trite that punishment must follow conviction. Therefore where a statute imposes mandatory imprisonment plus fine, such a provision would not enable the punishment of a corporate offender.

The root of the matter is that a company can be prosecuted for committing a criminal offence. It can further be punished through the medium of the imposition of a fine commensurate to the offence where the punishment requires a fine. In cases where the punishment requires a mandatory imprisonment and fine, the company would be punished with the imposition of a fine to be determined by the court. However where the offence requires only a mandatory custodial sentence, the company cannot be prosecuted for that offence.

The question therefore arises as to how exactly does one hold a guilty corporation liable for its acts. Fine has never been an adequate punishment. It is in fact one of the easier methods of escaping corporate liability. The courts in India have tried to do their best in this situation. However in spite of the dilemma faced by the courts in India the legislature has been slow in making the corresponding amendments in the law. Many changes were incorporated in the Companies Amendment Act, 2008 but this issue was not dealt with. The Companies Bill, 2009 which is in its last stages of being approved and might come into force replacing the present act is also equally silent on the issue of corporate criminal liability. While the purpose of this new legislation is primarily to improve the control and regulation on both domestic as well as foreign companies, yet it does not cover any clauses with regard to the above said problems.

The judgment in the *Standard Chartered case*^{xliii} may have helped the law to net the companies violating the law but the Court cannot aid the legislature's defective phrasing of an Act, and cannot add and mend, and, by construction make up deficiencies, which are left out. In the *Standard Chartered case*^{xliii} if the offender is a corporate body, then only fine is impossible; if the offender is a natural person, he shall be visited with both the mandatory imprisonment and fine. The exercise would then become one of putting fluctuating or varying interpretations on the statute depending upon the circumstances. That is not permissible for the Court, either on principle, or on law. Corporate criminal liability cannot be imposed without making corresponding legislative changes such as the

imposition of fine in lieu of imprisonment.^{xiv}

ADEQUACY OF FINE AS CORPORATE PUNISHMENT

Historically, criminal statutes have been drafted with individuals in mind so incarceration has been the principal penalty. The typical criminal statutes have either had no provision for fines or included some modest fine as an afterthought. Since corporations cannot be imprisoned, these modest fines which have been sometimes as low as Rs 500 were the maximum penalty that they faced. Prosecutors have therefore hardly considered it worth their time and effort to prosecute corporations criminally.

Under the Indian Penal Code, 1860, companies can be held liable for a number of offences including death by negligence, endangering the personal safety of others, negligent conduct with respect to machinery or poisonous substances, misappropriation of property and falsification of accounts. However, Indian law on corporate criminal liability is not confined to the IPC, but is spread across several statutes, including the Prevention of Corruption Act, 1988, the Prevention of Money Laundering Act, 2002, the Negotiable Instruments Act, 1881, the Information Technology Act, 2000, the Prevention of Food Adulteration Act, 1954, the Essential Commodities Act, 1955, and several others.^{xv}

In cases of criminal liability, violations are normally punished by imprisonment or the payment of a fine. But many observers have criticized the fines, arguing that they are too low to be of consequence and relatively easy to evade as they do not achieve the purpose of punishment. There is a need to evolve new forms of punishment which could effectively deter the corporate from engaging in any criminal activity. It has been suggested by Atul Dua, a senior partner at Seth Dua & Associates that economic and social sanctions should be encouraged against corporate houses, such as winding up of the company, temporary closure of the corporation and heavy compensation to the victims.^{xvii}

SANCTIONING THE CORPORATION

Due to lack of any legislative enactment on the issue, punishment through imprisonment has been a pragmatic reason for the rejection or limitation of corporate criminal liability. On the contrary simply because a corporation cannot be imprisoned does not mean that there exists no corporate liability. There are numerous options available to punish the errant corporation.^{xviii} One does not have to adhere to the limitations of fines but can develop a multifaceted penological system suited to the corporate form and not dominated by our understandings of individual punishment.^{xix} The ancient catch cry that corporations have neither bodies to kick nor souls to damn has no meaning left today. In fact the presence or absence of human features has little or no rational bearing upon the development of sanctions in the corporate sphere.ⁱ

In a scenario where there is no substantive law on the issue, the legislature needs to look into other jurisdictions to incorporate changes in the existing law. For example under the proposals of the European Council Recommendation, continued exclusive reliance on fine as the method of sanctioning the errant corporation is conceptually flawed and unnecessarily restrictive. There are other sanctions which offer the opportunity to achieve the aims of criminal punishment more effectively like retribution, deterrence, rehabilitation and compensation.ⁱⁱ The European Council Recommendation indicates other forms of punishments besides fines like, confiscation of property, prohibition of certain activities, exclusion from fiscal advantages or subsidies, prohibition from advertising goods and services, annulment of licences, removal of managers, appointment of provisional caretaker management, closure and winding up of the enterprise, compensation and restitution, and publication of the imposition of the sanction.ⁱⁱⁱ

In addition to this there are other ideas canvassed in the Anglo-American jurisprudence—for example, corporate probation.ⁱⁱⁱⁱ Probation is an extremely good alternative to previously attempted control procedures. Probation is at the moment underutilized, but it is a potentially powerful remedial device. It is far more threatening than a fine. This is due to that fact that in probation the conduct of the corporation is restricted and monitored by the court. Since there have been few attempts at implementing probation as a corporate criminal punishment, the deterrent and rehabilitative potential for corporate probation has yet to be realized in an actual setting.^{iv}

Further as we have seen that the corporate officers enjoy the freedom that a corporate personality of the company gives them. However in cases of corporate misbehaviour by a corporate agent, the punishment could entail the disqualification of the agent or agents from holding a corporate management position for a minimum period of at least five years.^v

Another remedy available as an option is the loss of license remedy, which removes or suspends a corporation's license to practice a certain type of activity.^{vi} To determine the cost of the loss of license remedy, we must determine the optimal sanction (as with cash fines) and determine whether barring a corporation from engaging in some activity will cost the corporation exactly that optimal amount. These determinations would require estimating the corporation's profits for future years, hypothesizing about how much would be lost by the imposition of the penalty each year, and calculating the amount of damages in present value terms.^{vii} Thus, the costs of imposing a loss of license sanction exceed the costs of imposing cash fines.

When a corporation does not have sufficient net assets to pay the optimal cash fine, other penalties, such as debarment, may supplement the fine. Debarment the corporation from access to government contracts would be most effective when the firm's primary customer or supplier is the government. When the government is not the primary supplier or customer of the corporation and we still desire a large penalty, we may use loss of license to prevent the corporation from dealing with all of its customers in the applicable market. Probation may be desirable when, for example, we want to rearrange or improve some of the corporation's internal procedures.^{viii} All of these sanctions are or can easily be made available in corporate civil liability regimes.^{ix}

In cases of continued criminal misbehaviour, corporate death or the winding up of the company is an alternative. The other option is the temporary closure of the company depending upon the gravity of the offence committed by it. The company in such a case could be ordered to be shut down till it complies with the legal norms. Lastly one of the most powerful sanctions that can be imposed on a corporation is loss of reputation or stigma.^x Goodwill is always very important for any business and the loss of the reputation is certain to hold the company liable socially. Publication of the company's crime would have a serious deterrent effect on its future prospects.

As we have seen there are numerous options available through which a guilty corporation can be held liable for its misdeeds. The preference of fine as a medium of punishment has outlived its usefulness. It is now time to incorporate additional effective measures to punish the corporation under law.

CONCLUSION

At present the law in India is insufficient to deal with the aspect of corporate criminal liability. Serious changes need to be made in the corporate and the criminal laws of the country. Until this is done, the hands of the judiciary would remain tied. Indian jurisprudence on the question of corporate liability is wedged on the point that corporations can commit crimes and that they can be held criminally liable for their acts. This however needs to develop further. Imposition of fines is not the answer to deter corporations from committing criminal wrongs. There are various other punishments which can be imposed if the law in India is amended. Companies have been given a lot of freedom but the government now needs to step in to protect the innocent customers. Economic growth should walk hand in hand with sanctions against the wrongdoers. India at this juncture needs to adopt the right approach with regard to corporate crimes. To maintain the standards of ethical business practice and to protect the innocent public it is imperative that the culprit is punished in a befitting manner.

REFERENCES

- ⁱ Guy Stessens, "Corporate Criminal Liability: A Comparative Perspective", *The International and Comparative Law Quarterly*, Vol. 43, No. 3 (Jul., 1994), pp. 493-520 at 493.
- ⁱⁱ "Bhopal Disaster", Wikipedia, available at: http://en.wikipedia.org/wiki/Bhopal_disaster (viewed on 19.10.10).

- ⁱⁱⁱ Reuters, "BP sees oil spill claims below \$20 billion", 13.9.10, available at <http://www.bullfax.com/?q=node-bp-sees-oil-spill-claims-below-20-billion-analysts-reut> (viewed on 19.10.10).
- ^{iv} "Former Union Carbide boss Warren Anderson 'still on the lam' from Bhopal criminal charges", Loon Canada, available at: <http://looncanada.com/2010/06/07/former-union-carbide-boss-warren-anderson-still-on-the-lam-from-bhopal-criminal-charges/> (viewed on 19.10.10).
- ^v For example, Lord Holt reportedly said in 1701 that "[a] corporation is not indictable, but the particular members of it are." Anonymous Case (No. 935), 88 Eng. Rep. 1518, 1518 (K.B. 1701). Kathleen Brickey notes that some early commentators relied on this statement to support the contention that corporations could not be criminally liable. See Kathleen F. Brickey, "Corporate Criminal Accountability: A Brief History and an Observation", 60 WASH. U. L.Q. 393, 396 (1981) (noting as an example I William Blackstone, Commentaries *476). However, the reasons behind Lord Holt's decision are not clear because the case consists only of this single sentence. By the mid-nineteenth century, commentators continued to cite the case as precedent, but they observed that the general rule against corporate criminal liability contained some exceptions. See Joel P. Bishop, The Criminal Law sections 306-307, at 273-74 (1st ed. 1856). See generally L.H. Leigh, The Criminal Liability of Corporations in English Law (1969), pp. 1-12, (discussing the development of English corporate criminal liability).
- ^{vi} See John C. Coffee, Jr., "Corporate Criminal Responsibility", Encyclopaedia of Crime and Justice, (Sanford H. Kadish ed., 1983) at 253. Because the corporate form was less pervasive at that time, the public may also have been relatively indifferent to corporations' crimes. See Brickey, id., at 396-97; James R. Elkins, "Corporations and the Criminal Law: An Un-easy Alliance", Ky. L.J. (1976) vol. 65 at 73, 87-88.
- ^{vii} See Coffee, id. at 253.
- ^{viii} See Leigh, supra note 5 at 3-5; Glanville Williams, Criminal Law: The General Part section 279, at 855-57 (2nd ed. 1961) (describing the elaborate doctrinal innovations that allowed courts to hold corporations criminally liable).
- ^{ix} See Coffee, supra note 6 at 253. One important purpose of the criminal law is punishing the blameworthy. Imputing an agent's intentions to the corporation seemed inconsistent with this purpose; if the corporation itself were blameworthy, imputation would be unnecessary. Additionally, the respondeat superior doctrine had not yet developed enough to allow for the imputation of any kind of mental state. See Leigh, supra note 5, at 5-8. Corporate criminal liability, a form of vicarious liability, may also have been impeded because English law had traditionally not recognized vicarious criminal liability between human principals and agents. See Brickey, supra note 5, at 415-21 (discussing the early English cases).
- ^x See Leigh, supra note 5 at 8-9; Coffee, supra note 6 at 253.
- ^{xi} See Leigh, supra note 5 at 9-12; Williams, supra note 8, section 278 at 853-54; Coffee, supra note 6 at 253.
- ^{xii} 88 Eng. Rep. 1518 (K. B. 1701).
- ^{xiii} William Blackstone, supra note 5.
- ^{xiv} See, for example, Commonwealth v. Proprietors of New Bedford Bridge, 68 Mass. 339 (1854) (holding that the corporation could be prosecuted criminally for failing to discharge its obligation to maintain public navigation).
- ^{xv} Daniel R. Fischel and Alan O. Sykes, "Corporate Crime", The Journal of Legal Studies, Vol. 25, No. 2 (Jun., 1996), pp. 319-349 at 333.
- ^{xvi} Elkins, supra note 6 at 86-87 (tracing the historical development of imputing intent to corporations).
- ^{xvii} Silets & Brenner, "The Demise of Rehabilitation: Sentencing Reform and the Sanctioning of Organizational Criminality", American Journal of Criminal Law (1986) vol.13 at 339.
- ^{xviii} Bernard, "The Historical Development of Corporate Criminal Liability", Criminology (1984) vol.22 at 8.
- ^{xix} Id.
- ^{xx} Id. (quoting Queen v. Great N. of England Ry., 115 Eng. Rep. 1294, 1298 (1846)).
- ^{xxi} Id. at 9. In 1917, English courts followed suit in Mousell Bros., Ltd. v. London & North- Western Railway, 2 K.B. 836 (1917).
- ^{xxii} 212 U.S. 481 (1909).
- ^{xxiii} Id. at 494-96.
- ^{xxiv} Id. at 494. The Court, however, failed to elucidate just which crimes these would be.
- ^{xxv} K. Brickey, Corporate Criminal Liability: A Treatise on the Criminal Liability of Corporations, Their officers and Agents, (1984), section 2:09, at 33-34.
- ^{xxvi} Alan L. Helverson, "Can a Corporation Commit Murder?" 64 Wash. U. L. at 972.
- ^{xxvii} Peter L. Edelman, "Corporate Criminal Liability for Homicide: The Need to Punish Both the Corporate Entity and its Officers", Dick. L. Rev. (1987) vol.92 at 199; see, e.g., United States v. Union Supply Co., 215 U.S. 50 (1909); United States v. Van Schaik, 134 F. 592 (S.D.N.Y. 1904).
- ^{xxviii} 215 U.S. 50 (1909).
- ^{xxix} Id. at 55.
- ^{xxx} Ibid.
- ^{xxxi} [1972] AC 153. See J H Farrar, Company Law , 3rd edn. (1991); C Wells, "Corporations: culture, risk and criminal liability" 1993 Criminal Law Review at 551; I. A. Muir, "Tesco Supermarkets, corporate liability and fault" New Zealand Law Review (1973) vol.5 at 357; B Fisse, "Consumer protection and corporate criminal responsibility: a critique of Tesco Supermarkets v Natrass" Adelaide Law Review (1971) vol.4 at 113; Y. Z. Stern, "Corporate criminal personal responsibility--who is the corporation?" Journal of Corporation Law (1987) vol.13 at 125.
- ^{xxxii} [1915] AC 705.
- ^{xxxiii} Suchitra Kalyan Mohanty, "Company can have criminal intent", The Asian Age, Sept. 12, 2010, available at <http://www.asianage.com/delhi/%E2%80%98company-can-have-criminal-intent%E2%80%99-477> (viewed on 24.10.10).
- ^{xxxiv} AIR 1997 SC 3964
- ^{xxxv} (2003) 11 SCC 405
- ^{xxxvi} AIR 2005 SC 2622
- ^{xxxvii} It was a question put by an advocate in James KK's days (8 St. Tr. 1138) in Kenny, The Outlines of Criminal Law, 15th edition.
- ^{xxxviii} Supra note 36.
- ^{xxxix} Supra note 35.
- ^{xl} Id. at 550, para 32
- ^{xli} Supra note 35.
- ^{xlii} Oswal Vanaspati & Allied Industries vs. State of U.P. (1993) 1 CLJ 17 : (1992) 75 Comp Cas 770 (FB) (All).
- ^{xliii} Supra note 36.
- ^{xliv} Ibid.
- ^{xlv} M. Vidhan, "Company's Liability where Imprisonment is Mandatory Part of Sentence", (2007) 2 PL June 6, available at http://www.ebc-india.com/practicallawyer/index.php?option=com_content&task=view&id=6646&Itemid=1 (viewed on 25.10.10).
- ^{xlvi} Vandana Chatlani, "Corporate criminal liability: Are your hands clean?", India Business Law Journal, July/Aug 2010, pp. 17-20 at 19, available at <http://www.indilaw.com/pdfs/Corporate%20liability.pdf> (viewed on 25.10.10).
- ^{xlvii} Ibid.
- ^{xlviii} J R Pennock and J W Chapman, Criminal Justice (1985); D W Elliot, The Criminal Company (1966); R A Posner, "Optimal sentences for white collar criminals" American Criminal Law Review (1980) vol.17 at 409; M A Cohen, "Corporate crime and punishment: a study of social harm and sentencing practice in the federal courts 1984-87" American Criminal Law Review (1989) vol.26 at 605; D Charny, "Non-legal sanctions in commercial relationships" Harvard LR (1990) vol.104 at 375.

- ^{xlix} R S Gruner, "Beyond fines: innovative corporate sentences under federal sentencing guidelines" *Washington University Law Quarterly* (1993) vol.71 at 261.
- ^l B Fisse, "Reconstructing corporate criminal law: deterrence, retribution, fault and sanctions" *Southern California Law Review* (1982) vol. 56 at 1246.
- ⁱⁱ See A Von Hirsch, *Doing Justice: The Choice of Punishments* (1976); J Kellog, "From retribution to desert: the evolution of criminal punishment" *Criminology* (1977) vol.15 at 179; F G Jacobs, *Criminal Responsibility* (1978); J T Byam, "The economic inefficiency of corporate criminal liability" *Journal of Criminal Law and Criminology* (1982) vol.73 at 582; J Braithwaite, "Challenging just deserts: punishing white collar criminals" *Journal of Criminal Law, Criminology and Police Science* (1982) vol.73 at 723; L Zedner, "Reparation and retribution: are they reconcilable?" *MLR* (1994) vol.57 at 228.
- ⁱⁱⁱ EC Recommendation No 88/18, para 7 cited in Richard Mays, "The criminal liability of corporations and Scots law: learning the lessons of Anglo-American jurisprudence", *Edinburgh Law Review*, 2000 Vol. 4(1), pp.46-73 at 9.
- ⁱⁱⁱⁱ *Ibid.*
- ^{lv} Orland, "Reflections on Corporate Crime: Law in Search of Theory and Scholarship" *American Criminal Law Review* (1980) vol.17 at 518.
- ^{lv} Paul Lansing and Donald Hatfield, "Corporate Control through the Criminal System: An Alternative Proposal", *Journal of Business Ethics*, Vol. 4, No. 5 (Oct., 1985), pp. 409-414 at 413, 414.
- ^{lvi} V. S. Khanna, "Corporate Criminal Liability: What Purpose Does It Serve?", *Harvard Law Review*, vol. 109, No. 7 (May, 1996), pp. 1477-1534 at 1498.
- ^{lvii} Denial of license may also result in a deadweight loss to society if no other corporation can provide the required service or if other corporations provide the service less efficiently than the corporation that lost its license.
- ^{lviii} John C. Coffee, Jr., "'No Soul to Damn: No Body to Kick': An Unscandalised Inquiry into the Problem of Corporate Punishment", *79 Michigan Law Review* (1981) at 447 (noting that criminal cases are generally resolved sooner than civil cases). However, civil injunctions do not have to be enforced more slowly than criminal probations; for example, courts can issue interim injunctions in intellectual property cases.
- ^{lix} For example, fines are the criminal law equivalent of civil law damages. Corporations convicted of certain crimes may face debarment, and courts and enforcement agencies may also use debarment when the corporation is found liable in civil proceedings. See *White Collar Crime Comm., Collateral Consequences of Convictions of Organizations*, 1991 A.B.A. Sec. Crim. Just. at 34.
- ^{lx} *Supra* note 56.

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