

RAJAGIRI Management Journal

Volume 8 Issue 1

June 2014

Editorial

Mathew Joseph

Influence of Perceived Ease of Use and Perceived Usefulness on Service Quality in Internet Banking: A Structural Equation Modelling Approach

Ajimon George and Gireesh Kumar G. S

Examining Technical Efficiency of NBFI-MFIs in India: A Non-parametric Approach

Sanjay D. and Vinod R. R

Environmental Reporting Practices among Select Industries in Rajasthan

Shubham Goswami

Diagnosing Stress Level in Employees of Indian Banking Sector: A Study

Preshita Neha Tudu and Pramod Pathak

Book Review

From Poverty to Empowerment: India's Imperative for Jobs, Growth, and Effective Basic Services

McKinsey Global Institute, February 2014, 248 pages

Mathew Joseph



RCBS
RAJAGIRI CENTRE FOR
BUSINESS STUDIES

Editorial Board

Dr. Benoy Joseph

Professor Emeritus
Cleveland State University, U.S.A.

Dr. Michael D. Patra

Principal Adviser
Reserve Bank of India, Mumbai

Dr. Rupa Rege Nitsure

Chief Economist
Bank of Baroda, Mumbai

Dr. Pravakar Sahoo

Associate Professor
Institute of Economic Growth, Delhi

Dr. Mohit Anand

Associate Professor (International Business)
FORE School of Management, New Delhi

Dr. Anuradha Balaram

Member Secretary and Chief Economic Adviser
Kerala State Planning Board, Thiruvananthapuram

Dr. Joshy Jacob

Assistant Professor
(Finance & Accounts), IIM-Ahmedabad

Dr. Priya Nair Rajiv

Assistant Professor (OB & HR), IIM-Kozhikode

Dr. M. Bhasi

Director, School of Management Studies
Cochin University of Science and Technology, Kochi

Dr. Sam Thomas

Assistant Professor (Systems & Finance)
School of Management Studies
Cochin University of Science and Technology, Kochi

Dr. Joseph I. Injodey

Principal
Rajagiri College of Social Sciences, Kochi

Dr. Binoy Joseph

Professor (HR)
Rajagiri Centre for Business Studies, Kochi

Dr. Rosemary Varghese

Professor
(Business Communications)
Rajagiri Centre for Business Studies, Kochi

Dr. Joji Alex

Professor (Marketing)
Rajagiri Centre for Business Studies, Kochi

Dr. Mathew Joseph

Professor (Economics) & Mentor (Research)
Rajagiri Centre for Business Studies, Kochi

Editor

Dr. Mathew Joseph

Professor (Economics) & Mentor (Research)
Rajagiri Centre for Business Studies, Kochi

Assistant Editor

Ms. Neetha J. Eappen

Assistant Professor
Rajagiri Centre for Business Studies, Kochi

Rajagiri Management Journal

Volume 8

Issue 1

June 2014

C O N T E N T S

Editorial

Mathew Joseph 1

Influence of Perceived Ease of Use and Perceived Usefulness on Service Quality in Internet Banking: A Structural Equation Modelling Approach

Ajimon George and Gireesh Kumar G. S 2

Examining Technical Efficiency of NBFI-MFIs in India: A Non-parametric Approach

Sanjay D. and Vinod R. R 17

Environmental Reporting Practices among Select Industries in Rajasthan

Shubham Goswami 29

Diagnosing Stress Level in Employees of Indian Banking Sector: A Study

Preshita Neha Tudu and Pramod Pathak 51

Book Review

From Poverty to Empowerment: India's Imperative for Jobs, Growth, and Effective Basic Services

McKinsey Global Institute, February 2014, 248 pages.

Mathew Joseph 76

Rajagiri Management Journal

Volume 8

Issue 1

June 2014

Editorial

E-commerce is one of the fastest growing areas today. Internet banking, an application of e-commerce in financial services, has registered enormous growth in recent years globally and in India. The article by Ajimon George and Gireesh Kumar is a study on internet banking. Using the popular Technology Acceptance Model (TAM) framework, the authors test the relationship between the perceived ease of use (PE) and perceived usefulness (PU) on the service quality of internet banking based on data from India's most literate state of Kerala.

In the context of the developmental objective of 'financial inclusion', the microfinance institutions (MFIs), have assumed growing importance. The paper by Sanjay and Vinod examines the technical efficiency of nine well established MFIs in India based on data for the last seven years. There are broadly two approaches to determine efficiency of a firm: parametric, which is based on an underlying functional relationship between the different variables under study and non-parametric, which measures efficiency relative to the 'observed best'. This paper has adopted a non-parametric tool called the 'data envelope analysis' (DEA) in measuring the efficiency of MFIs.

Addressing the environmental issues has become a major part of corporate social responsibility. Companies have been increasingly reporting their actions towards environmental protection. The article by Shubham Goswami is examining the present status of environmental reporting in the state of Rajasthan in respect of certain environment-polluting industries. The study also tests the extent of environmental disclosure by companies with the nature of industry and the size of company.

Stress is an inevitable part of modern work life. There has been quite a lot of literature on workplace stress-dwelling on its causes, effects and cure. The article by Preshita Neha Tudu and Pramod Pathak attempts to understand the nature of employee stress in Indian banks and measure its level from a sample drawn from the state of Jharkhand. It also tests the influence of age, experience, and gender on the stress level.

This issue also carries a review of the research report entitled, "From Poverty to Empowerment: India's Imperative for Jobs, Growth, and Effective Basic Services" brought out by McKinsey Global Institute in February 2014.

Looking forward to your comments, suggestions and feedback on the issue.

Mathew Joseph

Editor

Rajagiri Management Journal

E-mail: editor-rmj@rajagiri.edu

Influence of Perceived Ease of Use and Perceived Usefulness of Service Quality in Internet Banking: A Structural Equation Modelling Approach

Ajimon George¹ and Gireesh Kumar G.S.²

Abstract

The advent of Information Technology has led to the emergence of multiple delivery channels like ATMs, telebanking, internet banking and mobile banking. Internet banking (IB) is a product of e-commerce in the field of banking and financial services. Statistics reveal that IB is one of the fastest rising e-banking services globally and in India too it is gathering momentum. Therefore, it is essential that service providers must understand how customers evaluate IB service quality for improving service delivery and what are the factors influencing service quality. The specific objective of the present study was to investigate the influence of Technology Acceptance Model (TAM) constructs on service quality in internet banking. The study revealed that Perceived Ease of Use (PE) has significant positive direct effect on service quality and Perceived Usefulness (PU) has significant positive indirect effect on service quality in internet banking.

Keywords: Internet Banking, Perceived Ease of Use, Perceived Usefulness, Service Quality, Technology Acceptance Model

¹ Associate Professor, Marian College, Kuttikkanam – 685 531, Kerala, India.
E-mail: georgeajimon@rediffmail.com

² Associate Professor, Nirmala College, Muvattupuzha – 686 661, Kerala, India.
E-mail: gireeshkartha@yahoo.com

1. Introduction

The transition from the 'brick and mortar' structure to 'click and order' model started with the emergence of Information Technology and its use in the financial sector. The use of technology in banking has resulted in availability of multiple delivery channels like ATMs, tele-banking, internet banking, and mobile banking. Technology adoption in banks has shifted banking to more of a capital intensive, fixed cost industry from a labour intensive, variable cost industry. With the rapid penetration of internet in India, banks are now focusing to deliver banking service, via internet, what is often referred to as internet banking. It is not an exaggeration to mention that traditional brick and mortar bank building and face to face interaction between bank's staff and their customers will soon become relics of the past, replaced by electronic communication. Internet has facilitated banks to share the databases and maintain a centralised database at a low cost. With the help of internet it becomes easy for banks to create their own web pages and customers can access these web pages through the web browsers by sitting at home.

Internet banking (IB) is a product of e-commerce in the field of banking and financial services. In what can be described as Business-To-Customer (B2C) domain for banking industry, internet banking offers different online services like balance enquiry, requests for cheque books, recording stop-payment instructions, balance transfer instructions, account opening and other forms of traditional banking services. Mostly, these are traditional services offered through internet as a new delivery channel. After the wedding of Indian banks with information technology, a large percentage of the transactions are not taking in the physical premises of the banks. The total value of e-commerce transactions in India was about ₹450 crores in the year 1999-2000. But the total value of e-commerce transactions stood at whopping ₹47,000 crores in 2011. Analysts predict that this upward swing will continue over the next years too (Kaur & Joshi, 2012). Similarly financial services over the net increased from ₹1,200 crores in 2008 to ₹2,680 crores in 2011, registering a growth rate of 123 per cent in 3 years (Internet and Mobile Association of India, 2011, March 15) which is a clear manifestation of the growing interest of Indian customers to conduct transaction over internet. The rising volumes of e-banking transactions in India may be viewed as an indication that banking customers, particularly the young, have almost tasted the benefits of e-banking services. Statistics revealed that IB is one of the fastest rising e-banking services globally and in India too it is gathering momentum.

2. Survey of Literature

The literature on innovation adoption shows that there are several theories that explain the factors influencing the adoption of new technologies. Important among them are; Theory of Reasoned Action (TRA), Innovation Diffusion Theory (IDT), Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB) and Decomposed Theory of Planned Behaviour (DTPB). The most widely used among researchers is TAM. Davis (1989) developed Technology Acceptance Model (TAM), according to which 'users' adoption of computer system depends on their behavioural intention to use, which in turn depends on attitude, consisting of two beliefs, namely Perceived Ease of Use (PE) and Perceived Usefulness (PU). TAM is an adaptation of TRA in the Information System (IS) field. TAM theorizes that a technology that is easy to use, and if found to be useful will have a positive influence on the intended user's attitude which in turn increases intention towards using the technology that generates the adoption behaviour. Perceived Usefulness is defined as the degree to which 'a person believes that using the system will enhance his or her performance'. Perceived Ease of Use, on the other hand, is defined as 'the degree to which a person believes that using the system will be free of mental effort'. TAM has been the instrument in many empirical studies and it has been found that its ability to explain intention and attitude towards using IT is better than TRA (Theory of Reasoned Action) and TPB (Theory of Planned Behaviour) (Mathieson, 1991). TAM is one of the most utilized models for studying IS (Information System) acceptance (Al-Gahtani, 2001). TAM is a powerful, highly reliable, valid and robust predictive model that may be used in a variety of contexts (King & He, 2006). Suh and Han (2002) used TAM model and found that PE and PU were significant determinants of attitude which in turn had significant effect on intention and finally intention had significant effect on actual usage of IB in Korea. Bomil and Ingoo (2002) found that PE has significant effect on use of IB. Significant effects of PE and PU on behavioural intention to use IB were observed by Wang et al., (2003) and Aldas-Manzasno et al., (2009). Online Banking (OB) acceptance in Finland was mainly influenced by PU (Pikkarainen et al., 2004) and PU was found to be the primary reason that Estonian bank customers use IB (Kent et al., 2005). It was also found that PU has significant impact on continued usage of IB in UAE (Awamleh and Fernades, 2006) and PU and PE respectively emerged as the first and second determinants of customer intention to use IB in Hong Kong (Edwin et al., 2006). Acceptance of IB in India was found to have been significantly influenced by PE and PU (Sudeep, 2008).

3. Conceptualizing Service Quality in Internet Banking

The concept of service quality has a journey of a number of decades and has aroused attention from the part of researchers owing to lack of consensus in both defining and measuring it. According to Bitner and Hubert (1994) “service quality is consumers’ overall impression of the relative inferiority/superiority of the organization and its services”. Traditional service quality refers to the quality of all non-internet based customer interactions and experiences with companies (Parasuraman et al. 1988). The advent of internet paved the way for the emergence of the concept of e-service. E-services have two main characteristics: the service is accessible with electronic networks and the service is consumed by a person via the internet (Batagan et al., 2009). Internet Banking satisfies the above two characteristics and therefore service quality in IB denotes e-service quality. Santos (2003) defined e-service quality as “the consumers’ overall evaluation and judgment of excellence and quality of e-service offerings in the virtual market place”. Two schools of thought concerning the measurement of quality in relation to services are found in literature. Parasuraman et al., (1988) developed SERVQUAL scale and measure service quality as the difference or disconfirmation between the customers’ perception (P) and expectations (E) along 22 variables divided into five dimensions. The problem of measuring expectation was felt by many researchers in the sense that expectations change from time to time, and they were also confronted with the problem of when to measure it, either before or after receiving the service. Babakus and Booler (1992) and Cronin and Taylor (1992) found that perceptions are a superior predictor of service quality than disconfirmation and subsequently Cronin and Taylor (1994) developed SERVPERF (SERvice PERFormance) model to measure service quality based only on customer perceptions. The present study used SERVPERF approach to measure service quality in the internet banking context. Plenty of research has been carried out on service quality dimensions in traditional ‘brick and mortar’ banking environment (Cowling & Newman, 1995) but service quality dimensions in an internet banking environment, where the interaction between customers and bank is impersonal, have not been investigated enough especially in the context of measuring the influence of TAM variables on service quality.

4. Model Development

Lin and Wu (2002) examined the links between online service quality (information content, customization, reliability & response, and security) of portal site and PU and PE but their model used online service quality dimensions

as antecedents to TAM constructs. Tao Zhou (2011) found that system quality is the main factor affecting perceived ease of use, whereas information quality is the main factor affecting perceived usefulness. Service quality and PE correlated positively (Al-Momani & Noor, 2009; Hilmi et al, 2012). Since service quality, PU and PE are positively correlated it is hypothesized that:

H1: Perceived Ease of Use has a positive effect on service quality in internet banking

H2: Perceived Usefulness has a positive effect on service quality in internet banking

Davis (1993) postulated that perceived ease of use had a direct impact upon perceived usefulness, not vice versa. However, significant bivariate correlation between perceived ease of use and usefulness was observed in many studies (for e.g. Henderson & Divett, 2003; Farmani et al, 2012). Hence it is hypothesized that:

H3: Perceived Usefulness has a positive effect on Perceived Ease of Use

5. Research Gap and Objectives

Though there is plenty of literature that predicts the intention to use IB using TAM model, studies that examine the influence of TAM constructs on service quality in internet banking is rarely found in literature. Similarly, studies that explore service quality dimensions in a traditional 'brick and mortar' context are many but similar studies in an internet banking context are scant in literature and no such study was found to have been undertaken in the state of Kerala in India. It is essential that service providers must understand how customers evaluate IB service quality and the determinants of service quality, if they want to improve service delivery. A survey of literature showed that there is dearth of empirical studies that used TAM constructs as antecedents to service quality in internet banking. This study thus aims to fill the gap in literature and tests a model comprising of the hypothesized relationship between TAM constructs and service quality and hence the study is found relevant and timely. The study attempts to address the following research questions. What are the service quality dimensions in IB? Whether the twin TAM constructs (Perceived Ease of Use and Perceived Usefulness) have any influence on service quality? Based on the above research questions, the specific objective of the study was to investigate the influence of TAM constructs on service quality in internet banking.

6. Materials and Methods

The study is empirical in nature and survey method was used to collect primary data from 406 IB users. The respondents were identified through different stages of selection. In the first stage of sample selection, banks were divided into two

strata (categories) – public sector banks and private sector banks. State bank of India, State Bank of Travancore, Canara Bank and Punjab National Bank were selected from the public sector. Federal Bank, South Indian Bank, HDFC Bank, ICICI Bank and Axis Bank were selected from the private sector banks. These banks were selected because they are in the forefront in harnessing technology and have won accolades for their excellence in banking technology from Institute for Development and Research in Banking Technology (IDBRT) in various years.

The study area is limited to the state of Kerala and the rationale for selecting the State of Kerala is the existence of a well organized and large network of banks, increasing usage of internet and surge in e-literacy among the people. Kerala has a wide network of banks with a total of 4053 bank branches, of which, 331 are rural branches, 2692 are semi urban branches and 1030 are urban branches (RBI, 2009). The increasing usage of internet in Kerala is evident from the fact that Bharath Sanchar Nigam Limited (BSNL) has provided 7,70,000 connections in rural India as on 31-1-2011, of which, 2,27,164 connections are in Kerala, the highest among all the States in India (Ministry of Communication and Information Technology, 2011). People of Kerala are becoming e-literate through 'Akshaya' project, undertaken by Government of Kerala in 2005, which imparts training to one person from one family to make people aware of the basics and scope of IT, hands-on-skill in operating a computer and use of internet. As per the website of Akshaya, 100 per cent e-literacy was achieved in eight districts, out of the 14 districts (Government of Kerala, 2012). Both availability of access to internet and e-literacy are essential prerequisites for the adoption of internet banking. The more access to computers and the internet, the greater is the possibility of the use of internet banking (O'Connell, 1996). Similarly, the more the people becoming e-literate, the more is the possibility of doing internet banking.

To accommodate geographical importance, as the second stage of sample selection one district each from North Kerala, Central Kerala and South Kerala were selected. Accordingly North Kerala is represented by Kozhikode, Central Kerala by Ernakulam, and South Kerala by Thiruvananthapuram. A sampling frame which contains the contact details of IB users could not be obtained from banks because of bank's privacy, topic sensitivity and competition reasons. The frequency of visit to bank branches by IB users are found to be rare since they carry out most of their transactions online and hence it was decided to contact IB users from ATM outlets rather than bank branches. The customers who use IB for a period of one year or above, visiting ATM outlets on the days of survey

were selected to participate in the survey. The questionnaire was piloted on 40 respondents. Based on the review of literature, 16 items were identified and included under seven dimensions Fulfillment (FU), Reliability (RE), Efficiency (EY), Responsiveness (RP), Website Attributes (WA) and Privacy (PY) to measure service quality and 6 items to measure the twin TAM constructs – Perceived Ease of Use (PE) and Perceived Usefulness (PU). The responses on these items were captured on a five point Likert scale from ‘Strongly Agree’ (5) to ‘Strongly Disagree’ (1). Responses were obtained from 406 respondents and Structural Equation Modeling was used to test the hypotheses.

7. Sample Profile

Out of 406 respondents, 76 per cent were male and 24 per cent were female. About 74 per cent of the respondents were below 35 years of age and 26 per cent were above 35 years of age. About three fourth (74 per cent) of the total respondents were post graduates/professionals and out of the remaining, 22 per cent were graduates and a meager 4 per cent were undergraduates. This indicates that most of the IB users were well educated banking customers. About 71 per cent of the respondents were employees, 16 per cent were self employed professionals like chartered accountants, cost accountants, company secretaries, doctors, lawyers etc, and the rest 13 per cent were students and businessmen. Majority (66 per cent) of the respondents have monthly income ranging from 15,000 to 45,000.

8. Data Analysis and Hypotheses Testing

Confirmatory Factor Analysis (CFA) was performed to test the fitness of the measurement model and is portrayed in Figure 1. The model was formed using eight latent constructs viz., Website Attribute (WA), Reliability (RE), Fullfillment (FU), Efficiency (EY), Privacy (PY), Responsiveness (RP), Perceived Ease of Use (PE) and Perceived Usefulness (PU). The first six latent constructs denote service quality dimensions and the last two denote TAM constructs. The indicators used to capture the latent constructs, their standardized regression weights and their co-variances are shown in Figure 1.

The reliability and validity of the measurement model was assessed in terms of composite reliability, convergent validity and discriminant validity. Absolute fit indices directly assess how well a model fits the observed data (Weston & Gore Jr., 2006). The most commonly reported absolute index is chi-square and a non significant chi-square is indicative of a model that fits the data well. However, the chi-square statistic is particularly sensitive to sample size and researchers

have sought alternative indices to assess model fit. One example of a statistic that minimizes the impact of sample size on the model Chi-square is relative/normed chi-square (chi-square/df; df=degrees of freedom) (Hooper et al., 2008). The additional indices from the literature such as Comparative Fit Index (CFI), Goodness of Fit (GFI), Adjusted GFI (AGFI), Normed Fit Index (NFI) and Root Mean Square Error of Approximation (RMSEA) are also considered for assessing the model fit. The fit indices of the measurement model shown in Table 1 indicate that all the fit indices were within the acceptable level suggested by previous research.

Table 1: Fit Indices of the Measurement and Structural Model

Fit Indices	Measurement model	Structural model	Recommended value	References
Chi-square/df	2.175	2.676	< 5	Bentler, 1989
GFI	0.916	0.945	> 0.90	Hair et al. 2010
AGFI	0.882	0.915	> 0.80	Gefen et al. 2003
NFI	0.882	0.904	> 0.90	Bentler, 1992
CFI	0.931	0.937	> 0.90	Bentler, 1992
RMSEA	0.055	0.065	<0.08	Hu & Bentler, 1999

The composite reliability (Hair et al. 1998) of each constructs was calculated and found to be above the threshold value of 0.70 (Straub, 1989) as shown in Table 2. The Average Variance Extracted (AVE) of each construct was calculated and was above the cut off 0.50. The discriminant validity was assessed using Fornell and Larcker’s (1981) criteria as presented in Table 2. The AVE for each construct is more than the squares of inter construct correlations, thus satisfying discriminant validity.

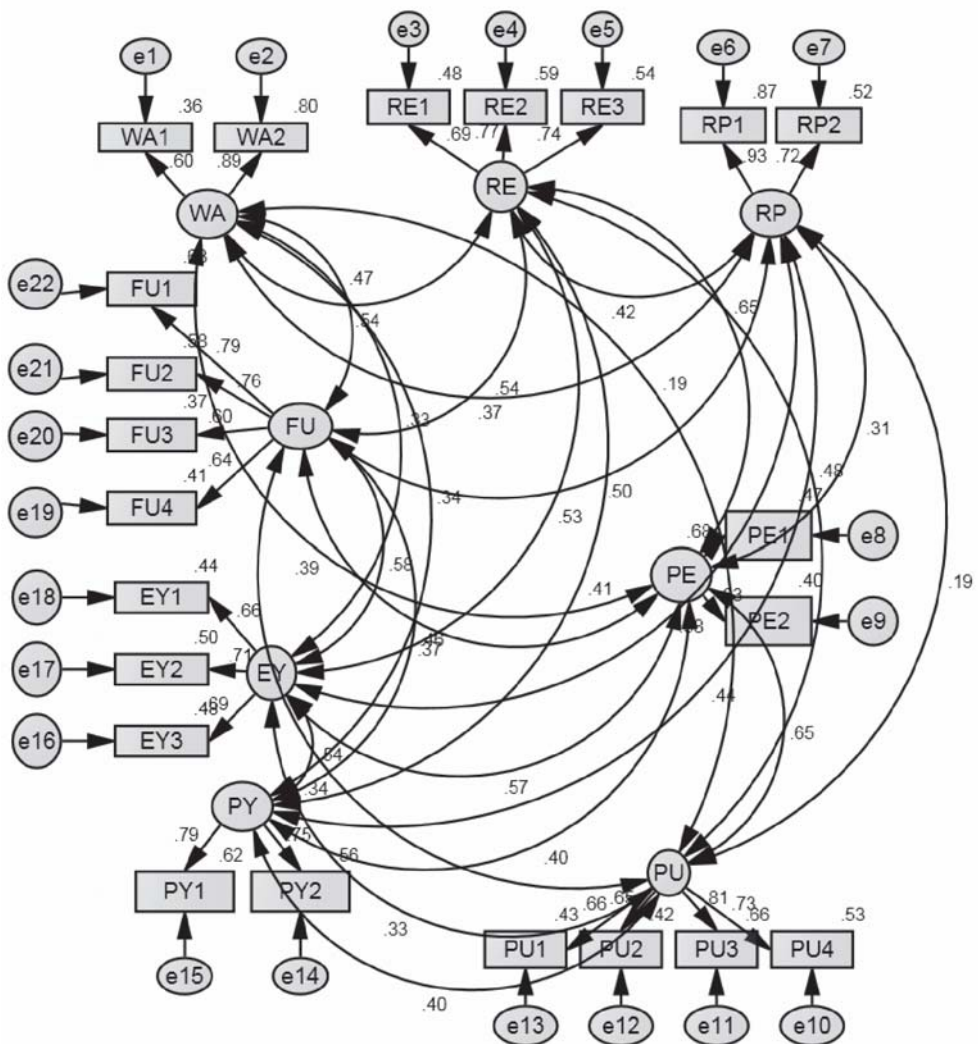
Table 2: Composite Reliability (CR) and Discriminant Validity

	CR	WA	RE	RP	FU	EY	PY	PE	PU
WA	0.73	0.58							
RE	0.78	0.292	0.54						
RP	0.82	0.135	0.176	0.70					
FU	0.80	0.221	0.293	0.249	0.51				
EY	0.77	0.108	0.278	0.336	0.340	0.52			
PY	0.74	0.116	0.167	0.190	0.208	0.291	0.59		
PE	0.67	0.149	0.424	0.095	0.140	0.326	0.163	0.52	
PU	0.81	0.036	0.233	0.038	0.118	0.106	0.161	0.421	0.51

Diagonal values are Average Variance Extracted (AVE) and off diagonal values are the squares of inter construct correlations.

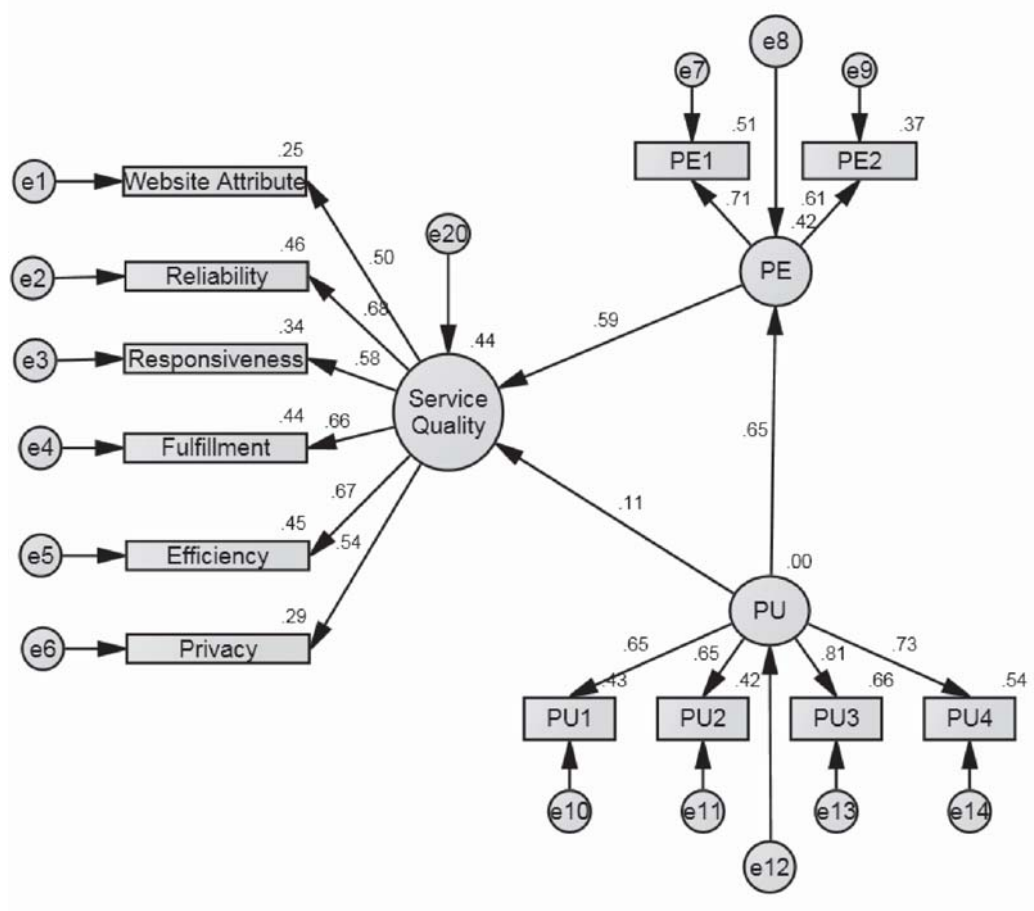
The standardized regression weights of all the indicators in the measurement model were above 0.50 (Hair et al. 1992) and the t-values are above 1.96 indicating significance. This suggests good convergent validity thus ensuring that the indicators truly represent the intended latent construct.

Figure 1: Measurement Model with Standardized Regression Weights and Co-variances



The hypotheses were tested using the structural model and shown in Figure 2. The construct index for service quality dimensions was calculated by averaging the indicators in the construct. The fit indices of the structural model are given in Table 1 and were found to be within the acceptable levels. The results revealed that H1 is supported ($t = 4.56, \beta = 0.591, p < 0.01$), H2 is not supported ($t = 1.08, \beta = 0.108, p > 0.05$) and H3 is supported ($t = 8.534, \beta = 0.650, p < 0.01$). Perceived Usefulness has no significant direct effect on service quality but the indirect effect of PU on service quality via PE is $(0.65 * 0.59) 0.38$.

Figure 2: Structural Model with Standardized Regression Weights



9. Implications of the Findings

The finding that PE has significant effect on the service quality perceptions of IB users suggests that banks can enhance service quality perceptions by bringing

more clarity in the contents of their websites and making it more user' friendly so that they may perceive that it is easy to use and become skillful in using IB. The indirect effect of PU mediated through PE indicates that there is scope for banks to enhance service quality perceptions of IB users by making them more aware of the advantages of using IB, compared to 'brick and mortar' banking, particularly on the cost saving aspect and ubiquity. Improvement in service quality perceptions of IB users will lead to customer satisfaction (Jun & Cai, 2001; Liao & Cheung, 2008; Quan et al., 2009; Nuseir et al., 2010; Gupta & Bansal 2012) and therefore every effort by banks to enhance service quality perceptions will result in increased customer satisfaction and this will help them to retain existing customers and to attract new users.

10. Limitations and Scope for Further Research

The study considered the perceptions of only retail banking customers and the perceptions of wholesale banking customers who use IB were not considered. Future research may replicate this study with wholesale banking customers to evaluate the validity of the findings of this study. Wholesale banking customers may use IB more frequently and therefore to enquire whether their perceptions are similar to those of retail banking customers would be of interest to future researchers. The study did not explore all the service quality dimensions and examine the effect of service quality on customer satisfaction and customer satisfaction on customer retention. Therefore future research may explore whether there are more dimensions of service quality and also investigate the effect of service quality dimensions on customer satisfaction and then on customer retention.

References

- Aldas-Manzasno, J., Navarre-Lassala, C., Mafe-Ruiz, C. & Blas-Sanz, S. (2009). Key drivers of internet banking services use. *Online Information Review*, 33(4), 672-695. doi:10.1108/14684520910985675.
- Al-Gahtani, S. (2001). The applicability of TAM outside North America: an empirical test in the United Kingdom. *Information Resource Management Journal*, 14 (3), 37-46.
- Al-Momani, K. & Mohd. Noor, N. A. (2009). E-Service quality, ease of use, usability and enjoyment as antecedents of E-CRM performance: An empirical investigation in Jordan mobile phone services. *The Asian Journal of Technology Management*, 2(2), 50-63.
- Awamleh, R. & Fernandes, C. (2006). Diffusion of Internet Banking amongst educated consumers in a high income non-OECD country. *Journal of Internet Banking and Commerce*, 11 (3). Retrieved from <http://www.arraydev.com/commerce/JIBC/2006-12/Awamleh.html>

- Babakus, E. & Boller, G. W. (1992). An Empirical Assessment of the SERVQUAL Scale. *Journal of Business Research*, 24: 253-268.
- Batagan, L., Pocovnicu, A. & Capsizu, S. (2009). E-Service Quality Management. *Journal of Applied Quantitative Methods*, 4(3): 372 – 381.
- Bentler, P. M. (1989). EQS, Structural Equations, Program Manual (Version 3.0). Los Angeles: BMDP Statistical Software, Inc.
- Bentler, P. M. (1992). On the Fit of Models to Covariances and Methodology to the Bulletin. *Psychological Bulletin*, 112 (3): 400-404.
- Bitner, M. J. & Hubbert, A. R. (1994). Encounter Satisfaction versus Overall Satisfaction versus Quality. In Roland T Rust and Richard L. Oliver (Eds), *Service Quality New Directions Theory and Practice* (pp 72-94). London: Sage.
- Bomil, S. & Ingo, H. (2002). Effect of trust on customer acceptance of Internet Banking. *Electronic Commerce Research and Applications*, 1, 247-263.
- Cowling, A. & Newman, K. (1995). Banking on people: TQM, service quality, and human resources. *Personnel Review*, 24: (7), 25-40.
- Cronin, J. J. Jr & Taylor, S. A. (1994). SERVPERF Versus SERVQUAL: Reconciling Performance Based and Perceptions Minus Expectations Measurement of Service Quality. *Journal of Marketing*, 58 (January): 125-131.
- Cronin, J. J. Jr & Taylor, S. A. (1992). Measuring service quality: a re-examination and extension. *Journal of Marketing*, 56: 55-68.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly* 13(3), 319-340.
- Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioural impacts, *International Journal of Man-Machine Studies*, 38, 475-487.
- Edwin, C. T. C., David, Y. C., & Andy, Y. C. L. (2006). Adoption of internet banking: An empirical study in Hong Kong. *Decision Support Systems*, 42, 1558-1572. doi:10.1016/j.dss.2006.01.002.
- Farmani, M., Kimiaee, A. & Fatollahzadeh, F. (2012). Investigation of relationship between ease of use, innovation tendency, perceived usefulness and intention to use technology: An empirical study, *Indian Journal of Science and Technology*, 5(11), 3678 – 3682.

- Fornell, C. & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1): 39-50.
- Gefen, D., Karahanna, E. & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model, *MIS Quarterly*, 27 (1): 51-90.
- Government of Kerala (2012). *Akshaya*. Kerala State IT Mission. Retrieved from <http://www.akshaya.kerala.gov.in/index.php/e-literacy>
- Gupta, K. K. & Bansal, I. (2012). Development of an instrument to measure internet banking service quality in India. *Journal of Arts, Science and Commerce*, 3(2/2): 11-25.
- Hair, J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (1998). *Multivariate Data Analysis* (5th edition). Upper Saddle River, New Jersey: Prentice-Hall.
- Hair, J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (1992). *Multivariate Data Analysis with Readings* (3rd edition). New York: Macmillan.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis: a global perspective* (7th edition). Upper Saddle River, New Jersey: Pearson Education.
- Henderson, R. & Divett, M. J. (2003). Perceived usefulness, ease of use and electronic supermarket use, *International Journal of Human computer studies*, 59, 383-395.
- Hilmi, M. F., Pawanchik, S. & Mustapha, Y. (2012). Perceptions on service quality and ease of use: Evidence from Malaysian Distance Learners. *Malaysian Journal of Distance Education*, 14(1): 99-110.
- Hooper, D., Coughlan, J. & Mullen, M. R. (2008). Structural Equation Modelling: Guidelines for Determining Model Fit. *The Electronic Journal of Business Research Methods*, 6 (1), 53 – 60. Retrieved from www.ejbrm.com
- Hu, L. T. & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling*, 6 (1): 1-55.
- Internet and Mobile Association of India [IAMAI] (2011, March 15). *E-Commerce Market to be INR 46,520 crores in 2011*. Retrieved from <http://www.iamai.in> PRelease_detail.aspx?nid=2230&NMonth=3&NYear=2011
- Jun, M. & Cai, S. (2001). The key determinants of Internet Banking service quality: a content analysis. *International Journal of Bank Marketing*, 19(7): 276-291.
- Kaur, P. & Joshi, M. M. (2012). E-commerce in India: A Review. *International Journal of Computer Science and Technology*, 3(1), 802-804.

- Kent, E., Katri, K. & Daniel, N. (2005). Customer acceptance of internet banking in Estonia. *International Journal of Bank Marketing*, 23(2), 200-216. doi:10.1108/02652320510584412.
- King, W. R. & He, J. (2006). A meta-analysis of the technology acceptance model. *Information & Management*, 43(6), 740-755.
- Liao, Z. & Cheung, M. T. (2008). Measuring consumer satisfaction in Internet banking: A core framework. *Communications of the ACM*, 51(4): 47-51.
- Lin, S. C. & Wu, S. (2002). Exploring the impact of online service quality on portal site usage. Proceedings of the 35th Hawaii International conference on system sciences, 0-7695-1435-9.
- Mathieson, K. (1991). Predicting user intentions: comparing the Technology Acceptance Model with the Theory of Planned behavior. *Information Systems Research*, 2(3), 173-191.
- Ministry of Communications and Information Technology (2011). *Broadband Services*. Government of India. Press Information Bureau, March 17.
- Nuseir, M. T., Akroush, M. N., Mahadin, B. K. & Bataineh, A. Q. (2010). The effect of e-service quality on customer's satisfaction in banks operating in Jordan: an empirical investigation of customers' perspective. *International Journal of Services, Economics and Management*, 2(1): 80-108.
- O'Connell, B. & Tremethick, P.M. (1996) Australian banking on the Internet: fact or fiction. *The Australian Banker: Journal of the Australian Institute of Bankers*, 110 (6), 212-214.
- Parasuram, A., Zeithmal, V. A., & Berry, L. L., (1988). SERVQUAL: a multiple item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1):12-40.
- Pikkarainen, T., Pikkarainen, K., Karjaluto, H. & Pahnla, S. (2004). Consumer acceptance of online banking: an extension of the Technology Acceptance Model. *Internet Research: Electronic Networking Applications and Policy*, 14(3), 224 - 235. doi:10.1108/10662240410542652.
- Quan, S., Chunlei, W. & Hao, C. (2009). Applying E-S-QUAL scale to analyse the factors affecting consumers to use internet banking services. IITA international conference on Services, Science, Management and Engineering: 242-245.
- Reserve Bank of India (2009). *Branch Banking Statistics*. 4, 43-45.
- Santos, J. (2003). E-service quality: a model of virtual service quality dimensions. *Managing Service Quality*, 13(3): 233-246.

- Straub, D. W. (1989). Validating instruments in MIS Research, *MIS Quarterly*, 13(2), 147-169.
- Sudeep, S. (2008). *Internet Banking and Customer Acceptance: The Indian scenario* (Doctoral dissertation). Retrieved from <http://dyuthi.cusat.ac.in/xmlui/bitstream/handle/purl/2011/Dyuthi-T0419.pdf>
- Suh, B. & Han, I. (2002). Effect of trust on customer acceptance of internet banking. *Electronic Commerce Research and Applications*, 1(3-4), 247-263.
- Tao Zhou (2011). Examining the critical success factors of mobile website adoption, *Online Information Review*. 35 (4). 636 - 652. doi: 10.1108/14684521111161972.
- Wang, Y. S., Wang, Y. M., Lin, H. H., & Tang, I. (2003). Determinants of user acceptance of Internet Banking: an empirical study. *International Journal of Service Industry Management*, 14(5), 501-519. doi: 10.1108/09564230310500192.
- Weston, R. & Gore Jr. P. A. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist*, 34(5), 719-751. doi: 10.1177/0011000006286345.

Examining Technical Efficiency of NBFI-MFIs in India: A Non-parametric Approach

Sanjay D.¹ and Vinod R. R.²

Abstract

This study analyses the technical efficiency of Non-Banking Financial Institution – Micro Finance Institutions (NBFI-MFIs) in India under both variable and constant returns to scale over a period of nine years ranging from 2004–05 to 2012–13. The study used production approach to estimate efficiency scores of firms by using a non-parametric tool called the Data Envelopment Analysis (DEA). The results indicate that Rashtriya Gramin Vikas Nidhi Microfinance Limited (RGVN) and Share MACTS are the only two firms that lay on the efficiency frontier under variable returns to scale (VRS) approach whereas no firms were there in the efficiency frontier under constant returns to scale (CRS) approach. The nine-year average Technical Efficiency (TE) scores under both approaches remained the same at 0.889. Average Pure Technical Efficiency (PTE) score under input orientation is 0.916, whereas it is 0.921 under output orientation. Average Scale Efficiency (SE) scores were 0.971 and 0.966 under input orientation and output orientation, respectively.

Keywords: Microfinance Institutions, Data Envelopment Analysis, Technical Efficiency, Scale Efficiency.

¹ Research Officer, Rajagiri Centre for Business Studies, Kakkanad, Kochi – 682039, Kerala, India. Email: sanjay@rajagiri.edu

² Assistant Professor, Rajagiri Centre for Business Studies, Kakkanad, Kochi – 682039, Kerala, India. Email: vinod@rajagiri.edu

1. Introduction

Though India is the second largest country by population and seventh largest by size, banking still remains a distant dream for a vast number of people, especially in rural areas. For the comprehensive social and economical development of a nation, financial assistance needs to be extended to all the segments of a country. Though commercial banks have primarily been set up to lend a hand for the poor and unaddressed sectors of the economy, relatively higher interest rates and stringent norms for collateral securities impede the scope of the so called financial inclusion. Though the Reserve Bank of India (RBI) pushes banks to roll out their service in unprivileged areas too, the prevailing strong regulations and mandatory requirements force them to adhere to the conventional profit maximization theory.

In such a context, microfinance Institutions (MFIs) have got wider acceptance all over the world. Microfinance can be defined as “the provision of financial services such as savings, deposits, and credit services to the entrepreneurial poor” (Brandsma and Hart, 2001) From this definition it is clear that microfinance means the lending of small amount of loans at a low or nil interest rate and collateral securities, along with the acceptance of deposits and savings from the public. Hence, establishment of MFIs will have a positive repercussion on the economy since such firms are instrumental to combat financial exclusion, unemployment and economic stress affecting the poor people. The evolution of microfinance in India is delineated in Table 1.

Table 1: Evolution of Microfinance in India

Phase	Year	Features
<i>First Phase:</i> Social Banking	1960 -1990	<ul style="list-style-type: none"> > Nationalisation of commercial banks > Implementation of Lead Bank system > Expansion of banking services using RRBs, NABARD etc. > Extensive provision of subsidised loans
<i>Second Phase:</i> Financial Systems Approach	1990 - 2000	<ul style="list-style-type: none"> > Emergence of SHGs and SHG-Bank linkage programme > Emergence of NGO-MFIs
<i>Third Phase:</i> Financial Inclusion	2000 Onwards	<ul style="list-style-type: none"> > Commercialisation of microfinance > Development of non for profit MFIs like non-banking financial institutions (NBFIs) > Importance to client centric microfinance product > Heightened policy regulations

Majority of the MFIs have their roots in local areas. Hence, usually borrowers do not make any default in the repayment of loan amount and interest, if any, that they have availed. Thus it is clear that the fundamental objective of an MFI is social enhancement rather than reaping profit from the loans granted. Having said this, like any other institutions, MFIs also need money to run their business and meet their day-to-day needs. These contradictory views on MFIs accentuate the importance of institutionist paradigm and welfarist paradigm views. The former objective asserts the need for enough income in the hands of MFIs to meet the operational and financial costs while, the latter point elucidates the underlying objective of an MFI i.e., the establishment of a profound socio-economic balance to fulfill the needs of the unaddressed and marginalized sectors in the society. The success and outreach of an MFI thus depend upon its ability to balance these two primary objectives. The principle of 'survival of the fittest' is applicable in the case of MFIs also since it is a high risk venture. The widening of the scope of microfinance has brought in new players including Bank led MFIs in the sector, thus enhancing competition in the sector.

In this backdrop, this paper tries to examine the efficiency of NBFIs-MFIs using data envelopment analysis. The remaining sections of this paper is outlined as follows: section two deals with literature; section three deals with database and research methodology; data analysis and interpretations are included in section four and section five deals with conclusion and scope for future research.

2. Literature Review

Efficiency measurement in MFIs is essential as it gives vital information about the performance of the firm, especially on the use of resources and minimisation of wastes. It helps organisations to set targets for monitoring operations by the efficient management of bottlenecks and its barriers hindering the performance, and also helps the measurement, monitoring and improvements of outcomes leading to increased performance and profitability of the firm (Reynolds & Thompson, 2002). Berger and Humphrey (1997) stated that the main advantage of Data Envelopment Analysis (DEA) over parametric approaches to measure efficiency is that this technique can be used when the conventional cost and profit functions cannot be justified. Gutiérrez-Nieto, Serrano-Cinca and Mar-Molinero (2004) affirm that there are country effects on the efficiency; and effects that depend on non-governmental organisations (NGOs). Efficiency is an important attribute in any organization including MFIs in a number of reasons, first input resources (time, money, raw materials, machine, labour etc.) used by MFIs are scarce and limited since donors are unwilling to fund MFIs to the required capacity to serve all poor clients (Rosenberg, 1994). Transparent

pricing and technology implementation to maintain uniformity and efficiency are among the others which these institutions should adopt. Gutiérrez-Nieto et al. (2004) stated in their research report that the level of efficiency is dependent on the specifications chosen, and suggested that DEA is an appropriate tool for the assessment of MFI performance. Cooper, Seiford and Zhu (2008) declared that researchers in a number of fields quickly recognised that it was an excellent and easily used methodology for modelling operational processes for performance evaluations. African MFI employees are highly productive since the borrowers and savers per staff are high as a reflection of extensive group-lending approach (Lafourcade, Isren, Mwangi & Brown, 2005). As per the research conducted by Farrington (2000) accounting variables like expense ratio, number of loans per loan officer and loan officers to total staff, loan size, size of the portfolio, methodology adopted for lending sources of fund and structure of salary are the key drivers to achieve efficiency, hence they can be treated as measurement tools for the efficiency of MFIs. Gutiérrez-Nieto, Serrano-Cinca and Mar-Molinero (2007) had conducted a Data Envelopment Analysis to measure the efficiency of 30 Latin American MFIs. Their result showed that NGOs and NBFIs are most efficient. Further, productivity of an MFI can be gauged in terms of borrowers per staff member, and savers per staff member. Hence high level of MFI efficiency may be a result of keeping high productivity per employee level (Microbanking Bulletin, 2005). Hassan and Tufte (2001) stated that the female staff at Grameen Bank's branches work much more efficiently than the male staff at branches. The Grameen Bank follows the group-lending mechanism, which will help to increase the efficiency of staffs in MFIs (Lafourcade et al., 2005). Morduch (2000) reported rough estimate that only one percent of MFIs are currently financially self sustainable and no more than 5 percent ever would be. A study conducted by Cull *et al.* (2007) is one of the well done studies in the global microfinance industry. They used data from 124 MFIs from 49 developed countries and the results showed that the average financial self sufficiency (FSS) was found to be 1.035, whereas the operating self sufficiency (OSS) was 1.165. This means MFIs are becoming operationally self sufficient as compared to financial self sufficient. Besides, the adjusted ROA was negative (-0.027). The adjusted ROA indicates that most MFIs do not have a positive return on their investment. Depth of the outreach indicators such as average loan size per Gross National Income (GNI) per capita was 0.676, and the percentage of female borrowers were 64.9 percent. They found that the average interest rate was as high as 35 percent and gross loan portfolio to assets was 68.9 percent. Microfinance governance in Central and Eastern European region was studied by Hartarska (2004) and the findings were that the average ROA was 3.038, indicating the profitable MFIs in the region and the OSS was 91.99. Hulme and Mosley (1996) in a study observed that very few percent of MFIs were sustainable to run operations without

subsidies. The performance of Small Business Investment Companies (SBICs) between 1958 and 1996 was researched, and it highlighted the potential dangers of subsidised funding (Brewer *et al.*, 1996). A research conducted by Adongo and Stork (2005) in Namibia found that microfinance was instrumental in promoting the sustainability of micro enterprises to the extent that it created an improvement in the management of their financial services. A study done by Gulli (1998) suggested that the institutions must charge sufficient interest rates so as to cover up their costs in order to ensure self sufficiency. As per the research conducted by Haq, Skully and Pathan (2010), many Indian MFIs reduce their staffing cost by lending to SHGs rather than to the Individual borrower. Mahajan and Nagasri (2010) stated that stringent legal and regulatory framework was a whip for MFIs, which hinder them from working freely, but economical and operational sustainability were the main aims of government. Jacob (2011) affirmed that inability of MFIs in getting sufficient funds was a major hindrance in the microfinance growth and so these institutions should look for alternative sources of funds.

3. Database and Research Methodology

The sample for the study was retrieved from the MIX market database on a structured basis³. As per this database the entire MFIs in India have been segmented into four groups, viz., banks, cooperatives, NBFIs, NGOs and others. The total database consisted of 900 records of MFIs, having a diamond ranking from 1 to 5. In this context an MFI with rank '1' means low disclosure and one with rank '5' means high disclosure. Of the 900 records (from 1999 to 2013) 417 records pertain to NBFIs-MFIs. Of 417 records, the researchers have sorted the data on the basis of the age of the firm. As per the MIX market database, MFIs have been segmented in to three categories on the basis of their 'age': i) New (one to four years of existence), ii) Young (five to eight years of existence) and iii) Mature (more than eight years of existence).

In this case, the sample has been driven down to matured firms only, and that comes to 191. All the NBFIs that have a disclosure level of 3 and above (diamond ranks) were taken which accounted to 177 MFIs. The next stage was to ensure the availability of data for the entire period of the study. The researchers had two options, (1) to go ahead with an imbalance panel data or (2) to go with a balanced

³ MIX is the acronym of Microfinance Information Exchange, a non-profit organization headquartered in Washington D.C. The organization engages in rendering the service of disseminating business information regarding microfinance sector worldwide. The organization was founded by Consultative Group to Assist the Poor (CGAP) and funded by the Bill and Melinda Gates Foundation, Citi Foundation, CGAP, Deutsche Bank Foundation, International Fund for Agricultural Development (IFAD) and Omidyar Network.

panel data. In this paper, the second option was chosen and the final sample consisted of nine NBFIs-MFIs. These include BASIX, BSS Microfinance Pvt. Ltd., Evangelical Social Action Forum (ESAF) Microfinance and Investment (P) Ltd., Grama Vidiyal Microfinance Ltd., Rashtriya Gramin Vikas Nidhi Microfinance Ltd., Sarvodaya Nano Finance Limited, Satin Creditcare Network Limited, Share Mutually Aided Co-operative Thrift Society Limited (Share MACTS) and Swayam Krishi Sangam Microfinance Limited (SKS). In practice, there are two approaches to determine the efficiency of the firm; parametric and non-parametric approach. The former requires a specific pre-defined functions form of cost or production as it is based on the underlying relationship between the parameters under the study and the various observed independent variable. The latter approach does not require any pre-specified function as it is based on the optimising behaviour of the firm under the study. It takes data of actual operations of the firms under the study and a frontier is formed as piecewise linear combination of the 'most efficient' observations. Thus efficiency is relative to the 'observed best' rather than an absolute value.

3.1 Relationship between Input, Output and Efficiency

Farrell (1957) proposed an approach to estimate the efficiency (E) of the units observed and decomposed efficiency into two parts namely (a) technical efficiency and (b) allocative efficiency (AE). The former measures the success of a firm in producing maximum output with a given set of input and the latter measures the success of a firm in choosing the best possible combination of inputs, given their respective prices.

Figure 1: TE and AE under Input-Oriented

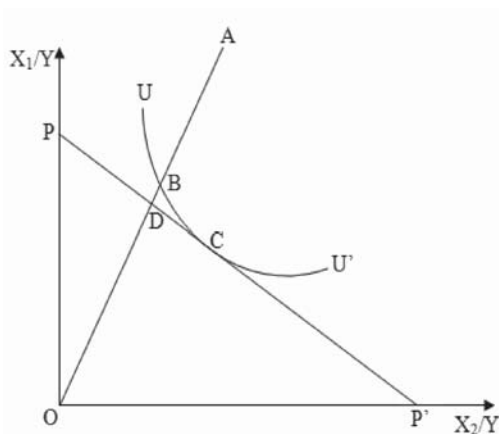
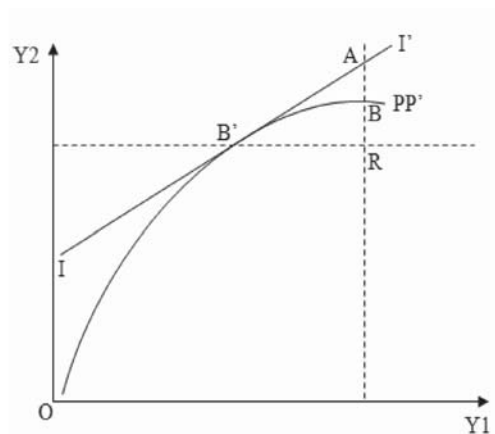


Figure 2: TE and AE under Output-Oriented



This is explained in figure 1 with an assumption that output is produced by two sets of inputs, viz., X_1 and X_2 . The curve UU' is an output isoquant representing different combinations of output that can be produced by employing these two inputs. Line PP' is the cost minimization curve. Hence, the overall efficiency of the firm is OD/OA and technical efficiency (TE) is measured as OB/OA and allocative efficiency (AE) as OD/OB . In simple words, efficiency can be computed as a product of technical efficiency and allocative efficiency ($E = TE * AE$). Figure 2 explains the technical and allocative efficiencies from output-orientation. The output-orientation method mainly focuses on the changes in output by consuming a fixed level of inputs. In the diagram PP' is the production function (output/input). The PP' line reflects a technically efficient production practice, and hence all firms operating at PP' are fully technically efficient i.e., 100% technically efficient. A firm is observed to be operating at R by using the same amount of inputs as used by an efficient firm operating at B. Since the latter firm produces more output than the former firm with the same amount of inputs, the technical efficiency of the former firm will be the ratio of the distance (OR to OB) i.e. ($TE = OR/OB$). An iso-profit line (II') is drawn through the points A and B' and the firm functioning at point B' is producing the best combination of output but it is not the optimal one. Firm B' can increase the level of output (B-A) without changing its input. Thus allocative efficiency in output-oriented approach is the ratio between OB and OA i.e. ($AE = OB/OA$). Therefore in output-oriented approach, efficiency can be calculated as the product of technical efficiency and allocative efficiency [$E = TE * AE$].

Data Envelopment Analysis (DEA), a non-parametric approach was used in this study to analyze the technical efficiency of select NBFIs-MFI in India. DEA helps to calculate the relative efficiency score of various decision making units (DMUs) in a particular sample and in this case the DMUs are NBFIs-MFIs in India. Both input oriented and output oriented approach have been applied in this study and the results given are computed using Data Envelopment Analysis Online Software [DEAOS (www.deaos.com)].

Input oriented approach is used to get the required level of output with minimum input (input minimization) and an output oriented model helps to compute the technical efficiency by output of a firm in relation to the best-practice level of output for a given set of inputs. The main objective of this study is to analyze technical efficiency of NBFIs-MFIs using production approach by taking two input and output variables. One main parameter adopted for the selection of these variables is the frequency of their usage in the studies relating to the efficiency of MFIs. Hence the input variables used (capital x_1) and personnel (x_2) and output variables were gross loan portfolio (y_1) taken as an indicator for outreach and borrowers per staff (y_2) indicating the coverage by an MFI within

the given set of resources in order to meet the credit needs of the target group. These variables have been used in many studies for gauging the efficiency of MFIs. Ahmad (2001), Annim (2010), Masood and Ahmad (2010), Haq (2010), Gutiérrez-Nieto, Serrano-Cinca and Mar-Molinero (2009), Bassem (2008), Hermes *et al.* (2009), and Hassan and Sanchez (2009) have used these techniques to measure the efficiency of MFIs.

4. Data Analysis and Interpretation

Technical efficiency for all nine NBFi–MFIs have been calculated using DEA by assuming both constant returns to scale and variable returns to scale technology. While computing technical efficiency of DMUs, input oriented and output oriented approach was adopted and the results are summarized in Table 2.

Table 2: Technical Efficiency of MFI during 2004-05

NBFi-MFI	Input Orientation			Output Orientation		
	TE	PTE	SE	TE	PTE	SE
BASIX	0.960	0.960	1.000	0.960	0.960	1.000
BSS	1.000	1.000	1.000	1.000	1.000	1.000
ESAF	0.800	0.820	0.976	0.800	0.810	0.988
Grama Vidiyal Microfinance Ltd	0.620	0.630	0.984	0.620	0.670	0.925
RGVN	1.000	1.000	1.000	1.000	1.000	1.000
Sarvodaya Nano Finance	0.890	0.890	1.000	0.890	0.890	1.000
SCNL	1.000	1.000	1.000	1.000	1.000	1.000
Share MACTS	1.000	1.000	1.000	1.000	1.000	1.000
SKS	1.000	1.000	1.000	1.000	1.000	1.000
Mean	0.919	0.922	0.996	0.919	0.926	0.993

The results indicate 55.50% (i.e., five NBFi–MFIs out of nine) are technically efficient both under CRS and VRS approaches. These include BSS, RGVN, SCNL, SHARE and SKS which are mainly into micro financing activities. The average input-oriented technical efficiency (TE), pure technical efficiency (PTE) and scale efficiency (SE) for the year 2004–05 are 91.9%, 92.2% and 99.6%. Averages of TE, PTE and SE for output oriented approach are 91.9%, 92.6% and 99.3%. In a nut shell it can be said that all the NBFi–MFIs under input oriented approach are fairly efficient and can further reduce the level of input by 7.8% for the given level of output. Under output oriented approach, the results are also quite attractive and the NBFi–MFIs can further increase their outputs by 7.4% with existing level of resources by efficient allocation of inputs namely total assets

and personnel. In a similar manner, technical efficiency for all years has been computed (2005-2013) and the average efficiency of all the years are depicted in Table 3.

Table 3: Average Technical Efficiency Scores for NBFI-MFIs (2005-13)

NBFI-MFI	Input Orientation			Output Orientation		
	TE	PTE	SE	TE	PTE	SE
BASIX	0.816	0.829	0.984	0.816	0.840	0.971
BSS	0.927	0.943	0.983	0.927	0.943	0.983
ESAF	0.854	0.871	0.980	0.854	0.870	0.982
GVM	0.802	0.809	0.991	0.802	0.857	0.936
RGVN	0.981	1.000	0.981	0.981	1.000	0.981
Sarvodaya	0.956	0.961	0.995	0.956	0.961	0.995
SCNL	0.826	0.856	0.965	0.826	0.841	0.982
Share MACTS	0.954	1.000	0.954	0.954	1.000	0.954
SKS	0.883	0.974	0.907	0.883	0.974	0.907
Mean	0.889	0.916	0.971	0.889	0.921	0.966

The results indicate that none of the NBFI-MFIs are technically efficient when CRS is assumed under input orientation, whereas two out of nine NBFI-MFIs are efficient when VRS is assumed. The two NBFI-MFIs are RGVN and SHARE whose primary activities accounted in the microfinance area. The average input oriented TE, PTE and SE scores are 88.9%, 91.6% and 97.1% which are more or less equal to the same under output oriented measures, which stood at 88.9% (TE), 92.1% (PTE) and 96.6% (SE). In the input oriented measure, the NBFI-MFIs can reduce 8.4% of their inputs without affecting the existing level of outputs and in the output oriented measure can increase 7.9% of their outputs namely Gross Loan Portfolio and Borrowers per staff member without changing the existing level of inputs.

5. Conclusion

The study analyzed the technical efficiency of nine NBFI-MFIs during the period 2005 to 2013. Both input oriented and output oriented measures were adopted in this study. None of the NBFI-MFIs remained fully efficient under both measures, but under variable returns to scale, RGVN and SHARE remained in efficiency

frontier, both under input and output oriented measures. The average technical efficiency under constant returns to scale (TE), technical efficiency under variable returns to scale (PTE) and scale efficiency (SE) under input oriented measures are 88.9%, 91.6% and 97.1%, which are more or less equal to the scores under output oriented measures of 88.9% (TE), 92.1% (PTE) and 96.6% (SE). The efficiency so calculated is directly related to the inputs selected. Hence, using other inputs may result in different efficiency scores. Future studies can be aimed at analysing the efficiency of MFIs by incorporating all the players according to their legal status as listed in the MIX market database namely NGOs, cooperatives, banks etc. by taking different input and output combinations.

References

- Adongo, J., & Stork, C. (2005). Factors Influencing the Financial Sustainability of Selected Microfinance Institutions in Namibia. *NEPRU Research Report No. 39*. Retrieved from <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Knowledge/25040371-EN-AEC-JADONGO.PDF>
- Ahmad, U. (2011). Efficiency Analysis of Micro-Finance Institutions in Pakistan. Munich Personal REPEC Archive (MPRA), Report No. 34215, Retrieved from <http://mpra.ub.uni-muenchen.de/34215>.
- Annim, S. K. (2012). Microfinance Efficiency: Trade-Offs and Complementarities between the Objectives of Microfinance Institutions and Their Performance Perspectives. *European Journal of Development Research*, 24(5), 788-807.
- Bassem, S. B. (2008). Efficiency of Microfinance Institutions in the Mediterranean: An Application of DEA. *Transit Stud Rev*, 15, 343-354.
- Berger, A. N., Humphrey, D. B., (1997). Efficiency of Financial Institutions: International Survey and Directions for Future Research. *European Journal of Operational Research* 98 (2), 175-212.
- Brewer, E., Genay, H., Jackson, W. E., & Worthington, P. R. (1996). Performance and access to government guarantees: The case of small business investment companies *Economic Perspectives*, 20(5), 16-32.
- Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2007). Financial Performance and Outreach: A Global Analysis of Leading Microbanks. Retrieved from <http://www.nyudri.org/wp-content/uploads/2011/10/financialperformance.pdf>
- Farrell, M. J. (1957). The Measurement of Productive Efficiency. *Journal of the Royal Statistical Society Series A (General)*, 120, 253-290.

- Farrington, T. (2000), Efficiency in Microfinance Institutes. *Micro banking Bulletin* 4, 18-23.
- Gulli, H. (1998). *Microfinance and Poverty: Questioning the Conventional Wisdom*. Washington, DC: Inter-American Development Bank.
- Gutiérrez-Nieto, B., Serrano-Cinca, C. & Mar-Molinero, C. (2004). Microfinance institutions and efficiency. Discussion paper in Accounting and Finance. Retrieved from <http://eprints.soton.ac.uk/36198/1/AF04-20.pdf>
- Gutierrez-Nieto B., Serrano-Cinca, C. & Mar-Molinero, C. (2007). Microfinance institutions and efficiency. *Omega: The International Journal of Management Science*, 35, 131- 142.
- Gutiérrez-Nieto, B., Serrano-Cinca, C. & Mar-Molinero, C. (2009). Social Efficiency in Microfinance Institutions. *Journal of the Operational Research Society*, 60, 104-119.
- Haq, M., Skully, M. & Pathan, S. (2010). Efficiency of Microfinance Institutions: A Data Envelopment Analysis. *Asia-Pacific Financial Markets*, 17, 63-97.
- Hartarska, V. (2004). Governance and Performance of Microfinance Institutions in Central and Eastern Europe and the Newly Independent States. Selected Paper prepared for presentation at the Southern Agricultural Economics Association Annual Tulsa, Oklahoma, February 18, 2004.
- Hassan, M. K. & Tufte, D. R. (2001). The X-efficiency of a group based lending institution: the case of Grameen Bank. *World Development*, 29, 1071-1082.
- Hassan, M. K., & Sanchez, B. (2009). Efficiency Analysis of Microfinance Institutions in Developing Countries. *Networks Financial Institute Working Paper 2009-WP-12*, Retrieved from http://indstate.edu/business/nfi/leadership/papers/2009-WP-12_Sanchez_Hassan.pdf
- Hermes, N., Lensink, R., & Meesters, A. (2009). Financial Development and the efficiency of Microfinance institutions. Viewed on June 14, 2014, Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1143925
- Hulme, D. & Mosley, P. (1996), *Finance Against Poverty* Vol. 1, Routledge, New York, pp.16-26.
- Jacob, V. V. (2011). Microfinance – current status and growing concerns in India, *Avant Garde*, Retrieved from http://www.iitk.ac.in/ime/MBA_IITK/avantgarde/?p=475
- Lafourcade, A., Isern, J., Mwangi, P., & Brown, M. (2005). Overview of the Outreach and Financial Performance of Microfinance Institutions on Africa, *Micro banking Bulletin*, 11.
- Mahajan, V. & Nagasri, G. (2010). Building sustainable microfinance institutions in India. Retrieved from http://www.basixindia.com/index2.php?option=com_content&do_pdf=1&id=196

- Masood, T. & Ahmad, M. (2010). Technical Efficiency of Microfinance Institutions in India: A Stochastic Frontier Approach. *MPRA Paper No. 25454*. Retrieved from <http://mpra.ub.unimuenchen.de/25454/>
- Morduch, J. (2000), The Microfinance Schism. *World Development*, 28, 617-629.
- Reynolds, D. & Thompson, G. (2002), Multiunit Restaurant Productivity Assessment: A Test of Data-Envelopment Analysis, *The Center for Hospitality Research at Cornell University Report*, Ithaca, NY: Cornell University.
- Rosenberg, R. (1994) Beyond Self Sufficiency: Licensed Leverage and Microfinance Strategy. Mimeo: Consultative Group to Assist the Poorest.

Environmental Reporting Practices among Select Industries in Rajasthan

Shubham Goswami¹

Abstract

The management of environmental conservation activities is an effective way of achieving and maintaining sustainable business. Disclosure of environmental accounting information is a key process indicator of business accountability and sustainability. In addition, companies and other organizations are required to have accountability to stakeholders such as consumers, business partners and investors. Review of previous research found limited studies on environmental reporting practices by Indian companies (Chatterjee & Mir, 2008; Jose & Lee, 2007). The present study attempts to bridge this gap by analyzing reporting practices among select companies of cement, marble and mineral industry in Rajasthan. The state of Rajasthan is rich in minerals and has about 2 lakh registered small, medium and large units. The study has found that environmental reporting by companies is mostly guided by standard guidelines and does not have any standards designed for such disclosure.

Keywords: Environmental reporting, Rajasthan, Cement, Minerals, Marble.

1. Introduction

One of the significant buzzwords that emerged out of the globalization and privatization paradigms of the 1990s has been corporate social responsibility.

¹Assistant Professor, School of Management, Sir Padampat Singhania University, Bhatewar, Udaipur - 313601, Rajasthan, India.
Email: shubham.goswami@spsu.ac.in

Responsibility towards environment has become one of the most crucial areas of social responsibility. Recent years have observed rising concern for environmental degradation, which is taking place mainly in the form of soil erosion, deforestation and pollution of various types, viz. air, water, sound etc. At the same time, there has been a growing awareness internationally on the disclosure and reporting of environmental performance, particularly from those firms that have a direct and substantial influence on the environment like manufacturing, power generation, mining etc. to provide information regarding the environment implications of their operations. There is a growing pressure on the corporate enterprises to consider environmental effects of their operation. As a result, accounting and disclosure of environmental matters have rapidly been emerging as an important dimension of environment management (Rao, Tilt & Lester, 2012). The developing countries like India are facing the twin problem of protecting the environment and promoting economic development. A careful assessment of the benefits and costs of environmental damages is necessary to find the safe limits of environmental degradation and the required level of development. The Indian corporate sector has started realizing the need for adequate corporate environment and social disclosures in order to repose the confidence of the stakeholders in the working of their enterprises and performance.

Today consumers expect firms to meet high health and safety standards for workers, respect human rights, protect the interests of consumers and meet environmental standards regardless of where they operate (Smith, 2002). Therefore, it is expected that companies provide relevant information about their environmental performance and policies, together with management systems in operation to support them, commonly known as the “triple bottom line” reporting. Environmental accounting is a process of identification of measurement and communication of information on the environmentally responsible activities for a business entity. Environmental reporting is commonly used for presenting environmentally related data regarding environmental risks, environmental impacts and policies (Qureshi, 2012).

Despite increasing awareness on environmental protection, there is very little reporting and disclosing practices adopted by companies. Managements seldom try to make proper arrangement to save the environment unless it is required as per law, as there is no direct relationship between investment and benefits (Anand, 2014). This research attempts to identify the current state of reporting and disclosure practices by sample companies in southern part of Rajasthan state. The study considers Rajasthan because of its contribution to mining industries in India. Mining is one of the most environmental hazardous industries.

Rajasthan accounted for about 12% of the total number of mines in the country in 2012-13. The State is also an important producer of marbles of various shades. It accounts for about 65 percent of total marble production in India (Annual Report, Ministry of Mines, 2012-13). The value of mineral production in Rajasthan during 2011-12 was Rs. 22,506.77 crore, which increased by 20.61% compared to the previous year (Annual Report, Ministry of Mines, 2012-13). The growth in industrialization is always attributed to the increase in environmental pollution particularly that related to inland water, air and noise because sustainable development is not possible if environmental concerns are overlooked.

2. Literature Review

With increasing emphasis on social and environmental concerns with respect to investment policies; the financial community is becoming increasingly interested in Environmental Reporting (Descano & Gentry, 1998). However, due to the voluntary nature of disclosures, this field is far from standardization (Monaghan, 1999). Denmark was the first country to introduce the requirement for public environmental reporting for companies followed by Norway, Sweden and the Netherlands in 1996 (Scott, 2003). Corporate environmental reporting has undergone a change in contents, use and management due to emerging philosophy of corporate governance and accountability. In 2005, the United Kingdom introduced changes in company law by including mandatory filing of environmental, social and community issues (Salama, 2005). The reasons for adopting environmental reporting vary with regions. Europe drivers for reporting include duty towards environment, public relations, gaining a competitive advantage, and legal compliance. In North America shareholder pressure seemed to be more significant than legal compliance. Consumer and shareholder pressure and public relations are prominent reasons for undertaking environmental reporting in Japan (Wheeler & Elkington, 2001).

A few international researches reveal that both size and environmental sensitivity are corporate characteristics that explain the extent of environmental reporting (Rao et al., 2009). A longitudinal study by Guthrie and Parker (1989) reported that given the increased attention to environmental issues, businesses must assure their stakeholders that they are environment friendly. A study of 115 South African companies by Savage (1994) reported that approximately 63 percent of companies were making environmental disclosures. Majority of companies in Bangladesh made disclosure on employees, marginally followed by disclosure on some environmental information (Belal, 1999). Tilt and Carol (2001) studied Australian companies and found a difference in the content of

their environmental policies and their disclosure. Although companies' annual reports have shown an interest via corporate environmental policy (CEP), they appear to report on the environment internally, than to external parties. Samuel and Towler (2004) reported that increasing number of companies in UK irrespective of their size are recognizing that corporate social reporting is beneficial for them. Yusoff, Lehman and Nasir (2006) examined environmental disclosure practices of Malaysian companies in environmental engagements and commitments. High levels of information in environmental disclosures are reported. Ousama and Fatima (2010) measured the extent of voluntary disclosure (EVD) in the annual reports of Shariah-approved companies and found that environmental information disclosure was 15 percent only. Most of the information was qualitative information on environmental protection activities undertaken by the companies.

In the Indian context, previous studies have reported that companies fail to report any damage regarding environmental protection and the disclosures are generally related to positive information, largely qualitative in nature and did not exceed one-fourth of the page (Eresi, 1996). Roy (2000) observed that Indian public and private sector companies were disclosing environmental information in descriptive form and itemized the same in director's report. Even the percentage of companies disclosing information is very low in both the sectors. Pramanik's (2002) research on environmental reporting by public sector companies concluded that major companies formally compiled the requirement of energy conservation measures, pollution control system. Pahuja (2009) studied the influence of selected company and industry related variables on environmental disclosure practices (EDPs) of the large manufacturing Indian companies and found strong evidence in support of the influence of variables size, profitability, sector, industry and environmental performance on disclosure practices. Sen, Mukherjee and Pattanayak (2011) examined the level of disclosure of environmental information and reported a variation across Indian industries as well as companies. More qualitative information is revealed in the annual reports than quantitative information. However, Bhatia and Mahajan (2013), in their research on disclosure and corporate attributes, such as size of a firm, its profitability found no significant association between CSR disclosure including environmental score and residential status of a company.

The constitutional provisions in India have a number of laws, acts, rules, and notifications like The Environment Protection Act, 1986 (this act came soon after the Bhopal Gas Tragedy); Prevention and Control of Pollution Act 1974; Forest Conservation Act 1980; Air Prevention and Control of Pollution Act 1981; The Water (Prevention And Control of Pollution) Act 1974; The Water (Prevention

and Control of Pollution) Act, 1977, Ozone Depleting Substances Rules, 2000; Noise Pollution (Amendment) Rules, 2002; Biological Diversity Act, 2002. Some indirectly related to environment protection acts are Constitutional Provision (Article 51A); The Factories Act, 1948; Hazardous Waste (Management & Handling) Rules, 1989; Public Liability Insurance Act, 1991; Motor Vehicle Act, 1991; Indian Fisheries Act, 1987; Merchant of shipping Act, 1958; Indian Port Act; Indian Penal Code; The National Environment Tribunal Act, 1995.

Companies around the world aspire consciously for improved transparency in environmental disclosures, as their core competence (Friedman, 2001). Disclosure through internet would be the future of scientific reporting. A review of literature indicates that there have been only limited attempts to study the environmental disclosure practices among Indian companies. The present study contributes to the literature by examining the existing status of environmental reporting by some of the polluting industries in Rajasthan like cement, marble and mineral mining. It reports the extent of environmental reporting in industries of Rajasthan and examines the disclosure practices of mandatory and voluntary items in financial reports. It further tests the association between the environmental disclosures and corporate characteristics such as size of the firm. The following section aims to present details on research methods, sampling plan, data analysis employed in achieving the results of present investigation.

3. Research Method

The present study is exploratory in nature and attempts to explore the environmental disclosure practices made by select companies. The number of mines which reported mineral production (excluding minor minerals, petroleum (crude), natural gas and atomic minerals) in India was 3108 in 2012-13, out of which largest number of mines were located in Andhra Pradesh (583) followed by Rajasthan (374), Gujarat (350). There are 13 large-scale cement factories with lime stone utilization from 1.0 to 3.0 million ton per annum at each factory (Rajasthan State Pollution Control Board, 2012). The sample for the study comprises of 12 companies selected from three environmentally sensitive industries like mineral, marble and cement manufacture via convenience sampling method. This study analyses the quality of environmental disclosure in the annual reports of the sample companies using content analysis and quantifies it by constructing an environmental disclosure index. The focus is to understand the sector wise practices of corporate environmental reporting. The present study is confined to six districts of Rajasthan: Udaipur, Rajsamand, Banswara, Dungarpur, Chittorgarh and Sirohi.

Table 1: Sample Profile

Company Name	Major Product (s)	Location in Rajasthan	No. of Employees (Year 2013)	Industry Type	Code used in study
Hindustan Zinc Limited	Zinc, Lead	RampuraAgucha, RajpuraDariba, Kayar and Zawar	6700	Mineral	HZL
Wonder cement Ltd	Cement	Nimbahera	1000	Cement	WND
Rajasthan State Mines and Minerals Limited	Rock phosphate	Jhamarkotra	1900	Mineral	RSM
JK Cement Ltd.	Cement	Nimbahara	870	Cement	JKC
RK Marble Pvt. Ltd	Marble, granite	Rajnagar	4500	Marble	RKM
Binani Cement Ltd.	Cement	Pindwara	5000		BIC
Gorbandh Marbles	Marbles	Simalwada	200	Marble	GRM
Wolkem Ltd. & Calcite	Wollastonite	Pindwara	2000	Mineral	WLK
Birla Cement works Ltd.	Cement	Chandera	2500	Cement	BRC
Golcha Associated Group	Talc	Udaipur	500	Mineral	GLA
Mumal marbles Pvt. Ltd.	Marble	Kesariyaji	500	Marble	MUM
Aditya Cement Works Ltd.	Cement	Shambhupura	4000	Cement	ACW

The researchers collected and pursued Annual Reports, environmental/sustainability reports and other relevant reports like corporate social responsibility (CSR) reports of recent past year (2013). Data is collected via content analysis approach. Content analysis is a method in the social sciences for studying the content of those types of empirical documentation. The theme of disclosure has been classified on mandatory guidelines (based on

Environmental Act by Ministry of Environment and Forest) and voluntary disclosure. If any information exists in the reports related to the identified themes, then its occurrence is reflected by showing “yes” and is given score (+1) and if there is no information it is denoted by “no” and assigned a score of (0).

4. Hypothesis Development

To fulfil the research objectives and test the association, the study proposed four hypotheses.

It is argued that the industries with higher pollution and stricter regulation (such as chemicals, minerals, refineries, utilities and other industries) tend to disclose more environmental information. Meek, Roberts & Gray (1995) found that industrial variance has an impact on level of non-financial information disclosure. It is also argued that higher the environmental sensitivity of an industry, the more likely its shareholders may be concerned with the environmental disclosure. Other studies (Banerjee, 2002; Frost & Wilmshurst, 2000; Deegan & Gordon, 1996) also reported a positive correlation between industry factors and environmental disclosures. Therefore the following hypothesis was formed to test the relation between the industry types and extent of disclosure.

H1: There is no significant difference in type of disclosure between industries.

Testing of hypothesis was performed by using Chi-Square statistical technique. To analyze the mode of quantitative disclosure, environmental measures are re-coded on the basis of information on monetary and physical terms. Environmental management accounting includes monetary environmental management accounting (MEMA), which is the central accounting source of information for internal management decisions and allocation of environmentally induced cost and benefits. Physical Environmental management accounting (PEMA) focuses on a company’s impact on natural environment expressed in terms of physical units. It also serves as a tool for internal management decision (Bennett, Bouma & Wolters, 2002; Todea, Stanciu & Joldos, 2010). Despite the difficulties associated with the monetary approach, it gained a lot of interest as such data will enable companies to know the profit and loss associated with environmental operations and to get an environmentally adjusted economic indicator (Hamid, 2002). Following hypothesis is formed to test this relation:

H2: There is no significant relation between modes of disclosure across different industries.

It is clear from the review of relevant literature that a large majority of companies reported only qualitative/descriptive environmental information in the annual and other reports. Most of them only provide statutory information on conservation. However, some companies also provide details on voluntary information. Following hypothesis was formulated to test the relation between type of company and length of disclosure provided.

H3: There is no significant relationship between lengths of qualitative disclosure among companies.

Most of the studies found positive relationship between environmental disclosures and size. A number of prior studies report that large sized companies disclose more information on environment (Joshi & Gao, 2009; Jaffar, Iskandar & Muhamad, 2002; Gray, Javad & Sinclair, 2001; Deegan & Gordon, 1996). The study by Jaffar, Iskandar & Muhamad (2002) reported variability in company size and environmental disclosure among companies in Malaysia. It is also argued that contrary to the smaller enterprises, large-size companies are willing to disclose more information to reduce agency costs arising from asymmetric information and to gain public support for raising funds. The present study also examines this relation in context to industries in Rajasthan. This study uses log of number of employees as the indicator of size. The given hypothesis is formed for testing this relation.

H4: There is no relationship between disclosure score and company size.

5. Scale Development

National Guidelines on Social, Economic and Environmental Responsibilities were issued by the Ministry of Corporate Affairs in 2011. Principle 6 of the guidelines recognizes that environmental responsibility is a prerequisite for sustainable economic growth and for the well-being of society. International reporting initiatives include the Global Reporting Initiative (GRI). The GRI is a leading organization in the sustainability field. It promotes the use of sustainability reporting as a way for organizations to become more sustainable and contribute to sustainable development. The present study uses G4 guidelines released in May 2013 by the GRI. In particular, the present study improves on the prior literature by focusing on purely discretionary environmental disclosures. The study develops a content analysis index based on the National Voluntary Guidelines on Social, Environmental and Economical Responsibilities (2011) and the GRI sustainability reporting guidelines to assess the extent of discretionary disclosures in environmental and social responsibility reports.

Table 2: Index of Environmental Disclosure

Mandatory *
Percentage of materials used that are recycled input materials
Total energy consumed by the business entity for its operations
Statement on use of energy saving processes and the total energy saved due to use of such processes
Use of renewable energy as percentage of total energy consumption
Total water consumed and the percentage of water that is recycled and reused
Statement on quantum of emissions of greenhouse gases and efforts made to reduce the same
Statement on discharge of water and effluents indicating the treatment done before discharge and the destination of disposal
Details of efforts made for reconstruction of bio-diversity
Voluntary **
Energy
Report total fuel consumption from non-renewable sources in joules
Water
Sources of water: surface, ground, municipal, rainwater etc.
Emissions
Report the amount of GHG emissions reductions achieved, in metric tons of CO2 equivalent.
Waste
Total weight of hazardous and non-hazardous waste
Weight of Hazardous waste transported, waste imported, waste exported and waste treated
Products and Services
Report quantitatively the extent to which environmental impacts of products and services have been mitigated during the reporting period.
Report the percentage of reclaimed products and their packaging materials for each product category.
Compliance
Report monetary value of significant fines
Total number of non-monetary sanctions
Transportation
Report the significant environmental impacts of transporting products
Overall
Report total environmental protection expenditures: Waste disposal, emissions treatment, and remediation costs, prevention and environmental management costs

Supplier Environmental Assessment
Report the percentage of new suppliers that were screened using environmental criteria.
Report the number of suppliers identified as having significant actual and potential negative environmental impacts.
Environmental Grievance Mechanisms
Report the total number of grievances about environmental impacts filed through formal grievance mechanisms during the reporting period
Other***
Implementation of ISO 14000 series and OHSAS at the plant and/or firm level
Health and safety
Adoption of environmental friendly technology
Noise emission information
Details of corrective action related to accidents
Source:
* Principle 6 (Environment) of National Voluntary Guidelines on Social, Environmental and Economical Responsibilities (July 2011).
** G4 Guidelines – Reporting Principles and Standard Disclosures (May 2013) on Mining and Metals Sector Disclosures.
*** Public Liability Act and Clean Technology Act.

6. Results

The study analyzed the nature of disclosure on broadly two classes: namely, qualitative and quantitative. By disclosing the quantitatively measured results of its environmental conservation activities, a company can influence the decision-making of stakeholders such as consumers, business partners, investors, local residents, and the government. To analyze the mode of quantitative disclosure, environmental measures are re-coded on the basis of information on monetary and physical terms. Despite the difficulties associated with the monetary approach, it gained a lot of interest as such data will enable to know the profit and loss associated with environmental operations and to get an environmentally-adjusted economic indicator (Hamid, 2002). In respect to qualitative disclosure, the length is classified into three major categories. The three categories are companies disclosing in 1-2 paragraphs, in one or more pages and with pictorial representations. To test hypothesis 1 (H1), hypothesis 2 (H2), hypothesis 3 (H3) and hypothesis 4 (H4), data were gathered from the annual reports, sustainability report, websites, annexure and other secondary sources of the company.

Table 3: Company-wise Results (in percent)

	Quantitative	Qualitative	Both	MEMA	PEMA	1-2 Paratative	1 or more page	Pictorial
Cement	33.80	27.60	0.00	11.80	43.40	29.80	4.40	6.00
ACW	13.00	5.00	0.00	11.00	44.00	19.00	0.00	0.00
BIC	48.00	30.00	0.00	37.00	44.00	30.00	0.00	30.00
BRC	12.00	10.00	0.00	11.00	33.00	37.00	0.00	0.00
JKC	63.00	67.00	0.00	0.00	63.00	37.00	22.00	0.00
WND	33.00	26.00	0.00	0.00	33.00	26.00	0.00	0.00
Marble	5.00	11.00	0.00	0.00	5.00	11.00	0.00	0.00
GRM	4.00	11.00	0.00	0.00	4.00	11.00	0.00	0.00
MUM	7.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00
RKM	4.00	22.00	0.00	0.00	4.00	22.00	0.00	0.00
Mineral	23.25	36.25	3.75	2.75	21.50	30.75	5.50	7.50
GLM	4.00	30.00	0.00	0.00	4.00	30.00	0.00	0.00
HZL	52.00	41.00	11.00	7.00	48.00	19.00	15.00	30.00
RSM	33.00	37.00	4.00	4.00	30.00	37.00	7.00	0.00
WLK	4.00	37.00	0.00	0.00	4.00	37.00	0.00	0.00
Grand Total	23.08	26.33	1.25	5.83	26.50	25.42	3.67	5.00

From Table 3 it is clear that the overall percentages of qualitative and quantitative disclosure is very small at 23.08 percent and 26.33 percent, respectively. However, when we scan the data on industry-wise classification, it is evident that cement companies are disclosing more quantitative data (33.80 per cent) than qualitative. Even when compared to marble and minerals companies these percentages are higher. JK cement and Binani Cement had shown 50 to 60 percent of their disclosure in quantitative form. Marble companies are the poorest performers in the above analysis. Majority of marble companies are showing only qualitative description of their environmental responsibilities.

There is a large variance between overall percentage of MEMA and PEMA disclosure (i.e. 5.83 and 26.50 percent) respectively. Even when we analyze company wise data, then it becomes clear that cement companies are disclosing more monetary data (11.80 percent) than physical quantities. But this percentage is still very low as compared to the other industry disclosure practices worldwide. Most cement companies are disclosing the figure in units of emission or

consumption. Mineral companies are the close competitors of cement companies but still have to bridge a long percentage gap. For example, 48 percent of HZL disclosures are in physical units rather than monetary terms. In similar lines RSMML is also disclosing 30 percent of its environmental information in non-monetary terms. Marble companies are not disclosing in currency terms. Moreover a very small percentage of physical units reporting is found by these companies (5 percent). Chi-square test also confirms the findings. It means that the alternate hypothesis that there is a significant difference between disclosures among companies can be accepted.

Table 4: Chi-Square Tests Results

	Hypothesis 1			Hypothesis 2			Hypothesis 3		
	Value	df	Sig. (2-sided)	Value	df	Sig. (2-sided)	Value	df	Sig. (2-sided)
Pearson Chi-Square	34.505 ^a	22	.044	20.216 ^b	11	.042	68.324 ^c	20	.000
Likelihood Ratio	36.325	22	.028	23.262	11	.016	73.005	20	.000
Linear-by-Linear Association	.002	1	.960	1.902	1	.168	13.433	1	.000
N of Valid Cases	164			104			110		
a. 24 cells (66.7%) have expected count less than 5. The minimum expected count is .05. b. 17 cells (70.8%) have expected count less than 5. The minimum expected count is .18. c. 25 cells (75.8%) have expected count less than 5. The minimum expected count is .33.									

Environment Disclosure Score (EDS)

To test hypothesis 4 (H4), company-wise disclosure score was calculated to know the extent of environmental disclosure. EDS calculation was based on the information collected from the environmental index defined in previous section. If any information existed in the any financial report related to the identified themes then its occurrence was reflected by showing (+1). If there was no information it was denoted by score (0). Here equal weights were given to all items in index, whether it was a mandatory or voluntary disclosure item. Hughes, Anderson & Golden (2000) using quantitative disclosure measures assigned weights (importance score) to different disclosure items based on the perceived importance of each item to various user groups. Tuwajiri, Cristensen & Hughes (2004) also followed the same technique and assigned a score of (+3) for quantitative information, a score of (+2) for qualitative information and score (+1) for physical information. Based on previous literature, quantitative disclosures are more objective and informative to stakeholders than qualitative and narrative

information. Sen, Mukherjee & Pattanayak (2011) also adopted the same approach of assigning different weights to quantitative and qualitative disclosures. Thus based on previous studies, this study also assigned different weights for different types of quantitative and qualitative disclosures. Weights were also given based on place and length of environmental disclosure. EDS was calculated by the sum of product of presence score with corresponding weights, and dividing the value with the occurrence, i.e. presence of particular item in the disclosure index.

$$EDS = \frac{\Sigma \text{presence score} \times \text{weight}}{\text{occurrence score}}$$

Table 5: Weights for Determinant of Environmental Disclosure

Reporting Type						Place of disclosure				
Quantitative		Qualitative /Descriptive				Both	Balance Sheet	Director’s report or its annexure	P&L a/c.	other
Monetary	Physical units	1-2 para	1 page	>1 page	pictorial					
(MEMA)	(PEMA)									
2	1	1	2	3	4	5	4	3	2	1

Tables 6 and 7 provide the summary information on EDS of each company in the sample and the average for different industries, respectively.

Table 6: Individual Company-wise ED

Company	Type	EDS
HZL	Mineral	5.15
WND	Cement	2.35
RSM	Mineral	2.94
JKC	Cement	5.26
RKM	Marble	1.77
BIC	Cement	5.00
GRM	Marble	1.66
WLK	Mineral	1.73
GLM	Mineral	1.64
BRC	Cement	2.66
MUM	Marble	2.00
ACW	Cement	2.27

Table 7: Industry-wise ED

Industry	Average of EDS
Cement	3.51
Marble	1.81
Mineral	2.87

It is clear from the above tables that there is a large difference between disclosure score between industries. Cement companies are taking the lead in disclosure followed by mineral companies. Marble companies are lagging far behind from both the sectors. Individually HZL, JK cement and Binani Cement are disclosing more items of environmental protection and conservation than other companies in the sample. To statistically test hypothesis 4 (H4), bivariate Pearson's correlation coefficient is computed for the relationship between company-size and EDS score (Table 8).

Table 8: Correlation between Company Size and EDS Score

		EDS	Size
EDS	Pearson Correlation	1	.428
	Sig. (2-tailed)		.165
	N	12	12
Size	Pearson Correlation	.428	1
	Sig. (2-tailed)	.165	
	N	12	12

The p-value for the Pearson correlation is more than the level of significance ($p=0.165>0.05$). Thus we can accept the null hypothesis and can conclude that there is no relationship between environmental disclosure score and company size.

7. Conclusion and Discussion

Protecting the environment is the social responsibility and commitment of corporations towards the society. Environmental reporting has become a crucial issue in today's corporate reporting. Under this background the present study is carried out with the objective of identifying the reporting and disclosure practices of some environmentally-sensitive industries in India. The state of Rajasthan

was chosen for the study because of its importance in India's mining industry. A sample of 12 companies was selected from three sectors including mining. Content analysis of annual reports, financial statements, director reports and CSR reports were carried out for data collection. Based on the type and place of disclosure, an environment disclosure score was generated for each company across three industries. These scores were tested statistically. The study found that there was a large divergence in the disclosure scores of the companies. A majority of companies were disclosing qualitative data. Cement companies were disclosing more environmental information compared to mineral and marble companies. Further, the amount of quantitative disclosure, in monetary form, by cement industry is more in contrast to marble and mineral industries in Rajasthan. But interestingly, there is no relationship between company size and disclosures.

Every stakeholder shows a keen interest in knowing the environmental responsibilities carried out by their corporation. Corporate social reporting is mostly guided by standard guidelines. But India does not have any standards designed for social and environmental disclosures. Reporting guidelines are largely voluntary. These voluntary disclosures often lead to nondisclosure and mandatory disclosure leads to minimal disclosure. In addition, disclosure of environmental accounting information is a key process in performing accountability. Consequently, environmental accounting helps companies and other organizations to boost their public trust and confidence and is associated with receiving a fair assessment. There are several challenges of environmental accounting and reporting such as environmental accounting method, social values in applicable assumptions, economic value and lack of reliable industrial data. There is need for an integrated law on environment clearances and companies must be oriented towards their responsibilities towards maintenance and protection of environment and energy responsibilities. With increasing global concern over the protection of the environment, India too has set up a Union Ministry of Environment with the object of coordinating among the states and the various ministries, the environmental protection and anti-pollution measures. For sustainable development of country, a well-defined environmental policy as well as proper follow up and proper accounting procedure is a must. Indian companies have been facing strong international competition over the past few decades. These international firms are disclosing non-financial information including environmental information leading to an enhanced expectation from Indian companies to act responsibly towards the environment. Hence, to improve corporate image as a socially responsible company, it is expected that an increasing number of Indian companies will report their environmental performance in near future.

8. Limitations and Future Research

There are some limitations under which the study was carried out. The results of the study must be viewed in the context of such limitations. Certain limitations of the present research work are: the size of the sample is restricted to 12 and the list of mandatory and voluntary disclosures is not exhaustive but includes only selected current measures issued by Government and GRI (Global Reporting Initiative).

The study suggests that the environmental disclosures are low in the corporate sector in India. Further research can investigate the environmental efforts made by the companies which are listed in NASDAQ and other global stock exchanges. The case of small- and medium-scale industries in India is also worth examining. The cottage and small-scale industries have been excluded from this study. However, there is no denying the fact that the cottage and small-scale industries are playing an important role in the country's economic growth and development and at the same time they are also causing environmental pollution. It shall, therefore, be quite important and informative to investigate the role and responsibilities of cottage and small scale industries in the field of environmental accounting and reporting.

References

- Al-Tuwaijri, S. A., Christensen, T. E., & Hughes II, K. E. (2004). The relations among environmental disclosure, environmental performance, and economic performance: a simultaneous equations approach. *Accounting, organizations and society*, 29(5), 447-471.
- Anand, M. B., & Srineevasa, D. L. (2014). Environmental Accounting-An Essential Tool for Long Run Survival, *International Journal of current research and Academic Review*, 2(3), 34-41.
- Archel, P., Husillos, J., Larrinaga, C., & Spence, C. (2009). Social disclosure, legitimacy theory and the role of the state. *Accounting, auditing & accountability journal*, 22(8), 1284-1307.
- Banerjee, B. (2002). *Regulation of corporate accounting and reporting in India*. World Press Private Limited.
- Belal, A. R. (1999). Green reporting practices in Bangladesh, *The Bangladesh Accountant*, 1, 107-15.
- Bennett, M. D., Bouma, J. J., & Wolters, T. J. (Eds.). (2002). *Environmental management accounting: Informational and institutional developments* (Vol. 9). Springer.
- Bhatia, A., & Mahajan, P. (2013). Determinants of Corporate Social Disclosure: An Empirical

- Study of BSE-SENSEX Companies in India. *IIMS Journal of Management Science*, 4(2), 191-204.
- Chatterjee, B., & Mir, M. Z. (2008). The current status of environmental reporting by Indian companies. *Managerial Auditing Journal*, 23(6), 609-629.
- Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure practices of Australian corporations. *Accounting and business research*, 26(3), 187-199.
- Descano, L., & Gentry, B. S. (1998). Communicating environmental performance to the capital markets. *Corporate Environmental Strategy*, 5(3), 15-19.
- Friedman, A. L., & Miles, S. (2001). Socially responsible investment and corporate social and environmental reporting in the UK: an exploratory study. *The British Accounting Review*, 33(4), 523-548.
- Gray, R., Javad, M., Power, D. M., & Sinclair, C. D. (2001). Social and environmental disclosure and corporate characteristics: a research note and extension. *Journal of Business Finance & Accounting*, 28(3-4), 327-356.
- Guthrie, J., & Parker, L. D. (1989). Corporate social reporting: a rebuttal of legitimacy theory. *Accounting and business research*, 19(76), 343-352.
- Hamid, M. A. R. A. (2002). Theoretical framework for environmental accounting - application on the Egyptian Petroleum Sector. 9th Annual Conference of Economic Research Forum Sharjah, United Arab Emirates 26 - 28 October 2002. Retrieved from: http://www.erf.org.eg/cms.php?id=publication_details&publication_id=715
- Hughes, S. B., Anderson, A., & Golden, S. (2001). Corporate environmental disclosures: are they useful in determining environmental performance? *Journal of accounting and public policy*, 20(3), 217-240.
- Idowu, S. O., & Towler, B. A. (2004). A comparative study of the contents of corporate social responsibility reports of UK companies. *Management of Environmental Quality: an international journal*, 15(4), 420-437.
- Jaffar, R., Iskandar, M., Muhamad, N. (2002). An investigation of environmental disclosures: Evidence from selected industries in Malaysia, *International Journal of Business and Society*, 3, 55-68.
- Jose, A., & Lee, S. M. (2007). Environmental reporting of global corporations: a content analysis based on website disclosures. *Journal of Business Ethics*, 72(4), 307-321.
- Joshi, P. L., Gao, S. (2009). Multinational Corporations: Corporate Social and Environmental Disclosures (CSED) on Web sites, *International Journal of Commerce and Management*, 19 (1), 27-44.

- Maguire, B. J., Hunting, K. L., Smith, G. S., & Levick, N. R. (2002). Occupational fatalities in emergency medical services: a hidden crisis. *Annals of emergency medicine*, 40(6), 625-632.
- Meek, G. K., Roberts, C. B., & Gray, S. J. (1995). Factors influencing voluntary annual report disclosures by US, UK, and Continental European multinational corporations, *Journal of International Business Studies*, 26(3), 555-572.
- Ministry of Corporate Affairs (2012). *National Voluntary Guidelines-2011*. Retrieved from: http://www.mca.gov.in/Ministry/latestnews/National_Voluntary_Guidelines_2011_12jul2011.pdf
- Ministry of Environment and Forests (2012). *Rules and Regulations*. Retrieved from: <http://envfor.nic.in>
- Ministry of Mines (2014). *2012-13 Annual Report*, Retrieved from: <http://mines.gov.in/annual2013E.pdf>
- Monaghan, P. (1999). Warts and all reporting. *Accountancy*, 124(1272), 61.
- Ousama, A. A., & Fatima, A. H. (2010). Voluntary disclosure by Shariah approved companies: an exploratory study. *Journal of Financial Reporting and Accounting*, 8(1), 35-49.
- Pahuja, S. (2009). Relationship between environmental disclosures and corporate characteristics: a study of large manufacturing companies in India. *Social Responsibility Journal*, 5(2), 227-244.
- Pramanik, A. K. (Ed.) (2002). *Environmental accounting and reporting*. Deep and Deep Publications.
- Pramanik, A. K., Shil, N. C., & Das, B. (2008). Corporate environmental reporting: an emerging issue in the corporate world. *International Journal of Business and Management*, 3(12), 146.
- Qureshi, D. N. Z., Kulshrestha, D. D., & Tiwari, S. B. (2012). Environmental Accounting and Reporting: An Essential Component of Business Strategy. *Asian Journal of Research in Banking and Finance*, 2(4).
- Rajasthan Environment Information system (2014). *Industries in Rajasthan*. Retrieved from: http://rajenvi.nic.in/Envinfo_Industry.htm
- Rao, K. K., Tilt, C. A., & Lester, L. H. (2012). Corporate governance and environmental reporting: an Australian study. *Corporate Governance*, 12(2), 143-163.
- Roy, M. N. (2000). Environmental disclosure in the corporate annual report, *Environment Management and Audit*, Deep and Deep Publications, 228-244.

- Salama, A. (2005). A note on the impact of environmental performance on financial performance. *Structural Change and Economic Dynamics*, 16(3), 413-421.
- Savage, A. (1994). Corporate Social Disclosure Practices in South Africa: A Research Note, *Social and Environmental Accounting*, 14(1), 2-4.
- Scott Marshall, R., & Brown, D. (2003). Corporate environmental reporting: what's in a metric? *Business Strategy and the Environment*, 12(2), 87-106.
- Sen, M., Mukherjee, K., & Pattanayak, J. K. (2011). Corporate environmental disclosure practices in India. *Journal of Applied Accounting Research*, 12(2), 139-156.
- The Global Reporting Initiative (2013). *G4 Reporting Principles*. Retrieved from: <https://www.globalreporting.org/resourcelibrary/GRIG4-Part1-Reporting-Principles-and-Standard-Disclosures.pdf>
- Tilt, C. A. (2001). The content and disclosure of Australian corporate environmental policies. *Accounting, Auditing & Accountability Journal*, 14(2), 190-212.
- Todea, N., Stanciu, I., & Joldos, A. (2010). Environmental accounting—A tool used by the entity for determining environmental costs. *Annales Universitatis Apulensis Series Oeconomica*, 12 (1), 207-217.
- Wheeler, D., & Elkington, J. (2001). The end of the corporate environmental report? Or the advent of cybernetic sustainability reporting and communication. *Business strategy and the environment*, 10(1), 1-14.
- Wilmshurst, T. D., & Frost, G. R. (2000). Corporate environmental reporting: a test of legitimacy theory. *Accounting, Auditing & Accountability Journal*, 13(1), 10-26.
- Yusoff, H., Lehman, G., & Nasir, N. M. (2006). Environmental engagements through the lens of disclosure practices: a Malaysian story. *Asian Review of Accounting*, 14(1/2), 122-148.

Appendix: Sample Company Information

Hindustan Zinc Limited

Hindustan Zinc Limited was incorporated from the erstwhile Metal Corporation of India on 10 January 1966 as a Public Sector Undertaking. Hindustan Zinc Limited (HZL). HINDZINC is an integrated mining and resources producer of zinc, lead, silver and cadmium. It is a subsidiary of Vedanta Resources PLC. HZL is the world's second largest zinc producer. Separate corporate-level Sustainability Committee and unit-level Sustainability Council is formed to consider sustainability issues that may have strategic, business and reputational implications. The environmental framework of the company is committed

towards world-class zinc and lead producer by developing technology to maximize metal extraction, operate responsibly with least footprint for water, carbon, land and hazardous wastes and caring for people and surrounding biodiversity. The company is listed in National Stock Exchange.

Wonder Cement Limited

Wonder Cement is part of the RK Marble group. It has two mining leases known as Bhatkotari lime stone mines. The total area of mines is 7.40 Km². Open cast mining is done in both the mines. The entire design of the plant is based on the latest environment norms, with the help of Reverse air bag house and ESP and a number of nuisance bag filters installed having emission of below permissible unit that enable the plant to be clean and dust free. An ecological balance has been maintained through mass tree plantation and development of ornamental gardens in the areas around the plant site. A greenhouse and nursery is maintained at the WCL site. The company is not listed in National Stock Exchange.

Rajasthan State Mines and Mineral Limited

Rajasthan State Mines & Minerals Limited (RSMML) is one of the premier public sector enterprises of the Government of Rajasthan, primarily engaged in mining and marketing of industrial minerals in the State. Regular monitoring and control of different environmental parameters i.e. air, water, dust, noise and heat etc. is done. Company has a safety and health policy. Company follows statutory requirements as per Mines Act 1952. Every year Safety week celebrated at different units under the aegis of Director General of Mines Safety (DGMS). A well-equipped vocational training center at Phosphate SBU caters to need of various training regarding safety and occupational health for the employees. The company is not listed in National Stock Exchange.

J. K. Cement Limited

J. K. Cement Ltd is from the top cement companies of India. For over three decades, J. K. Cement has partnered India's multi-sector infrastructure needs on the strength of its product excellence, customer orientation and technology leadership. The Company has over three decades of experience in cement manufacturing. Its operations commenced with commercial production at our first grey cement plant at Nimbahera in the state of Rajasthan in May 1975. J. K. Cement is also the first cement Company to install a waste heat recovery power plant to take care of the need of green power. The company is listed in National Stock Exchange.

R. K. Marble Private Limited

R. K. Marble is among world leaders in the marble industry with a strong presence domestically and internationally. The company was established in 1989 by the Patni brothers and today, it is regarded as a trendsetter having found a place for itself in The Guinness Book of World Records since 1999 for being the largest producer of marble in the world. Available open spaces in Rajsamand have been packed with trees, colorful shrubs and bushes. R. K. Marble has won several accolades for the safety and environment-friendly measures adopted at its mines and processing plant. The company is not listed in National Stock Exchange.

Binani Cement Limited

The company was incorporated on 15 January 1996 as Dynasty Dealer Private Ltd. In 1998, it was listed on BSE and changed its name to Binani Cement Ltd. Subsequently, the company was converted into a public company on October 6, 1998. The company is a subsidiary of Binani Industries Ltd, which has diverse manufacturing interests in cement, zinc and glass fiber. Binani Cement Ltd commenced commercial production in November 1997 at Sirohi in Rajasthan. They are engaged in the manufacture of ordinary portland cement and portland pozzolana cement. The company has two limestone mines, namely Amla and Thandiberi, operated on a long term lease basis which is at a distance of 2 Km and 7 Km from the plant respectively. The company is not listed in National Stock Exchange.

Gorbandh Marbles Private Limited

Gorbandh Group, a prestigious multicore organisation, established in the 90's is India's premier and fastest growing mining company. The group headed by Mr. Meghraj Singh Shekhawat under his stewardship has a strong vision to take the group to newer heights. The company has rich and wide green marble quarries spread many acres of land in the world's largest reservoir of green marble. The company is not listed in National Stock Exchange.

Wolkem India Limited

Wolkem was established in 1972 in Rajasthan, in the North-West of India. Very high quality and extensive mineral deposits of wollastonite & calcite are found in this region. These deposits are located in an inaccessible mountainous region inhabited by an uneducated tribe. Wolkem India Limited is world's largest miner and producer of wollastonite, calcite and wet ground calcium carbonate. The

mining operations were one of the first Indian industrial mineral operations to get ISO 14001 and ISO 9001 certification. Wolkem works committedly towards leaving the eco-balance undisturbed and its mining operations promotes natural restoration of flora and fauna. The company is not listed in National Stock Exchange.

Birla Cement Works Limited

Birla Cement Works Limited is a unit of Birla Corporation Limited. BCW has received the ISO 14001 certification for “Environmental Management System”. BCL has regularly been receiving CAPEXIL awards for cement exports since the last 15 years. Extensive plantations are undertaken in and around mining, plant and residential areas. To reduce and control emission, parallel bag house and bag filters have been installed. The Birla Corporation is listed in National Stock Exchange.

Golcha Associated Group

The group was founded in middle of the 19th century. The company has three mining zones covering an area of 532.6 Hectares in Southern Rajasthan yielding around 2 lacs MT of crude and our Plant Setup at Udaipur is producing 1 lac MT of Talc Powder. It has ISO 14001:2006 Certified captive mines. The company firmly believes that scientific mining and environmental protection go hand in hand. Steps are, therefore, taken to ensure effective short-term and long-term measures to protect the environment. The company is not listed in National Stock Exchange.

Mumal Marbles Private Limited

Mumal Marbles was incorporated in 1988. The company is having world class mining and manufacturing facilities. Since last four five years the company also import different varieties of marble blocks from Italy and Turkey and after processing the same at its processing house selling in the Indian market. The company supply Indian green marble, beige marble, white marble slabs and tiles in various dimensions. The company is not listed in National Stock Exchange.

Aditya Cement Works Limited

Aditya Cement Works is one of the cement plants of Grasim Industries. It was built in 1995 in Shambupura, Chittorgarh in Rajasthan. The plant capacity is about 1.50 million TPA. The plant is equipped with state-of-the-art equipment and is certified with ISO 9001 for quality systems, and ISO 14001 for environment management systems.

Diagnosing Stress Level in Employees of Indian Banking Sector: A Study

Preshita Neha Tudu¹ and Pramod Pathak²

Abstract

Workplace stress has become a major issue for employers, employees and organizations. Tough competition has made employers realize that employees are the only source of competitive advantage. Given the pressure to compete and perform, stress is a natural concomitant. It is therefore, necessary to keep employee stress at bay to ensure good health, performance, morale and wellbeing of employees. The present paper attempts to measure the intensity of stress among bank employees of India. Organizational Role Stress Scale (ORS Scale) developed by Pareek (1983) is used for measuring the ten role stressors by observing the frequency of behaviours associated with each role stressor. Further, to find the relationship, if any, that may exist between employees of different age groups, educational level, experience and stress levels, ANOVA (Analysis of Variance) is done.

Keywords: Employee Stress, Employee health, Banks, Stress Level, Stress Management.

1. Introduction

Stress is a natural concomitant of work life, a phenomenon that is inevitable today. It cannot be cordoned off from ones' life but can be coped with (Gibbons & Gibbons, 2007). In 1936, "the father of modern stress", Prof. Hans Selye, brought

¹ Research Scholar, Department of Management Studies, Indian School of Mines, Dhanbad - 826004, Jharkhand, India. E-mail: preshita@gmail.com

² Professor, Department of Management Studies, Indian School of Mines, Dhanbad - 826004, Jharkhand, India. E-mail: ppathak.ism@gmail.com

to the fore the concept of stress as non-specific response of the body to any demand. However, stress is not a new concept; rather its reference can be located in Indian *vedic* literature as “*dukha*” that is grief and “*dushchinta*” that is anxiety (Pathak, 1992). Today, people are living in the ‘age of stress’ (Pestonjee 1999). For maintaining human wellbeing and effectiveness in the organizational and non-organizational contexts it is necessary to understand stress, its nature and complexities, its causes and determinants (Gibbons & Gibbons, 2007). No doubt stress affects not only a company’s bottom line but the morale of the employees too (Pathak, 1992, Herrero et al., 2013).

Workplace stress also known as organizational stress has become a critical issue for the employers, employees and the organizations (Horwitz, 2010; NIOSH, 1999). Organizational stress arises when there is a mismatch between person-environment (French & Caplan, 1972; French et al., 1982; French & Kahn, 1962; Kahn et al., 1964; McGrath J.E., 1976). It is based on two basic assumptions that stress arises when there is a misfit between the person and environment and second, that subjective perceptions of work environments primarily determine stress (Bickford, 2005). Therefore, it is necessary to have consonance between characteristics of a person and his environment so that individual and the organization both mutually benefit each other resulting in positive outcomes. There should be integration between the individual and his work environment so that they fit in like a lock and key. When work environment fails to provide opportunities for meeting individual’s needs and aspirations stress may result affecting the health, morale, performance and wellbeing of the individual. According to Vazquez (2001) people respond to meaning of the stimulus in relation to their perception of the environment. An event that is stressful for one person may be normal for others and vice versa. Thus, stress is a response as well as a function of individual appraisal of the situation (Carver & Connor, 2010; Dumitrescu, 2014; Leskovic, 2013).

When organizational stress affects human potential in the organization it may lead to impaired quality, lower productivity, absenteeism and poor health, and can affect wellbeing and morale of the employees (Cooper & Cartwright, 1994; Quick et al., 1997; Spielberger & Reheiser, 1994; Spielberger et al., 2002). Studies have suggested that stress results in a wide range of somatic, psychological and behavioral reactions that are detrimental to the individual (Babin & Boles, 1998; Childs & Stoeber, 2012; Singh & Dubey, 2011; Strange & Brown, 1970). This in turn has negative economic implications too (Cooper & Cartwright, 1994; Edworthy, 2000).

Physical danger also contributes to the stressfulness of a job (Bryce, 2001). Stress has been defined as ‘silent killer’. According to WHO and previous studies,

occupational stress when left untreated leads to various medical related illnesses such as hypertension, depression and musculoskeletal disorder (Weinberg & Francis, 2000). It also leads to alcohol and drug abuse, interpersonal relationship difficulties, depression, anxiety, and suicide (Banovcinova & Baskovaa, 2014; Chung & Wu, 2013; Herrero et al. 2013; Levey, 2001; Shapiro 2000)

Stress, however, is not always negative. It can arouse a person towards action. It can result in a new awareness; keep people happy, motivated, challenged and productive. Stress can increase alertness among employees and mobilize their adaptive capabilities. Therefore, to some extent, a certain level of stress potentially contributes to organizational effectiveness (Chusmir & Franks, 1988). Such stress is referred to as “eustress” which leads to constructive planning and corrective actions; it is essential for success in any endeavor.

2. Literature Review

Industrialization, urbanization, automation, modernization and changing work environment have led to occupational stress which is adversely affecting efficiency of employees (Jung et al., 2010). These changes have not only impacted the health and well-being of employees but have affected organizational efficiency also.

Dumitrescu (2014) investigated the influence of therapeutic interventions on occupational stress. His sample size was 60 employees of a hypermarket in Romania. Occupational stress was measured using Job Stress Scale developed by Parker and Decotiis (1983). Stress level of all the respondents was evaluated and then the participants were sent for therapeutic session in order to understand, manage and reduce occupational stress levels. Following therapeutic sessions, occupational stress level of participants was again reviewed. Findings showed that there was a significant difference between scores obtained from pre-intervention test and post intervention test demonstrating the effectiveness of psychotherapy in the management of occupational stress.

Banovcinova and Baskovaa (2014) examined the sources of occupational stress and their association with burnout in 100 midwives working in gynaecologic and obstetric clinics. The respondents reported high levels of depersonalization, average level of emotional exhaustion and high personal accomplishment. Death of patients was the most important stressing factor among midwives followed by conflict with doctors. A positive relationship was found between conflict with doctors, co-workers, work overload and personal accomplishment of midwives. Similarly, a strong relationship was found between conflict with doctor, supervisor, other midwives, work overload and emotional exhaustion of midwives.

Brate (2014) suggested that occupational stressors, specific individual differences and coping strategies play a significant role in the perception of the sources of stress and for the awareness and recognition of the effects of occupational stress. Chung and Wu (2013) conducted a study on 927 Taiwanese public transport drivers to measure the association among stress, strain, and health outcomes of occupational drivers. Parallel confirmatory factor analyses (CFAs) were applied to evaluate the validity of the ERI (effort–reward imbalance) components. Physical demands, overtime, and stress-induced sleep problems were found to be the primary stressors in occupational drivers. Moreover, the study revealed an imbalance between effort and reward and over commitment levels as strong and independent predictors of strain and health outcomes.

Herrero et al. (2013) analyzed that social support positively contributes to reducing occupational stress levels caused by work demands. The variables studied were demanding work, workday, stress, overwork and social support. The findings showed that social support in workplace and help from supervisors and coworkers often help in preventing occupational stress. The study explains and quantifies the effects of intellectually demanding work, overwork, and workday in occupational stress.

Jain and Cooper (2012) studied a sample of 402 operators from business process outsourcing (BPO) organizations located in northern India to investigate the direct effect of organizational stress on organizational citizenship behaviours. A negative relationship was observed between organizational stress and organizational citizenship behaviours.

Sharma et al. (2012) found that age, salary, education, rewards, locus of control, promotion, appreciation and working spouse significantly impacted role stress experienced by the respondents. A sample of 80 employees working in the banks of Jammu state of India was surveyed. It was also revealed that if given a chance, stressed employees are more willing to avail of a voluntary retirement scheme.

3. Research Methodology

3.1 Objectives of the Study

The following were the main objectives of the study.

- To measure the level of stress among employees of banking sector and to identify causes thereof.
- To suggest suitable measures for the management of work stress.

3.2 Hypothesis

Keeping in view the objectives of the study the following hypothesis were formulated.

H1: There is no difference between stress levels of employees of different age groups

H2: There is no difference between stress levels of employees of different genders

H3: There is no difference between stress levels of employees of different years of experience

3.3 Methodology

A survey was conducted among bank employees from all work levels to gain a better understanding of the factors that contribute to occupational stress experienced by the employees in this industry. In carrying out the present research both primary and secondary sources of data were used. The sample population selected for this particular research is the employees of selected banks in Dhanbad and Bokaro.

3.4 Sampling

The sampling frame comprised employees of private and public sector banks of Dhanbad and Bokaro. 150 questionnaires were distributed out of which 80 employees responded. Random sampling was used for data collection. Participation in the study was on a voluntary basis, and the respondents were assured that their responses would be strictly confidential. The public sector bank included respondents of State Bank of India, Central Bank of India, Bank of India and IDBI Bank. The private sector bank included respondents of ICICI Bank, Axis Bank and HDFC Bank. The sample included employees of different age groups, hierarchical levels, qualification levels, and experience level.

3.5 Tool of Data Collection

The collection of primary data was done through questionnaire. The ORS scale (Pareek, 1983), was used for measuring the ten role stressors by observing the frequency of behaviours associated with each role stressor. The secondary data was collected from research publications, standard journal and periodicals including the government organizations and from respective records about the job related occurrence.

3.6 Measure

ORS (Organizational Role Stress) Scale comprises 50 items (Pareek, 1983). The respondents rate each item using Likert scale as 0, 1, 2, 3, 4 depending on the item's applicability to their organizational role (0 for never or rarely and 4 for always or frequently). There are various organizational factors that cause stress among employees that can affect organisational efficiency and well-being of employees. These factors may be the demands placed on the employees, the work culture, roles and responsibilities, long hours worked, work overload and pressure, the effects of these on personal lives, lack of control over work and lack of participation in decision making, poor social support, unclear management and work role and poor management style etc. The stress due to organizational factors is also termed as organizational stress. The concept of role and the related concepts of role space and role set have a built in potential for conflict and stress.

A. Role Space Conflicts: Role space has three main variables: self, the role under question, and the other roles the individual occupies. Any conflicts amongst these are referred to as role space conflicts or stress. Role space conflict has been defined as the dynamic relationship among various roles the individual occupies (Pareek, 1993). These conflicts are:

1. Self–Role Distance (SRD) – This arises due to the conflict of one's values and self-concepts with that of the requirements and expectations of the organisations.
2. Role Stagnation (SR) – This stress arises due to the feeling of being stuck in the same role. In this situation the individual perceives no opportunity for career growth and challenging tasks and preparation for the higher responsibility is absent.
3. Intra–Role Conflict - This stress arises due to incompatibility between various expectations or various functions with the role.

B. Role–Set Conflict: An individual's role is the set of roles that consists of important persons who have varying expectations from the role that the individual occupies. The conflicts which arise as a result of incompatibility amongst these expectations by the 'significant' others is known as role set conflicts.

4. Role Expectation Conflict (REC) – This stress arises when there are conflicting expectations or demands by different role senders.
5. Role Ambiguity (RA) - When individual lacks clarity about what is the expected behaviour from a job or position, the conflict he faces is called

role ambiguity. It may be in relation to the activities, responsibilities, priorities, norms or general expectations.

6. Role Erosion (RE) - When an individual feels that important functions or roles he would like to perform, are being performed or shared by other individuals.
7. Role Overload (RO) – When an individual feels that there are too many expectations from the role he performs and which he is unable to cope with, he experiences role overload. Role overload is more likely to occur where the role occupant lacks power, where there is a large variation in the expected output, and when delegation or assistance cannot procure more time.
8. Resource Inadequacy (RIn) – This stress arises when the resource required by role occupant for performing his role effectively is unavailable or not sufficient. These resources may be information, people, material, finance or facilities.
9. Personal Inadequacy (PI) - This stress arises when an individual feels he lacks adequate knowledge, skills and training to perform the task he is assigned. People who are assigned new roles without enough preparation or orientation are likely to experience this type of stress.
10. Role Isolation (RI) – In a role set, the role occupant may feel that certain roles are psychologically closer to him, while others are at a much greater distance. In case of weak or lack of linkages between the existing and desired linkages of one’s role an individual will experience stress.

Table 1: Test – Retest Reliability of the ORS Scale

S.No	Variables	Coefficient	Levels of Significance
1	IRD	0.58	.001
2	SRD	0.45	.001
3	RS	0.63	.001
4	RA	0.65	.001
5	RO	0.53	.001
6	RE	0.37	.001
7	RI	0.58	.001
8	Total Role Stress (ORS)	0.73	.001

4. Results

Respondents' Profile

The sample consisted of 80 respondents – 45 male (56%) and 35 female (44%) female. Most of the participants belong to age group 36-45 (38%) and 26-35 (36%) and only few belong to age group 46 and above (26%). Most of the participants were either pursuing postgraduate degree or graduates. Refer Table 2 for the demographic composition of the respondents.

**Table 2:
The Demographic Composition of Sample**

Demographic Variable	n	%
Age		
18-25	00	00
26-35	29	36
36-45	30	38
46 and Above	21	26
Total	80	100
Gender		
Male	45	56
Female	35	44
Total	80	100
Experience (years)		
0-5	16	20
6-10	18	23
11-15	24	30
16 years and above	22	28
Total	80	100

The ranking of various stressors obtained in the present study is given in Table 3. The mean score for the total ORS confirms that the bank employees are experiencing moderate to high level of stress. Role stagnation (RS) emerged as the most potent role stressor, with the mean of 3.04, amounting to 12.59% of total ORS. This was followed by Inter Role Distance (IRD) and Role Erosion (RE) with the mean of 2.95 and 2.46 respectively. Role Ambiguity (RA) was found to be the least potent role stressor, with the mean of 2.01, amounting to 1.36% of total ORS. Cronbach's α scores were computed to measure the internal reliability within the variables of each stressor. The Cronbach's α score of variables ranged from .605 to .941 (Table 3) which exhibit strong internal reliability. Cronbach's α score of 0.7 is considered as acceptable (Hair et al. 1998); however in behavioral studies and social psychology research the score of 0.6 or higher is acceptable (Robinson et al., 1991).

Table 3: Stressors as per their Ranking

Rank	Stressors	Mean	SD	Mean in %	Cronbach's Alpha
1	RS	3.04	0.64	12.59	.607
2	IRD	2.95	0.64	12.22	.605
3	RE	2.46	0.95	10.19	.838
4	PI	2.40	0.92	9.94	.811
5	RI	2.39	1.05	9.90	.862
6	SRD	2.31	0.98	9.57	.871
7	RIn	2.21	1.11	9.15	.866
8	REC	2.22	1.13	9.20	.906
9	RO	2.15	1.20	8.90	.919
10	RA	2.01	1.36	8.33	.941
Total	ORS	24.14			

H1: There is no difference between stress levels of employees of different age groups

To find the relationship, if any, that may exist between employees of different age groups and stress levels, ANOVA (Analysis of Variance) was done.

Table 4: One Way ANOVA for Stressors by Age

		Sum of Squares	Mean Square	F	Sig.	Significant/ Not Significant	Mean
IRD	Between Groups	4.208	2.104	5.679	.005	Significant	B: 2.66 C: 3.09 D: 3.18
	Within Groups	28.531	.371				
	Total	32.740					
RS	Between Groups	.045	.022	.054	.948	Not Significant	B: 3.03 C: 3.04 D: 3.09
	Within Groups	32.135	.417				
	Total	32.180					
REC	Between Groups	27.659	13.830	14.528	.000	Significant	B: 1.51 C: 2.44 D: 2.94
	Within Groups	73.300	.952				
	Total	100.959					

RE	Between Groups	23.021	11.511	18.114	.000	Significant	B: 1.78 C: 2.76 D:3.02
	Within Groups	48.931	.635				
	Total	71.952					2.46
RO	Between Groups	45.036	22.518	25.055	.000	Significant	B: 1.19 C: 2.57 D: 2.92
	Within Groups	69.202	.899				
	Total	114.238					2.15
RI	Between Groups	24.744	12.372	15.283	.000	Significant	B: 1.69 C: 2.68 D: 3.00
	Within Groups	62.332	.810				
	Total	87.075					2.39
PI	Between Groups	14.968	7.484	11.266	.000	Significant	B: 1.88 C: 2.55 D:2.94
	Within Groups	51.152	.664				
	Total	66.119					2.40
SRD	Between Groups	18.196	9.098	12.222	.000	Significant	B: 1.72 C: 2.52 D: 2.87
	Within Groups	57.316	.744				
	Total	75.512					2.31
RA	Between Groups	47.347	23.673	18.418	.000	Significant	B: 1.06 C: 2.32 D: 2.92
	Within Groups	98.971	1.285				
	Total	146.318					2.01
RIn	Between Groups	26.963	13.481	14.909	.000	Significant	B: 1.51 C: 2.41 D: 2.94
	Within Groups	69.625	.904				
	Total	96.588					2.21

As given in Table 4, there appears to be a relationship between the three groups of employees as far as their age is concerned (A=18 years to 24 years; B=25 years to 35 years; C=36 years to 45 years; D=46 years and above) and level of stress. There was no respondent under the age group of 18 years to 24 years.

Role stressors IRD, REC, RE, RO, RI, PI, SRD, RA, RIn were found to be statistically significant (Table 4). Thus, the hypothesis (H1) is *not accepted* for these stressors. It means that there appears to be a relationship between stress levels of employees and the different age groups.

It was also found that *stress level has a direct positive relationship with age*, that is, with rise in age stress level increases (Table 5). This relationship holds good for the different individual role stressors of the ORS scale. Thus, we find that with increase in age, stress due to different stressors increase. However, in case of RS this is not true.

Table 5: Total Mean

N	Mean	Std.	Deviation
2.00	30	1.8033	.33098
3.00	29	2.6366	.90551
4.00	21	2.9829	.86979
Total	80	2.4150	.87645

Table 6: Total Mean ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.419	2	9.710	18.118	.000
Within Groups	41.266	77	.536		
Total	60.685	79			

It was also observed from the ANOVA of overall ORS (Table 6) that there is a significant relationship between age of employees and stress level ($F= 18.118$ Sig. $t= 0.00, p>0.05$). The hypothesis is not accepted.

H2: There is no difference between stress levels of employees of different genders

To find out the relationship, if any, that may exist between stress levels of employees and gender, ANOVA (Analysis of Variance) was done.

Table 7: One Way ANOVA for Stressors by Gender

		Sum of Squares	Mean Square	F	Sig.	Significant/ Not Significant	Mean
IRD	Between Groups	1.201	1.201	2.970	.089	Not Significant	M: 2.84 F: 3.09
	Within Groups	31.539	.404				
	Total	32.740					2.95
RS	Between Groups	.011	.011	.026	.871	Not Significant	M: 3.05 F: 3.03
	Within Groups	32.169	.412				
	Total	32.180					3.05
REC	Between Groups	1.836	1.836	1.445	.233	Not Significant	M: 2.09 F: 2.39
	Within Groups	99.123	1.271				
	Total	100.959					2.22
RE	Between Groups	.370	.370	.403	.527	Not Significant	M: 2.40 F: 2.54
	Within Groups	71.582	.918				
	Total	71.952					2.46
RO	Between Groups	.631	.631	.433	.512	Not Significant	M: 2.07 F: 2.25
	Within Groups	113.607	1.456				
	Total	114.238					2.15
RI	Between Groups	.416	.416	.375	.542	Not Significant	M:2.33 F:2.47
	Within Groups	86.659	1.111				
	Total	87.076					2.39
PI	Between Groups	.374	.374	.443	.507	Not Significant	M: 2.34 F: 2.48
	Within Groups	65.746	.843				
	Total	66.120					2.40

SRD	Between Groups	.046	.046	.047	.828	Not Significant	M: 2.29 F:2.34
	Within Groups	75.466	.968				
	Total	75.512					
RA	Between Groups	.995	.995	.534	.467	Not Significant	M:1.91 F: 2.13
	Within Groups	145.323	1.863				
	Total	146.318					
RIn	Between Groups	1.572	1.572	1.290	.259	Not Significant	M: 2.09 F: 2.37
	Within Groups	95.016	1.218				
	Total	96.587					

As seen in Table 7, it was identified that no significant relationship exists between the two groups of employees as far as their gender (M = Male F= Female) is concerned and level of stress. All the stressors were found to be statistically insignificant (Table 7). Thus, the hypothesis is *accepted*. That is, there is no relationship between the stress level of employees and the gender.

Table 8: Total Mean

N	Mean	Std.	Deviation
M	45	2.3413	.85717
F	35	2.5097	.90422
Total	80	2.4150	.87645

It was also observed from the overall ORS that the female employees experience more stress (Mean 2.51) than male employees (Mean 2.34) (Table 8). From Table 9 (ANOVA - Total Mean), it is revealed that there is no relationship between stress level of employees and the gender ($F= 0.724$, $Sig. t= 0.397$, $p>0.05$). Hence, the hypothesis (H2) is *accepted*.

Table 9: Total Mean ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.558	1	.558	.724	.397
Within Groups	60.127	78	.771		
Total	60.685	79			

H3: There is no difference between stress levels of employees of different years of experience

To find out the relationship, if any, that may exist between stress levels of employees and years of experience, ANOVA (Analysis of Variance) was done.

Table 10: One Way ANOVA for Stressors by Experience

		Sum of Squares	Mean Square	F	Sig.	Significant/ Not Significant	Mean
IRD	Between Groups	4.754	1.585	4.304	.007	Not Significant	W: 2.71 X: 2.63 Y: 3.17 Z: 3.15
	Within Groups	27.985	.368				
	Total	32.740					2.95
RS	Between Groups	.750	.250	.605	.614	Not Significant	W: 3.15 X: 2.91 Y: 3.13 Z: 2.99
	Within Groups	31.429	.414				
	Total	32.180					3.05
REC	Between Groups	35.138	11.713	13.524	.000	Significant	W: 1.31 X: 1.64 Y: 2.55 Z: 3.00
	Within Groups	65.822	.866				
	Total	100.959					2.22
RE	Between Groups	26.040	8.680	14.368	.000	Significant	W: 1.65 X: 1.94 Y: 2.93 Z: 2.95
	Within Groups	45.912	.604				
	Total	71.952					2.46
RO	Between Groups	49.517	16.506	19.382	.000	Significant	W: 1.10 X: 1.36 Y: 2.84 Z: 2.79
	Within Groups	64.721	.852				
	Total	114.238					2.15
RI	Between Groups	29.295	9.765	12.844	.000	Significant	W: 1.66 X: 1.72 Y: 2.82 Z: 3.01
	Within Groups	57.780	.760				
	Total	87.075					2.39

PI	Between Groups	19.308	6.436	10.449	.000	Significant	W: 1.89 X: 1.79 Y: 2.76 Z: 2.89
	Within Groups	46.812	.616				
	Total	66.119					
SRD	Between Groups	24.386	8.129	12.084	.000	Significant	W: 1.73 X: 1.66 Y: 2.94 Z: 2.58
	Within Groups	51.126	.673				
	Total	75.512					
RA	Between Groups	55.721	18.574	15.581	.000	Significant	W: 0.98 X: 1.09 Y: 2.71 Z: 2.74
	Within Groups	90.597	1.192				
	Total	146.318					
RIn	Between Groups	33.128	11.043	13.225	.000	Significant	W: 1.54 X: 1.41 Y: 2.67 Z: 2.86
	Within Groups	63.460	.835				
	Total	96.588					

From Table 10, it was observed that there exists a significant relationship between the four groups of employees as far as their years of experience (W = 0-5 years, X= 6-10 years, Y= 11-15 years, Z= 16 years and above) is concerned and level of stress. All the stressors were found to be statistically significant except IRD and RS (Table 10). However, ANOVA of overall ORS shows that (see Table 12) there is a relationship between the stress level of employees and the years of experience ($F= 15.237$, $Sig. t= 0.00$, $p>0.05$). Hence, the hypothesis is *not accepted*. It is also observed that as the experience in the job increases the stress level also increases (see Table 11).

Table 11: Total Mean

N	Mean	Std.	Deviation
1.00	16	1.7713	.32553
2.00	18	1.8156	.31701
3.00	24	2.8517	.85768
4.00	22	2.8973	.91746
Total	80	2.4150	.87645

Table 12: Total Mean ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.792	3	7.597	15.237	.000
Within Groups	37.893	76	.499		
Total	60.685	79			

5. Findings and Discussions

Various studies on occupational stress have emphasized the need for understanding the effects of stress on both the organization and the employees (Bohle and Quintan, 2000; Caplan et al., 1975; Decenzo and Robbins, 2002; Gillingham, 1998; Greenberg, 2002; Greenberg and Baron, 2003; Kruum, 2001; Murray, 1993; Perrewe and Anthony, 1990; Quick, 1993; Smith 2003; Smither, 1998). The literature has also revealed that bank employees such as administrators, managers, supervisors and operatives of bank tellers are recognized as stressful positions. As cited in a press report, due to the 2008 global credit crisis banks such as Citigroup, HSBC, Bank of America Merrill Lynch and Barclays slashed jobs in their Indian operations due to slowing down of operations (The Economic Times, Jan 26, 2012). The loss of a lucrative job created tremendous stress among employees leading to psychological problems like anxiety, frustration, and depression thereby affecting the performance of the bank employees which may ultimately affect growth of the banking sector.

The present study examined occupational stress in banks in Dhanbad and Bokaro. The purpose of the research was to find out the degree of occupational stress for different groups of people as regards their age, gender and their experience. The survey revealed that Role Stagnation (RS) was the most prominent role stressor. This stressor is so strong that it dominates in each one of the three different categories viz. age, gender and experience. Employees felt that they were stuck in the same role for many years and they perceived no opportunity for career growth. A possible reason for high RS among bank employees can be attributed to the nature of job. Banking sector is marked by monotonous jobs, where an individual performs the same role repetitively for a long period of time and sees no change in future. In such a situation, an individual's potential is not utilized and there is no new learning. Challenging tasks and preparation for higher responsibility is absent. It is observed that even after promotions, many of these professionals were carrying out more or less the same functions which they were performing earlier. The change in the designation without any new challenges causes role stagnation and a feeling of frustration among these professionals.

The influence of age and gender on role stress has been reported by a number of researchers (Bhattacharya & Basu 2007, Dasgupta & Kumar 2009). It was found that as the age level of employees was increasing the stress level was increasing. One reason for this may be that as age increases, an individual is exposed to not only to on the job stressors but also off the job stressors related to family and society thus, increasing his/her overall stress. However, it was also found that there is no relation between age and the stress emanating from role stagnation. This may be because the employees become more familiar with the nature of job and as years pass by, they become used to the monotony of the job.

It was also noted that employees falling under the age group of 46 years and above experienced more stress than those in the lower age group may be because they are pressurized workaholics experiencing higher demands, higher level of conflicts, and lower degree of social support from peers. It is observed that even after promotions, many of these professionals were performing more or less the same functions which they were performing earlier. The change in the designation without any new challenges causes role stagnation and a feeling of frustration among these professionals. In such a situation individual's potential is not utilized and there is no new learning. Challenging tasks and preparation for higher responsibility is absent.

It was found that there is no relationship between the gender of employee and the stress level. Male or female, both experienced stress because they have to perform the same job in the organization and face the same competition. However, when individual mean scores of both the genders were compared it was revealed that the females experienced more stress than the males because of the need for maintaining work and family balance. IRD was found to be the most potent stressor for females may be because they were experiencing greater role conflict between the organizational and non-organizational roles. Further, it was observed that there is a significant relationship between years of service and stress level. However, it was also found that there is no relationship between stressors IRD and RS and stress level. Employees having experience of 16 years and above were found to be the most stressed among all the categories.

Role Erosion (RE) emerged as the third most potent role stressors after RS and IRD. Role Erosion arises due to the subjective feeling of an individual that some important roles that he/she would like to perform are being shared or performed by others. Professionals in insurance sector work in various teams. These project-based teams are formed depending upon the experience, skill and availability of various resources. All projects do not require same capability and skills. Many-a-times due to wrong job-person fit or due to non-availability of other project and effective utilization of an employee, these professionals have to work on

project which do not require the skills and talents which they possess. Not been assigned a favorable project and performing at a low end where once the incumbent had successfully performed a high-end job leaves him/her with stress arising due to role erosion.

Personal Inadequacy (PI) was reported as the fourth most important cause of organizational stress. This arises due to lack of knowledge, skill and training or due to time required for the preparation of a new role. This industry faces contrasting problems. Being low-ended destinations for the back office work, much of the work is very monotonous. High personal inadequacy can also be attributed to the stage of the development of this industry. Since salaries are linked to performance, it forces professionals to outperform each other. Moreover, due to lack of proper training and high pressure of the job, the stress due to personal inadequacy was observed.

Role Isolation (RI) emerged as the fifth most potent role stressor. A possible reason for role isolation may be that since the work is routine based and monotonous, the professionals do not find their work to be meaningful and are hence not able to form strong linkages with their work.

Self Role Distance (SRD) emerged as the sixth most potent stressor. The professionals working in this sector are highly educated, drawn from good institutions, but due to unemployment many employees join this sector unwillingly. Performing low-end back-office jobs or monotonous jobs cause conflict between the self-concept of the individual and those of the requirements and expectations of the organization.

Resource Inadequacy (RI) and Role Expectation Conflict (REC) were reported as seventh and eighth most important causes of organization stress. Role Overload followed by Role Ambiguity (RA) was found to be the least contributors of organizational stress.

6. Conclusion

An individual's motive for working may vary according to the nature and potency of the unsatisfied portion of his/her individual hierarchies of needs. It is evident that individuals do not join a bank and insurance company only for fair compensation and employment. Instead, they also look for job security, ease of working in flexible timing and career advancement. They look to satisfy multiple levels of needs simultaneously and aspire for a job which offers a good mix of primary, social and esteem needs.

From the findings of this study and the general overview of the literature reviewed, it can be concluded that stress has become a major problem in an organization and the focus has shifted not only to identify the potential stressors and cordoning them off but also increasing stress tolerance level of the employees because it is realized that stress is inevitable and one must learn to live with it. The expression stress tolerance denotes an individual's ability to cope with stress. It is thus the ability of a person to handle emotionally-charged situations adeptly and to resist burnout, in demanding environments. (Ram & Soumya, 2010). Four factors have been said to affect the stress tolerance level (Pestonjee, 1999). These are anger, anxiety, depression, and "Type A" personality. There are number of factors that cause the physical and psychological problems for these employees.

Numerous authors, Cooper Sloan and William, Huczynski and Buchanan, Krumm, and Yerkes and Dodson have stated that extreme levels of stress, either very low or very high do not work at their optimum. A very low level of stress undermines people's alertness or resource activation and a very high level of stress may lead to anxiety, depression and various mental and physical illnesses. This explains that optimum level of stress is associated with superior performance. Maintained at moderate levels, stress can be stimulating. Therefore, it is necessary to pay heed to stress in the work environment.

Such research is needed in many parts of India. The present study, which is an empirical investigation into stress in the banking sector in a small area of Jharkhand (Dhanbad and Bokaro), needs to be carried out in other regions as well. There is still a dearth of investigations into occupational stress and its causative factors and more research needs to be carried out. This study can be used as a stepping stone by future academic researchers for further exploratory research toward defining stress and its effects. It may be useful in helping the banking industry manage organizational stress well.

7. Recommendations

From the result of the present study and the general overview of the related literature, it can be concluded that stress is a major hazard for the organization and may affect not only the performance of employees but also their health (Kazmi et al., 2008). Therefore, it is important for the management to play an interventionist role as far as stress management programme is concerned. (Baron, 1989; Benson, 1992; Greenberg & Baron, 2003; McGrath, 1976).

Company-sponsored health-promotion programmes for managing workplace stress and increasing the stress tolerance level may help employees deal with

stress through prevention and confrontation (Greenberg, 2002; Hanson, 1993; Kreitner, 1982; Kruum 2001; McGrath, 1976; Murray, 1993; Robbins, 2002). However, prescriptions from highly institutionalized agencies or professional Yoga Gurus offering services to reduce management is often responsible for creating the culture of the organization which in turn affects the personality of the employees that may increase or decrease the vulnerability towards stress. Sometimes, employees themselves due to their own unique personality characteristics become stress prone. Thus, any effort related to stress management has to take into account the fact that the culture and the employees are the main focal points. It is important for the management to understand that it has to play an interventionist role as far as stress management is concerned. Individuals by indulging themselves in simple techniques may beat the stress to a great extent. For example relaxation, deep breathing, laughter, healthy diet, meditation provide both physiological and psychological rest (Benson, 1992; Clarke, 1989; Huczynski & Buchanan, 2001). Realistic goal setting, time management, redesigning work, employee participation, increasing feelings of personal accomplishment, balancing home and work life and becoming more self efficacious may aid in ameliorating stress management process (Greenberg, 2002; Huczynski & Buchanan, 2001; Kruum, 2001; Mauer & Pierce, 1998; Robbins, 2002). Also, the use of cognitive approaches to stress management assists him/ her to change the way he/she appraises the stressful event thereby changing the perception of the stressful situation (Lazarus 1981; Billings & Moos, 1991).

8. Limitations of the Study

This study has limitations which open up the opportunity for further research. Considering the time constraint the study is conducted only at Dhanbad and Bokaro. The same or similar kind of study can be done on a much larger population or different work settings. The opinion elicited from the research study cannot be taken as the opinion of the whole population.

References

- Babin, B. J., & Boles, J. S. (1998). Employee behavior in a service environment: A model and test of potential differences between men and women. *Journal of Marketing*, 62(2).
- Banovcinova L. and Baskovaa M. (2014) Sources of work-related stress and their effect on burnout in midwifery. 6th International Conference on Intercultural Education-Education and Health: From a transcultural perspective, *Procedia-Social and Behavioral Sciences*, 132, 248-254.

- Baron A. (1989). *Personality and organizational conflict, Effects of the Type A behavior pattern and self-monitoring*. Prentice Hall.
- Benson H. (1992). *The Wellness Book*. Simon & Schuster.
- Bickford M. (2005). *Stress in the Workplace: A General*, Canadian Mental Health Association Newfoundland and Labrador Division.
- Billings, A. G., & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. *Journal of behavioral medicine*, 4(2), 139-157.
- Bhattacharya, S., & Basu, J. (2007). Distress, wellness and organizational role stress among IT professionals: role of life events and coping resources. *Journal of the Indian Academy of Applied Psychology*, 33(2), 169-178.
- Bohle, P., & Quinlan, M. (2000). *Managing Occupational Health and Safety: A Multidisciplinary Approach*. (2nd ed.) MacMillan.
- Brate, A. T. (2014). Diagnosing Occupational Stress in Romanian Organisations. *Procedia-Social and Behavioral Sciences*, 127, 559-564.
- Bryce, C. P. (2001). *Insights into the concept of stress*. Washington, DC: Pan American Health Organization.
- Caplan, R. D., Cobb, S., French, J. R. P., Harrison, R. V., & Pinneau, S. R. J. (1975). *Job Demands and Worker Health*. H.E.W. Publication.
- Carver, C. S., & Connor-Smith, J. (2010), Personality and coping, *Annual review of psychology*, 61, 679-704.
- Childs J. H. & Stoeberl J. (2012) Do you want me to be perfect? Two longitudinal studies on socially prescribed perfectionism, stress and burnout in the workplace, *Work & Stress*, Vol. 26, No. 4, 347-364.
- Chung Y. S. & Wu H. L. (2013). Stress, strain, and health outcomes of occupational drivers: An application of the effort reward imbalance model on Taiwanese public transport drivers. *Transportation Research Part F*, 19, 97-107.
- Chusmir, L. H., & Franks, V. (1988). Stress and the Woman Manager. *Training & Development Journal*, 42(10), 66-70.
- Clarke D. (1989). *Stress Management*. National Extension College, Cambridge.
- Cooper C. L. & Cartwright S. (1994). Healthy Mind, Healthy Organization: A Proactive Approach to Occupational Stress. *Human Relations*, 47(4), 455-471.

- Cooper, C. L. & Marshall, J. (1978). *Understanding executive stress*. London: Macmillan Press.
- Cooper C. L., Sloan S. L. & William S. (1988). *Occupational Stress Indicator, Management Guide*, Glasgow: Nfer-Nelson Publishing Company.
- Dasgupta, H. & Kumar, S. (2009). Role stress among doctors working in a government hospital in Shimla. *European Journal of Social Sciences*, 9(3), 356-370.
- Decenzo D. A. & Robbins P (2002). *Human Resource Management*. Hoboken, NJ: John Wiley and Sons.
- Devi, A., Sharma, S. K., & Sharma, J. (2012). Role Stress among Banking Sector Employees: A Logit Approach. *The IUP Journal of Organizational Behavior*, 11(3), 41-63.
- Dumitrescu C. (2014). Influence of psychotherapeutic interventions on occupational stress. *Proceedings Social and Behavioral Sciences* 127: 696 – 701.
- Edworthy A. (2000). *Managing Stress*. Buckingham: Open University Press.
- French, J. R., & Caplan, R. D. (1972). Organizational stress and individual strain. *The failure of success*, 30, 66.
- French, John R. P & Kahn R. L. (1962). A programmatic approach to studying the industrial environment and mental health. *Journal of Social Issues*, 18(3), 1-47.
- French, John R. P, Caplan R. D. & Harrison R. V. (1982). *The Mechanisms of Job Stress and Strain*. London: Wiley.
- Gibbons R. M. and Gibbons B. (2007). Occupational Stress in the chief Professional. *International Journal of Contemporary Hospitality Management*, 19:32-42.
- Gillingham K. K. (1998). High-G Stress and Orientational Stress: Physiologic Effects of Aerial Maneuvering. *Aviation, Space, and Environmental Medicine*, 59, A10–A20.
- Govardhana M. C. & Anita Bhoir (2012) Global banks Citigroup, HSBC, Bof A Merrill Lynch and Barclays cutting jobs in India at ruthless pace, *The Economic Times*, 24 January, retrieved from http://articles.economictimes.indiatimes.com/2012-01-26/news/30666868_1_global-banks-job-cuts-international-banks
- Greenberg J. (2002). *Managing Behavior in Organizations*. New Jersey: Prentice Hall.
- Greenberg J. & Baron A. R. (2003). *Behavior in Organizations*. New Jersey: Prentice Hall International, Inc.

- Hair, J. F., Anderson, R. E., Tatham, R.L. & Black, W. C. (1998). *Multivariate Data Analysis*. New Jersey: Prentice Hall.
- Hanson P. G. (1993). *The Joy of Stress*. New York: Andrews and McMeel.
- Harrison, R. V. (1978). Person-environment fit and job stress. *Stress at work*, 175, 205.
- Herrero S. G., Mariscal M. A., Gutiérrezb J. M. & Ritzel D. O. (2013). Using Bayesian networks to analyze occupational stress caused by work demands: Preventing stress through social support. *Accident Analysis & Prevention*, 57, 114-123.
- Hinkle, L. E. (1973). The concept of stress in the biological and social sciences. *Science, Medicine and Man*, 1 (1), 31-48.
- Horwitz, A. V. (2010). How an age of anxiety became an age of depression. *The Milbank Quarterly*, 88(1), 112-138.
- Huczynski A. & Buchanan D. (2001). *Organizational Behavior*. New Jersey: Prentice Hall.
- Jain, A. K., & Cooper, C. L. (2012) Stress and organizational citizenship behaviors in Indian business process outsourcing organizations, *IIMB Management Review*, 24 (3), 155-163.
- Jung H. S., Yoon H. H. & Kim, Y. J. (2012) Effects of culinary employees' role stress on burnout and turnover intention in hotel industry: Moderating effects on employees' tenure, *The Service Industries Journal*, 32 (13), 2145-2165.
- Kazmi R., Amjad S. & Khan D. (2008). Occupational stress and its effect on job performance: A case study of medical house officers of district Abbottabad. *Journal of Ayub Medical College*, 20, 135-139.
- Kreitner R. (1982), Personal Wellness: It's Just Good Business, *Business Horizons* 25 (May/June), 28–35.
- Krumm D. (2001). *Psychology at Work*. New York: Worth Publishers.
- Lazarus R. S. (1991). Psychological stress in the Workplace. *Journal of Social Behavior and Personality*, 6, (2), 1–13.
- Lazarus, R. S. & Folkman S. (1984). *Stress, Appraisal, and Coping*. New York: Springer.
- Leskovic L., Miglic G. & Vukovic G. (2013) Factors influencing Burnout syndrome phenomenon in social welfare institutions in the Republic of Slovenia, *Health Med*, 7 (2), 553-559.
- Levey R. E. (2001). Sources of stress for residents and recommendations for programs to assist them. *Academic Medicine*, 76, 142–50.

- Mauer T. J. & Pierce H. R. (1998). A comparison of Likert scale and traditional measures of self-efficacy. *Journal of Applied Psychology*, 83(2), 324.
- McGrath J. E. (1976). Stress and Behavior in Organizations, in Dunnette M.D. (ed.) *Handbook of Industrial and Organizational Psychology*, Chicago: Rand McNally.
- Murray K. (1993). The Unfortunate Side Effects of Diversity Training, *New York Times*, 1 August, p.1.
- Michailidis M. & Asimenos A. (2002). Occupational stress as it relates to higher education, individuals and organizations. *WORK A Journal of Prevention, Assessment & Rehabilitation*, 19, 137–147.
- National Institute of Occupational Safety and Health – NIOSH. (1999). *Stress at work. U.S. Department of Health and Human Services*, United States: DHHS Publications.
- Pareek, U. (1983). Organizational roles stress, in Goodstein L. D. and Pfeiffer J. W. (ed.) *The 1983 annual*, San Diego, CA: University Associates.
- Parker, D. F & Decotiis, T. A. (1983). Organizational determinants of job stress. *Organizational Behavior and Human Performance*, 32 (2), 160–177.
- Pathak P. (1992). Organizational Effectiveness as a function of Occupational Stress and coping styles of executives in Indian Coal Industry – A Case Study, PhD thesis unpublished.
- Perrewe, P.L. & Anthony, W. P. (1990). Stress in a steel pipe mill: The impact of job demands, personal control, and employee age on somatic complaints. *Journal of Social Behavior and Personality*, 5, 77-90.
- Pestonjee, D. M. (1999). *Stress and coping - The Indian experience* 2nd edition. New Delhi: Sage Publications.
- Quick J. C., Joplin J. R., Gray D. A. & Cooley E. C. (1993). The Occupational Life Cycle and the Family, in L'Abate L.(ed.) *Handbook of Developmental Family Psychology and Psychopathology*, New York: John Wiley.
- Quick, J. C., J. D. Quick, D. L. Nelson & Hurrell J. J. J. (1997). *Preventive Stress Management in Organizations*. Washington, DC: American Psychological Association.
- Ram G. & Soumya S. (2010). Study on Strategic Importance of High Stress Tolerance Limit among Media Personnel, Viewpoint.
- Robbins, Stephen P. (2002). *Organizational Behavior*. New Jersey: Prentice Hall.

- Robinson, J. P., Shaver, P. R. & Wrightsman, L. S. (1991). Criteria for scale selection and evaluation, in Robinson J. P., Shaver P.R. and Wrightsman L. S. (ed.) *Measures of Personality and Social Psychological Attitudes*, San Diego, CA: Academic Press.
- Selye, H. (1936). A syndrome produced by diverse nocuous agents. *Nature*, 138 (3479), 32-35.
- Shapiro, S. L., Shapiro, D. E., and Schwartz, G. E. (2000). Stress management in medical education: a review of the literature, *Academic Medicine*, 75(7), 748–59.
- Singh, A. P & Dubey, A. K. (2011). Role of stress and locus of control in job satisfaction among middle managers. *The IUP Journal of Organizational Behavior*, X(1), 42-56.
- Smith, P.A. (2003). Keynote Address: Monitoring the Impact of Shift work on Employee Well Being. XVith International Symposium on Night and Shiftwork, Santos, Brazil. November 18-21.2003.
- Smither R. D. (1998). *The Psychology of Work and Human Performance*. New York: Longman.
- Spielberger, C. D. & Reheiser E. C. (1994). Job stress in university, corporate and military personnel. *International Journal of Stress Management*, 1, 19–31.
- Spielberger, C. D., Vagg P R. & Wasala C. F. (2002). Occupational stress: job pressures and lack of support, in Quick J. C. and Tetrick L. (ed.) *Handbook of Occupational Health Psychology*, Washington, DC: American Psychological Association.
- Strange R. E. & Brown D. (1970). Home from the War: A Study of Psychiatric Problems in Vietnam Returnees. *American Journal of Psychiatry*, 127(4), 488-492.
- Vazquez, E. L. (2001). Risk perception interactions in stress and coping facing extreme risks. *Environmental Management and Health*, 12(2), 122-133.
- Weinberg A. & Creed, F. (2000). Stress and psychiatric disorder in healthcare professional and hospital staff. *The Lancet*, 355(9203), 533-537.
- Stavoula L., Amanda G. & Tom C. (2001). *Protecting worker's health Institute of Work, Health and Organization* (World Health Organization).
- Yerkes R. M. & Dodson J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology*, 18(5), 459–482.

Book Review

From Poverty to Empowerment: India's Imperative for Jobs, Growth, and Effective Basic Services, McKinsey Global Institute, February 2014, 248 pages.

The McKinsey Global Institute (MGI) undertakes research on India and brings out reports periodically carrying a central theme. This latest report on India is based on the theme of "lifting millions above the empowerment line". The "empowerment line" (EL) is a more wholesome concept than the official "poverty line" (PL). The former is a more comprehensive benchmark that takes into account eight basic needs of food, energy, housing, drinking water, sanitation, healthcare, education and social security while the latter considers just bare subsistence. The MGI clarifies that the EL is the minimum acceptable standard of living whereas the PL defines extreme poverty.

The MGI has estimated that in 2011-12, 680 million people constituting 56 per cent of the population in India had been below the EL while only 270 million (22 per cent of population) below the PL. During the 7-year period, 2005-12, 183 million were lifted above the EL of which three fourths due to a rise in personal incomes associated with the rapid GDP growth of 8.5 per cent per annum. The rest of one fourth had been lifted due to expansion of public spending on basic services. The MGI states that the outcomes could have been better had the productivity in agriculture and industry been higher and had there been lower leakages and waste of public spending. In fact, nearly half of the public spending on basic services did not reach the people due to inefficiency and corruption.

The MGI has drawn two alternative scenarios for the decade 2012-22 based on how rapidly the people are raised to the EL. The first one is called the "stalled reforms" scenario in which the GDP growth would be at 5.5 per cent per annum and the effectiveness of social spending remains unchanged. Here 470 million or 36 per cent of the population would remain below the EL in 2022 and 12 per cent below the PL. The second scenario is called the "inclusive reforms" scenario in which there would be higher investment rate, job creation, agricultural productivity and a drastically improved delivery of basic services. The GDP growth rate would be at 7.8 per cent per annum. Under this scenario, only 100 million or 7% of India's population would be below the EL and 17 million (1% of population) would be below the PL in 2022.

MGI propounds four critical elements in achieving the inclusive-reforms scenario. They are: (1) the creation of additional non-farm jobs of 115 million by 2022, (2) raising of farm productivity from 2.3 tonnes per hectare to 4 tonnes, (3) the growth of public spending on basic services in real terms by 6.7 per cent annually, and (4) raising the effectiveness of delivery of basic services by 50 per cent. These would require the government undertaking policy reforms in six priority areas for: (1) improving the critical infrastructure of power and logistics, (2) reducing the administrative burden on business, (3) removing tax and product-market distortions, (4) rationalizing land markets, (5) taking phased steps to make labour markets more flexible, and (6) helping the poor workers build skills with government-funded mechanisms.

As part of job generation, the MGI advocates that the government should catalyse in creating 70-100 sites of industrial townships, tourism circuits and food-processing parks. This is done through public investment in infrastructure such as power, road, railways, housing and schools. It is estimated that the government through this can add 11 million new jobs within a decade.

With regard to the key element of raising agricultural productivity, the MGI has shown how precisely India's crop yield, which is currently about half the average of selected East Asian countries, be increased to the levels in those countries by improving soil fertility, irrigation, seed quality, precision farming and improved market access to farmers. For that, an array of agricultural reforms are proposed including amending of the agricultural-price marketing committee (APMC) regulation and the rationalization of price supports to farmers.

While stating that better governance is the key to inclusive reforms, MGI suggests six ideas for improved governance: (1) empowered agencies in government for high priority initiatives, (2) public transparency, (3) decentralization, (4) talent and performance management in government, (5) a robust anti-corruption framework, and (6) simplification of laws and building legal and judicial capacity.

Like any other report from the stable of McKinsey, this on India is also quite perceptive as well as incisive. And there is no doubt that this provides important policy inputs for the new government at the Centre. However, the report sadly reveals some vital gaps in understanding of the current economic situation in India. While it recognizes the sharp slowdown of the Indian economy in recent years, it has not taken cognizance of the serious inflationary condition prevailing in the country. The mix of low growth with high inflation offers a completely new paradigm of the Indian economy for analysis and specification of measures.

The MGI has given a lot of emphasis on raising agricultural productivity but the steps suggested towards it are not sufficient to propel India to a high-growth economy with low inflation. A complete revamping of the government food pricing, procurement and distribution system is called for. Besides this, the flawed pricing and distribution of agricultural inputs of fertilizer, water and electricity have to be corrected. The report has given only sketchy outlines of a fully reformed food market which only can pave the way for India resuming a non-inflationary high-growth path. To sum up, the MGI report on India is good in parts but its diagnosis, on the whole, is flawed and its overall prescription may not bring India back to a sustained high growth trajectory.

Mathew Joseph
Professor
Rajagiri Centre for Business Studies
Kakkanad
Kochi – 682039
Kerala, India
E-mail: mathewjoseph@rajagiri.edu

Guidelines for Authors

Contributions to the Rajagiri Management Journal are invited from researchers, practitioners and academics. Theoretically based and empirically supported well written articles on management issues may be submitted as MS-Word file to editor-rmj@rajagiri.edu and assteditor-rmj@rajagiri.edu. Along with the manuscript, the authors should provide the undertaking that (i) the article contains the original work of the author(s); (ii) it is neither published earlier nor being considered for publication elsewhere; and (iii) there are no copyright violations with regard to the material used in the article.

The cover page of the manuscript should contain the article title, the name and affiliations of authors along with their postal address, phone and fax numbers and e-mail address. The second page should contain the title of the article, the abstract (100-150 words) and keywords (up to 5 words). Acknowledgements, if any, must be mentioned below the keywords.

The length of the article should be 3000-6000 words (inclusive of tables and figures) with about 1 inch left, right, and top and bottom margins each. It must have sections and subsections which are named and numbered as appropriate. The material should be formatted in Times New Roman, font size 12 and double spaced. All tables and figures are to be serially numbered (in Arabic numerals) and sequentially placed after references in the text. The source should be indicated at the bottom of tables and figures, wherever necessary. It has to be noted that all tables and figures are to be given in a separate word file with the file mentioning the paper to which they belong. Also, all tables and figures should be in black and white and not in colour.

Rajagiri Management Journal follows British spelling (e.g. organization, programme, colour and labour) except in case of direct quotations.

For citations, references and endnotes/footnotes, guidelines specified in the Publication Manual of the American Psychological Association (APA) must be followed.

Subscription

Rajagiri Management Journal is published twice a year. Annual subscription for each volume of two issues (print edition) is Rs.600. Please send cheque or DD in favour of Principal, Rajagiri College of Social Sciences payable in Kochi to Librarian, Rajagiri Centre for Business Studies, Rajagiri Valley P.O, Kakkanad, Kochi - 682039, Kerala. E-mail: rcblibrary@rajagiri.edu.

RAJAGIRI Management Journal

ISSN 0972-9968

Published by Rajagiri Centre for Business Studies
(A CMI Institution)

Rajagiri Valley P. O, Kakkanad,
Kochi - 682 039, Kerala, India.

Phone: 91 - 484 - 2426554

Fax: 91 - 484 - 2426578

Web: <http://rcbs.rajagiri.edu>