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Contents

Focus

Pure Efficiency Change Growth of Regional Rural Banks in India—Using Malmquist Productivity Index

VERSHA MOHINDRA AND GIAN KAUR

This article shows the temporal growth rate of pure efficiency change growth of Regional Rural Banks (RRBs) in India for the period from 1991–92 to 2006–07. In addition, it describes the inter-period and inter-bank analysis of PEFFCH growth of RRBs in India. The study has considered a sample of 50 RRBs which have been uninterruptedly operating from 1991—92 to 2006–07 so as to make a balanced panel data set this study on the productivity growth of RRBs using non-parametric approach; i.e., DEA technique has been undertaken. This study adopts the input-oriented Malmquist productivity index. The empirical findings show that RRBs have registered PEFFCH growth at the rate of 0.54 percent per annum during 1993–2007. The growth rates of PECH and its indices have experienced variations during study years. This may be as RRBs had to bear important and regular policy changes during the study period. As productivity study of banks would be helpful in locating sources of inefficiencies and poor performance, enable all the stakes holders to take a fresh look at their functioning, and initiate suitable strategies measures in achieving these objectives; therefore, it is proposed to conduct research on the same issue.

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Section I

Banking sector is even more important as the expansion of banking services to rural areas may also play a significant role in reducing poverty and ensuring sustainable income levels. Rural areas account for 60 percent of the total credit needs and rest of the 40 percent is provided by the non-institutional sector. However, that was not sufficient. Therefore, Regional Rural Banks (RRBs) were established on February 9, 1976. RRBs started their development process on October 2, 1975. RRBs have made banking services within the reach of rural poor. Given the initial objective of policymakers to increase outreach, perusal of Table 1 depicts that originally there were only 6 RRBs in 1975 which increased to 82 in 2012.

Objective of the Article

This article shows the temporal growth rate of pure efficiency change (PEFFCH) growth of RRBs in India for the period from 1991–92 to 2006–07, divided into two generation reforms periods. In addition, it describes the inter-period and inter-bank analysis of PEFFCH growth of RRBs in India. This objective is chosen as most of the studies of RRBs related to the expanse of problems and prospects of RRBs and paid negligible attention to measure pure efficiency change growth of RRBs in India. In addition, no subsequent attempt has been made to bifurcate the post-liberation period into distinct two sub-periods, viz. first-generation reforms period (from 1991–92 to 1997–98) and second-generation reforms period (from 1998–99 to 2006–07) to show how the magnitude of productivity scores vary with the change in the degree of first-generation reforms period to second-generation reforms period. Therefore, the present study is an effort in this direction to enrich the already scant existing literature on productivity growth of RRBs in India.

Plan of the Article

This article is planned as follows:

- First section is all about introduction of RRBs in India.
- Second section discusses review of literature.
- Third section elaborates data base and methodology.
- Fourth section discusses temporal analysis and inter-bank and inter-period PEFFCH growth rate of RRBs in India.
- Fifth and last section ends up with conclusion and some policy implications.

Section II

Review of Literature

With this article an attempt has been made to review the empirical studies related to total factor productivity growth of RRBs as well as a brief outline of empirical studies of commercial banks conducted at national and international level has been made.

There are very few studies of research scholars related to the productivity of RRBs in India, which have been outlined in the following paragraphs.

Reddy (2006) put into use the Data Envelopment Analysis (DEA) technique to examine total factor productivity and scale efficiency changes in RRBs by using data of 192 banks and 27 parent public sector banks for the period from 1996 to 2002. Khankhoje and Sathye (2008) put into use non-parametric technique of DEA to look into the improvement in productive efficiency of RRBs due to the restructuring strategy undertaken in 1993–94 for the period from 1990 to 2002. Mohindra and Kaur (2012) analyzed the impact of deregulation on the productivity changes of 50 sample RRBs during the period from 1991–92 to 2006–07 using DEA0based Malmquist productivity index.

Here we are discussing some notable studies of various research scholars related to the productivity of commercial banks at national and international levels.

Yue (1992) estimated the efficiency of Missouri banks during the period from 1984 to 1990; Athma and Srinivas (1997) conducted a study to analyze the productivity of public sector banks, private sector, and foreign banks for the period from 1982 to 1995 and the result verified that the productivity—both per employee and per branch—showed increased trend in all the three ownership groups, though it was relatively higher in the case of private and foreign sector of banks. Grifell-Tatze and Lovell (1997) studied commercial banks in Spain during the period from 1986 to 1993; and Kumar and Batra (2012) attempted to explore the productivity changes of banking industry during the period from 2006 to 2011.

Section III

Data Base and Methodology

The present article explains the theoretical framework related to efficiency and productivity growth of the variables related to the present study.

Data Base

The study has considered a sample of 50 RRBs which have been uninterruptedly operating from 1991–92 to 2006–07 to make a balanced panel data set. The sample period is selected up to 2007 as few sample banks were merged after this period. This post-liberalization period has been divided into two sub-periods; i.e., first-generation reforms period (from 1991–92 to 1997–98) and second-generation reforms period (from 1998–99 to 2006–07) to analyze the impact of reforms on behavior of PEFFCH growth of RRBs in India. The data for the sample years covers data on financial year basis; i.e., beginning from 1st of April of the existing year to 31st of March of the succeeding year.

The present study is based on secondary data. The data have been culled out from various issues of *Statistical Tables Relating to Banks in India*; *Report on Trend and Progress in Banking*; *Manual on Financial and Banking Statistics*; *RBI* monthly Bulletins published by Reserve Bank of India (RBI) and various issues of *Financial Analysis of Regional Rural Banks*; *Regional Rural Banks Key Statistics* and *Review of Performance of Regional Rural Banks* published by National Bank for Agriculture and Rural Development (NABARD). Apart from the above-mentioned sources, data has also been compiled from compact disc on "Statistical Tables Relating to Banks in India (including RRBs) 1979 to 2007" available at Reserve Bank of India, Mumbai. Further, *National Income Statistics* published by Center for Monitoring Indian Economy (CMIE) has been used for calculating GDP price deflator (Banking and Insurance). Data on consumer price index (CPI) for urban non-manual employees has been taken from "Brochure on Group and Sub-Group CPI Number," published by Central Statistical Organization, Ministry of Statistics and Programme, Implementation, Government of India, New Delhi.

The present study is based on intermediation approach which is suitable for bank-level efficiency as advocated by Berger and Humphrey (1997). In this study,

the input parameters are defined in terms of loanable funds (X_1), fixed assets (X_2) and wages (X_3) and output parameters are advances (Y_1) and total income (Y_2).

Methodology

This study on the productivity growth of RRBs uses non-parametric approach; i.e., DEA technique has been undertaken. It attempts to offer more effective results in comparison to parametric approach, because DEA is a performance evaluation criterion. Productivity consists of measuring the change in ratio of outputs over inputs used in a production process over time. Increase in inputs, if used efficiently, will no doubt produce productivity growth. Casu et al. (2004) highlighted the importance of analyzing the productivity of banking and mentioned that it

> ...is of interest from a policy perspective because if banks are becoming more productive then one might expect better performance, lower prices and improved service quality for consumers, as well as greater safety and soundness if productivity improvements are channelized towards strengthening capital buggers that absorb risk.

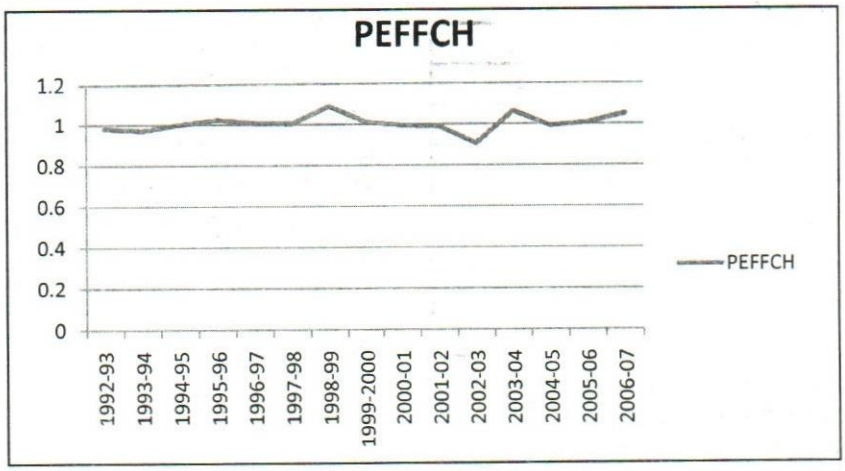
The most common non-parametric method to measure total factor productivity growth is the Malmquist index (MI). The constituents of total factor productivity are technical efficiency change and technological changes. Technical efficiency change is decomposed further into pure technical efficiency change and scale efficiency change. This article takes into account only one component; that is, pure technical efficiency change because managerial competence is considered to be the most important parameter of increasing the productivity as per our consideration. Managerial competence in pure technical efficiency questions whether the organization works with suitable scale and shows the result in producing within the appropriate scale. Decrease in pure technical efficiency signals the distortion in managerial competence. This study adopts the input-oriented Malmquist productivity index. The MI is an index of the geometric mean of productivity index from period '*t*' to '*t*+1'. When the index is greater (MPI > 1) than one, this indicates an improved productivity and lower than one (MPI < 1) is a decline in productivity, and, finally, equal to one means no change (constant) in productivity. The MI is derived with the help of an available computer program called Data Envelopment Analysis Program (DEAP) Version 2.1 (Coelli, 1996).

Section IV

This section analyses the temporal growth of pure technical efficiency change of the sample RRBs. The PEFFCH estimates the growth of an individual bank as compared to the best practice bank. To estimate the PEFFCH growth rate, one is subtracted from PEFFCH index and then the value is multiplied by 100 to express it in percentage. The similar process has been employed to calculate the growth rates of the related indices of MPI. Further, MPI indices are calculated relative to the previous year (so no figures exist for the first sample period 1991–92). The annual entries are geometric means of results for individual banks and the period results reported in the last row correspond to geometric means of the annual geometric means.

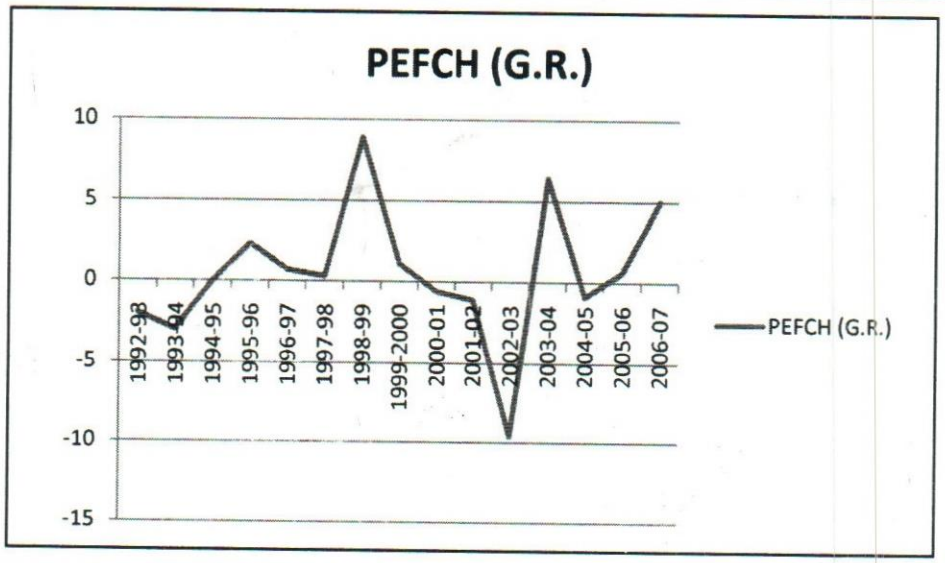
Temporal Analysis of PEFFCH Index

This section presents the empirical findings of the PEFFCH index along with their growth rates of RRBs for the period from 1991–92 to 2006–07 through Table 1 and Figures 1 and 2.



Source: Author's own.

Figure 1: Pure Efficiency Change Growth Index of RRBs in India



Source: Author's own

Figure 2: Pure Efficiency Change Growth Rate of RRBs in India

Table 1: Annual Growth Rates of Pure Technical Efficiency Change (1991–92 to 2006–07)

Years	PEFFCH	GR
1992–93	0.98	–2
1993–94	0.97	–3
1994–95	1	0
1995–96	1.023	2.3
1996–97	1.007	0.7
1997–98	1.003	0.3
1998–99	1.089	8.9
1999–2000	1.011	1.1
2000–01	0.994	–0.6
2001–02	0.989	–1.1
2002–03	0.904	–9.6
2003–04	1.064	6.4
2004–05	0.991	–0.9
2005–06	1.006	0.6
2006–07	1.05	5
Averages		
1993–1998	1.00	–0.28
1999–2007	1.01	1.09
1993–2007	1.01	0.54

Source: Author's own.

Note: PEFFCH denotes pure efficiency change, and GR denotes growth rate. The period 1993–98 shows first-generation reforms period, 1999–2007 shows second-generation reforms period and 1993–2007 shows entire study period. All the indices are relative to the previous year; therefore, no results for the initial sample period 1991–93.

The empirical findings show that RRBs have registered PECH growth at the rate of 0.54 percent per annum during 1993–2007. As indicated in Table 1 the growth rates of TFPCH and its indices have experienced variations during study years. This may be as RRBs had to bear important and regular policy changes during the study period. The empirical findings describe that positive growth rates of PECH have been observed in eight years during the periods 1995–96, 1996–97, 1997–98, 1998–99, 1999–2000, 2003–04, 2005–06 and 2006–07 ranging from 0.3 percent (1997–98) to 8.9 percent (1998–99). Likewise, negative growth of PECH has been observed in seven years during the years 1992–93, 1993–94, 2000–01, 2001–02, 2002–03 and 2004–05 ranging from –0.6 percent (2000–01) to –9.6 percent (2002–03). The empirical findings divulge that stagnant growth rate of PECH has been noted during the period 1994–95. The comparative analysis of PECH growth rate during first-generation reforms period and second-generation reforms period indicates positive and higher growth rate during second-generation reforms period (i.e., 1.09 percent) than the negative growth rate during first-generation reforms period (i.e., –0.28 percent). The average growth rate during the study period turned out to be 0.54 percent. Further, the major factor contributing for technical efficiency change is pure efficiency change (i.e., 0.54) rather than scale efficiency change (i.e., 0.09) during the entire period.

Inter-Bank and Inter-Period PEFFCH Growth of RRBs in India

Here we analysed the inter-bank and inter-period measures of PEFFCH growth for the period from 1991–92 to 2006–07.

The inter-bank and inter-period growth of PEFFCH index for the period 1993–2007 has been shown in Table 2. The empirical findings show that the Ratnagiri Sindhudurg Grameen Bank and Hadoti Kshetriya Grameen Bank have registered PEFFCH growth rate of 2.7 percent and 2.5 percent per annum, respectively during the entire period. However, Jhabua Dhar Kshetriya Grameen Bank, Kamraz Grameen Bank, Langpi Dehongi Rural Bank, Manipur Rural Bank, Mewar Anchalik Gramin Bank, Prathama Bank, Ratlam Mandsaur Kshetriya Grameen Bank, Rushikulya Gramya Bank, Sharda Grameen Bank, Solapur Grameen Bank, and South Malabar Grameen Bank emerged to be least pure efficient at the rate of less than 1 percent per annum. Out of 50 sample RRBs, 28 banks experienced positive growth rate of PEFFCH index. Among these banks, 11 banks experienced growth at the rate of less than 1 percent per annum and the remaining banks (i.e., 17) experienced growth at the rate of more than 1 percent per annum. Further, 13 banks experienced negative growth rate ranging from –0.3 percent per annum to –2.7 percent per annum. Arunachal Pradesh Rural Bank emerged to be the least negative growth rate of –2.7 percent per annum. Moreover, 6 banks, viz. Faridkot Bathinda Kshetriya Gramin Bank, Kosi Kshetriya Gramin Bank, Nagaland Gramin Bank, Puri Gramin Bank, Tripura Gramin Bank and Vidisha Bhopal Kshetriya Gramin Bank recorded stagnant PEFFCH growth during the entire period.

The comparative analysis of growth rates of PEFFCH during first-generation reforms period and second-generation reforms period illustrate that Langpi Dehangi Rural Bank and Nainital Almora Kshetriya Grameen Bank have experienced positive growth rate, i.e., 3 percent and 1.5 percent per annum, respectively, but these banks have witnessed deceleration in the PEFFCH growth rates during second-generation reforms period. Similarly, Devipatan Kshetriya Grameen Bank, Prathama Bank, Ratlam Mandsaur Kshetriya Grameen Bank and Rushikulya Gramya Bank have witnessed positive growth rates, but these banks have experienced deceleration in the growth rate of pure efficiency change during first-generation reforms period. Mizoram Rural Bank and Arunachal Pradesh Rural Bank have experienced PEFFCH the highest rate of 4.3 percent and 2.8 percent per annum, respectively during 1993–98. Similarly, Kosi Kshetriya Grameen Bank and Kamraj Grameen Bank have experienced PEFFCH the highest rate of 3.8 percent and 3.1 percent per annum, respectively during 1999–2007. Baitarani Gramya Bank, Ellaquai Dehati Bank, Etawah Kshetriya Grameen Bank, Gurgaon Gramin Bank, Kamraz Grameen Bank, Kisan Grameen Bank, Kosi Kshetriya Grameen Bank, Kshetriya Kisan Gramin Bank, Marathwada Grameen Bank, Pandyan Gramya Bank, Ratnagiri Sindhudurg Grameen Bank, Samastipur Kshetriya Grameen Bank, Solapur Grameen Bank, Surguja Kshetriya Gramin Bank, Tripura Gramin Bank, Uttar Kshetriya Gramin Bank and Vishweshwarya Gramin Bank have witnessed negative growth rates during 1993–98 contrary to positive growth rates during 1999–2007. Similarly, Arunachal Pradesh Rural Bank, Chikmagalur Kodagu Grameen Bank, Hadoti Kshetriya Grameen Bank, Krishna Grameen Bank, Manipur Rural Bank, Mizoram Rural Bank, and Rani Lakshmi Bai Kshetriya Gramin Bank have witnessed positive growth rates during first sub-period as against the negative growth rates during second sub-period. Further, Devipatan Kshetriya Grameen Bank and Rushikulya Gramya Bank experienced lowest growth rate (i.e., 0.2 percent per annum) during the first sub-period and Gurgaon Grameen Bank experienced the lowest growth rate (i.e., 0.2 percent per annum) during the second sub-period. Aurangabad Jalana Grameen Bank, Durg Rajnandgaon Grameen Bank, Jammu Rural Bank, Jhabua Dhar Kshetriya Grameen Bank, Mahakaushal Kshetriya Grameen Bank, Mewar Anchalik Grameen Bank and Sharda Gramin Bank have experienced negative growth rates during first-generation reforms period and continued to be negative during second-generation reforms period. Although Durg Rajnandgaon Grameen Bank has experienced negative growth rate during both the period yet the extent of negative growth rate is found to be comparatively lesser than in first-generation reforms period. Devipatan Kshetriya Grameen Bank, Langpi Dehangi Rural Bank, Nainital Almora Kshetriya Grameen Bank, Prathama Bank, Puri Gramya Bank, Ratlam Mandsaur Kshetriya Grameen Bank and Rushikulya Gramya Bank have shown positive growth rates during both the periods. During first-generation reforms period, 26 banks have registered negative growth rates and 13 banks have registered negative growth rates during second-generation reforms period. Ballia Kshetriya Gramin Bank, Faridkot Bathinda Ksheriya Gramin Bank, Himachal Gramin Bank, Nagaland Gramin Bank, North Malabar Gramin Bank, Puri Gramin Bank, Thane Gramin Bank and Vidisha Bhopal Gramin Bank reported to have stagnant growth rates during first sub-period and Dhenkanal Gramya Bank, Faridkot Bathinda Kshetriya Gramin Bank, Malwa Gramin Bank, Nagaland Gramin Bank, Norht Malabar Gramin Bank, Parvatiya Gramin Bank, Puri Gramya Bank, Rewa Sidhi Gramin Bank, South Malabar Gramin Bank and Vidisha Bhopal Kshetriya Gramin Bank

Table 2 : Inter-Bank and Inter-Period PEFFCH Growth of RRBs in India (from 1991–92 to 2006–07)

Banks /Years	PEFFCH (1993–98)	GR	PEFFCH (1999–2007)	GR	PEFFCH (1993–2007)	GR
Arunachal Pradesh Rural Bank	1.028	2.8	0.985	–1.5	0.973	–2.7
Aurangabad Jalana Gramin Bank	0.993	–0.7	0.994	–0.6	0.997	–0.3
Baitarani Gramya Bank	0.994	–0.6	1.008	0.8	1.020	2
Ballia Kshetriya Gramin Bank	1.000	0	0.992	–0.8	0.982	–1.8
Chikmagalur Kodagu Gramin Bank	1.017	1.7	0.992	–0.8	1.021	2.1
Devipatan Kshetriya Gramin Bank	1.002	0.2	1.007	0.7	1.018	1.8
Dhenkanal Gramya Bank	1.006	0.6	1.000	0	1.015	1.5
Durg Rajnandgaon Gramin Bank	0.998	–0.2	0.992	–0.8	0.987	–1.3
Ellaquai Dehati Bank	0.939	–6.1	1.033	3.3	0.960	–4
Etawah Kshetriya Gramin Bank	0.991	–0.9	1.009	0.9	1.013	1.3
Faridkot Bathinda Kshetriya Gramin Bank	1.000	0	1.000	0	1.000	0
Gurgaon Gramin Bank	0.992	–0.8	1.002	0.2	0.989	–1.1
Hadoti Kshetriya Gramin Bank	1.009	0.9	0.997	–0.3	1.025	2.5
Himachal Gramin Bank	1.000	0	1.005	0.5	0.985	–1.5
Jammu Rural Bank	0.987	–1.3	0.988	–1.2	0.981	–1.9
Jhabua Dhar Kshetriya Gramin Bank	0.985	–1.5	0.997	–0.3	1.004	0.4
Kamraz Gramin Bank	0.945	–5.5	1.031	3.1	1.003	0.3
Kisan Gramin Bank	0.992	–0.8	1.005	0.5	1.022	2.2
Kosi Kshetriya Gramin Bank	0.951	–4.9	1.038	3.8	1.000	0
Krishna Grameen Bank	1.024	2.4	0.994	–0.6	1.027	2.7
Kshetriya Kisan Gramin Bank	0.973	–2.7	1.029	2.9	1.000	0
Langpi Dehangi Rural Bank	1.030	3	1.012	1.2	1.008	0.8
Mahakaushal Kshetriya Gramin Bank	0.957	–4.3	0.985	–1.5	0.990	–1
Malwa Gramin Bank	1.006	0.6	1.000	0	1.010	1
Manipur Rural Bank	1.021	2.1	0.995	–0.5	1.007	0.7
Marathwada Gramin Bank	0.972	–2.8	1.021	2.1	0.994	–0.6
Mewar Anchalik Gramin Bank	0.995	–0.5	0.998	–0.2	1.009	0.9
Mizoram Rural Bank	1.043	4.3	0.996	–0.4	1.017	1.7
Nagaland Gramin Bank	1.000	0	1.000	0	1.000	0
Nainital Almora Kshetriya Gramin Bank	1.015	1.5	1.005	0.5	1.021	2.1
North Malabar Gramin Bank	1.000	0	1.000	0	1.000	0
Pandyan Grama Bank	0.994	–0.6	1.016	1.6	1.015	1.5
Parvatiya Gramin Bank	1.011	1.1	1.000	0	1.030	3
Prathama Bank	1.006	0.6	1.007	0.7	1.006	0.6
Puri Gramya Bank	1.000	0	1.000	0	1.000	0
Rani Lakshmi Bai Kshetriya Gramin Bank	0.978	–2.2	1.028	2.8	1.024	2.4
Ratlam Mandsaur Kshetriya Gramin Bank	1.004	0.4	1.011	1.1	1.003	0.3
Ratnagiri Sindhudurg Gramin Bank	0.990	–1	1.004	0.4	1.027	2.7
Rewa Sidhi Gramin Bank	0.993	–0.7	1.000	0	0.983	–1.7
Rushikulya Gramya Bank	1.002	0.2	1.005	0.5	1.003	0.3
Samastipur Kshetriya Gramin Bank	0.990	–1	1.022	2.2	1.016	1.6
Sharda Grameen Bank	0.986	–1.4	0.997	–0.3	1.005	0.5
Solapur Gramin Bank	0.997	–0.3	1.003	0.3	1.009	0.9
South Malabar Gramin Bank	1.011	1.1	1.000	0	1.003	0.3
Surguja Kshetriya Gramin Bank	0.960	–4	1.018	1.8	0.995	–0.5
Thane Gramin Bank	1.000	0	1.003	0.3	1.012	1.2
Tripura Gramin Bank	0.969	–3.1	1.017	1.7	1.000	0
Uttar Banga Kshetriya Gramin Bank	0.973	–2.7	1.020	2	0.997	–0.3
Vidisha Bhopal Kshetriya Gramin Bank	1.000	0	1.000	0	1.000	0
Visweshwaraya Gramin Bank	0.976	–2.4	1.016	1.6	1.019	1.9
Average	0.994	–0.59	1.006	0.554	1.001	0.45

Source: Author's own.

Note: PEFFCH denotes pure efficiency change and GR denotes growth rate. 1993–98 period shows first-generation reforms period, 1999–2007 shows second-generation reforms period and 1993–2007 shows entire study period. PEFFCH index is relative to the previous year; therefore, no results for the initial sample period 1991–92.

reported to have stagnant growth rates during second-generation reforms period. The empirical findings suggest that the positive impact of PEFFCH growth is more pronounced (0.554 percent per annum) during second-generation reforms period among sample banks than in the first-generation reforms period (–0.59 percent per annum).

Section V

Conclusion and Policy Implications

Banking sector is even more important as the expansion of banking services to rural areas may also play a significant role in reducing poverty and ensuring sustainable income levels. For whole development, rural finance is as essential as blood in our body. This is even required as maximum population in India is living in rural areas. Therefore, RRBs were established on February 9, 1976.

This article shows the temporal growth rate of pure efficiency change growth of RRBs in India for the period 1991–92 to 2006–07.

The empirical findings show that RRBs have registered PEFFCH growth at the rate of 0.54 percent per annum during 1993–2007. As indicated in the table the growth rates of PEFFCH and its indices have experienced variations during study years. This may be as RRBs had to bear important and regular policy changes during the study period. The inter-bank and inter-period growth of PEFFCH index for the period 1993–2007 has been shown in Table 2. The empirical findings show that the Ratnagiri Sindhudurg Grameen Bank and Hadoti Kshetriya Grameen Bank have registered PEFFCH growth rate of 2.7 percent and 2.5 percent per annum, respectively during the entire period. However, Jhabua Dhar Kshetriya Grameen Bank, Kamraz Grameen Bank, Langpi Dehongi Rural Bank, Manipur Rural Bank, Mewar Anchalik Gramin Bank, Prathama Bank, Ratlam Mandsaur Kshetriya Grameen Bank, Rushikulya Gramya Bank, Sharda Grameen Bank, Solapur Grameen Bank, and South Malabar Grameen Bank emerged to be least pure efficient at the rate of less than 1 percent per annum.

In the light of above-mentioned empirical findings, it is suggested that inefficient or poor performer banks should be relocated and merged. Further, it has been observed that managerial incapabilities are responsible for technical inefficiencies among RRBs in India. So it is required that Separate institutions should be set up for training the staff of RRBs by sponsored banks. Moreover, various training programs should be started to sharpen the managerial skills. As productivity study of banks would be helpful in locating sources of inefficiencies and poor performance, enable all the stakes holders to take a fresh look at their functioning, and initiate suitable strategies measures in achieving these objectives. Therefore, it is proposed to conduct research on the same issue.

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The major incentive to productivity and efficiency are social and moral rather than financial.

— Peter F Drucker

Focus

An Empirical Case Study on Employees' Satisfaction after Merger in Selected Bank

VIJAY JOSHI, KRISHN A. GOYAL

The aim of this study is to understand the role of social identity theory, organizational justice theory and job characteristics theory in a bank merger. The regression analysis revealed that the social identity theory, organizational justice theory and job characteristics theory are potential predictors for job satisfaction of bank employees. Empirical evidences found in the present study that post merger employees' perception towards their identity, justice and job characteristics affects their satisfaction level. This study is a modest attempt to explore the post merger phenomena pertaining to human resource–related issues. This study is useful for policymakers, academicians, and researchers for testing the theories in a different context.

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Introduction

Mergers and Acquisitions represent an important type of organizational change. Organizational mergers have been implemented throughout the world as a concrete means through which organizations improve their efficiency, effectiveness and competitiveness in the global market (Andrade, Mitchell, and Stafford, 2001; Schraeder and Self, 2003; Daly, Pouder, and Kabanoff, 2004). Companies spend more than $2 trillion on acquisitions every year around the globe but studies show that the failure rate is somewhere between 70 percent to 90 percent (Straub, 2007; Christensen, Alton, Rising, and Waldeck, 2011). A recent article in *Harvard Business Review* by Dunbar (2014) states that despite the popularity of growth strategies based on mergers and acquisitions, the challenges of execution are substantial—40 percent to 80 percent of mergers fail to meet objectives. Cartwright and Schoenberg (2006) identified three primary streams of enquiry within the strategic and behavioural literature, which focus on the issues of strategic fit, organizational fit, and the acquisition process itself. However, in parallel to these research advances, the failure rates of mergers and acquisitions have remained consistently high. This scenario poses big challenges to researchers, academicians, and practitioner that what are the possible causes and reasons or factors, which determines the success or failure of M&A.

Significant amount of researches have been conducted on financial aspects, which is based on facts and figures and further supported by mathematical and statistical models. However, a historical lens does not present an impressive view, the merger failure rate remains as high as ever (Cartwright and Cooper, 1990). Kahn et al. (1964) investigated into organizational conditions and situations conducive to satisfaction as well as the nature and prevalence of pressures arising from opposing and incompatible institutional demands; as it may be a valid

argument in M&As adopted by firms; therefore, there is a strong need to address the issue from a different perspective. The aim of the study is to answer the research question that how social and behavioural theories play a key role in post-merger integration and satisfaction level of employees.

Review of Literature

In reviewing the literature on human resource aspects of mergers and acquisition, we observed the six theories related to M&As in the conceptual paper of Seo and Hill (2005). The researchers have conceptually identified the M&A theories, which are anxiety theory, social identity theory, acculturation theory, role conflict theory, job characteristics theory and organizational justice theory. These theories are used to address the problems in managing the organizational change related problems. We use these theories to find empirical evidences so that the human aspects in M&A can be effectively dealt with.

Studies have shown that post-merger integration plays a significant role in determining the success rate of a merger where organizational integration reflected by three determinants, i.e. acquisition experience, relative size, and cultural compatibility (Straub, 2007). In a recent study on M&A success by Bauer and Matzler (2013), researchers empirically proved that M&A success is a function of strategic complementarity, cultural fit, and the degree of integration. The study reported that strategic complementarity also positively influences cultural fit and the degree of integration. Cultural fit positively influences M&A success, but surprisingly has a negative impact on the speed and degree of integration. The degree of integration is positively related to speed of integration. This study is an example of post-merger integration of cultural fit, which clearly delineates the scope for further research in the path of success of M&As.

Constructs and Variables

Job Satisfaction: Researchers and academicians have defined job satisfaction as the extent to which an employee expresses a positive affective orientation or attitudinal reaction to the job (Smith, Kendall, and Hulin, 1969; Spector, 1985).

The JDI was designed to measure the construct of job satisfaction, defined by P. C. Smith et al. (1969) "as the feelings a worker has about his job" (p. 100). The final version of the JDI was designed around five sub-dimensions: satisfaction with work, supervision, co-workers, pay and promotion. A revision of the JDI was undertaken in the early 1980s. This process resulted in replacing 11 items across four of the facet scales (the Promotion subscale was unchanged) and adding an overall measure of satisfaction, called the Job in General (JIG) scale (see Balzer et al., 1990). The construct validity of JDI was investigated by using a meta-analysis to summarize previous empirical studies that examined antecedents, correlates, and consequences of job satisfaction (Kinicki, 2002).

It is apparent in the study of Creasy, Stull, and Peck (2009) that levels of support employees feel from the organisation is a critical factor influencing the way they feel about their job. Because perceived organisational support is strongly affected by procedural justice. Further, it appears that job satisfaction is highly influenced by the processes and procedures of justice an organisation implements that signal has strong support for the employees.

Buono and Bowditch (1989) found that negative employee reactions to a merger or acquisition might lead to lower levels of job security, satisfaction and less favourable attitudes toward management.

Social Identity: In M&As, when one firm merges into another one, it looses its identity and so do employees of the merging firm. It is often argued that social identification is a perception of an individual with a group of individuals (Ashforth and Mael, 1989). Individuals tend to categorize themselves as per distinctiveness and prestige of a group in which they operate. Academicians and researchers have identified this phenomenon and termed it as Social Identity Theory (SIT). According to SIT, employees of a firm are tend to classify themselves into various social oriented categories like gender, age cohort, religious affiliations and according to organizational structures (Tajfel and Turner, 1985). Social identity theory (Hogg and Terry, 2001) and social categorization theory (Tajfel and Turner, 1985) examine how individuals define themselves as members of a group through a process of self-categorization. Organizational identification is defined as "a perception of oneness with or belongingness to an organization where the individual defines him or her self in terms of the organization in which he or she is a member" (Mael and Ashforth, 1992).

Knippenberg, Knippenberg, Monden, and Lima (2002) analysed the social identity processes involved in organizational mergers and suggested that organizational identification after a merger is contingent on a sense of continuity of identity. This sense of continuity, in turn, is

argued to be contingent on the extent to which the individual's own pre-merger organization dominates, or is dominated by, the merger partner. Results of two surveys of merged organizations showed that pre-merger and post-merger identifications were more positively related for members of dominant as opposed to dominated organizations, whereas perceived differences between the merger partners were more negatively related to post-merger identification for members of the dominated compared with the dominant organization. This creates dissatisfaction among employees post-merger and hence it is a research gap.

Rouzies (2011) identified the factors, which influence a merger in context with social identity theory, and social categorization theory, and how these factors evolve over time. The researcher, to gather both quantitative and qualitative data through three rounds of data collection, used longitudinal and mixed method designs. The results showed that identification with the previous organization, perception of opportunity, sense of belongingness to the dominant organization, and interaction intensity are significant factors explaining social identification with the merger but the researcher does not consider the inter-linkages of SIT and other theories. Weber, Teerikangas, Rouzies, and Tarba (2011) adopted social identity approach to investigate group-based reactions to a merger. Researcher conducted two experiments, i.e. the relationship between pre-merger identification, post-merger identification, and in-group bias was investigated using a minimal group paradigm. Results from both studies showed that the perceived continuation of the pre-merger group identity in the post-merger group strengthened the positive relationship between pre-merger identification and identification with the super-ordinate post-merger group. Moreover, perceived continuation strengthened, rather than reduced, in-group bias at the subordinate level of the merged groups. However, the question emerges here that what is the impact of job characteristics, and organizational justice theory on the satisfaction level of employees of a firm? Amiot, Terry, Jimmieson, and Callan (2006) tested the utility of a stress and coping model of employee adjustment to a merger. Structural equation modelling analyses revealed that problem-focused coping predicted higher levels of job satisfaction and identification with the merged organization whereas avoidance coping predicted lower identification. Apart from stress and copying model, there is a need to have empirical evidence by considering holistic approach in order to check the employee adjustment to a merger.

However, the processes predicting how employees recategorize themselves and identify as members of a merged organization have not yet been fully investigated (Amiot et al., 2006). Throughout the process of identification, individuals adopt an organization's characteristics as self-referential. Identified employees, therefore, have a tendency to think and act in-line with the values, norms, and interests of their organization (Ashforth and Mael, 1989). Thus, we can say that social identity theory certainly reflects the changes in the behaviour of organizational members which leads to increase or decrease in satisfaction level.

Hypothesis 1: Employees' Social identity Influences Employees' Job Satisfaction

The above-mentioned literature has not covered the relationships of SIT with other theories like role stress, job characteristics, anxiety theory, and organizational justice theory. There is a strong need to understand interrelationship among these theories in order address the issue.

Organizational Justice: In most of the cases, M&A involves specific decisions with regard to structure and hierarchy of organization, in this continuum, the selection of employees and displacing them are also made. These structural and hierarchical changes affect the behaviour of the concerned employees. It has been observed that employees support such changes when they perceive that they have fair treatment by the organization towards this change (Seo and Hill, 2005). Fairness issues are often the source of trust that employees feel toward their organizations (McFarlin and Sweeny, 1998). The notion of fairness, or justice, has become an increasingly visible construct in the social sciences over the last three decades (Colquitt, 2001). Organizational Justice is defined as the people's perception of fairness in organization and it directly relates to the workplace (Greenberg and Colquitt, 2013; Moorman, 1991). Initially, researchers focused their studies on distributive justice, where discussions centered about the values of equity, equality, and need of groups (Adams, 1965; Deutsch, 1975).

Literature reveals that organizational justice can be measured and understood in three ways, i.e. distributive justice, which is perceived by employees as fairness of outcomes, procedural justice, which is perceived as the procedures adopted to determine the outcome (Thibaut and Walker, 1975), and interactional justice. It is also observed that both procedural justice and informational

justice were related to some aspect of value creation following the acquisition (Ellis, Reus, and Lamont, 2009). Klendauer and Deller (2009) found that employees' perceptions of distributive, procedural, and interactional justice are correlated positively with affective commitment; therefore, top managers should pay extra attention to this before any strategic decision like the one the one M&A is made.

Perceived justice of the merger implementation is positively related to post-merger organizational identification and perceptions of common in-group identity (Lipponen, Olkkonen, and Moilanen, 2004). There are strong empirical evidences in literature whereby distributive and procedural justice are predictors and mediators of employees' satisfaction with personal and organizational outcomes (McFarlin, and Sweeney 1992; Elanain, 2009). On the basis of this, we can hypothesise the following.

Hypothesis 2: *Organizational Justice Influences Employees' Job Satisfaction*

Job Characteristics: M&A activities lead to significant amount of changes in work environment. Researchers in behavioural sciences observed that M&As is the source of anxiety and stress among employees and it certainly affects the performance of organizational members (Goyal and Joshi, 2012a; 2012b). It is obvious that post-merger behaviour of employees changes due to changes in the nature of the job upto a certain extent due to technological changes, interpersonal communication, and group dynamics. In some cases, a general observation is that employees' perceptions of the quality of their job environment decline after a merger (e.g., Buono, Bowditch, and Lewis, 1985).

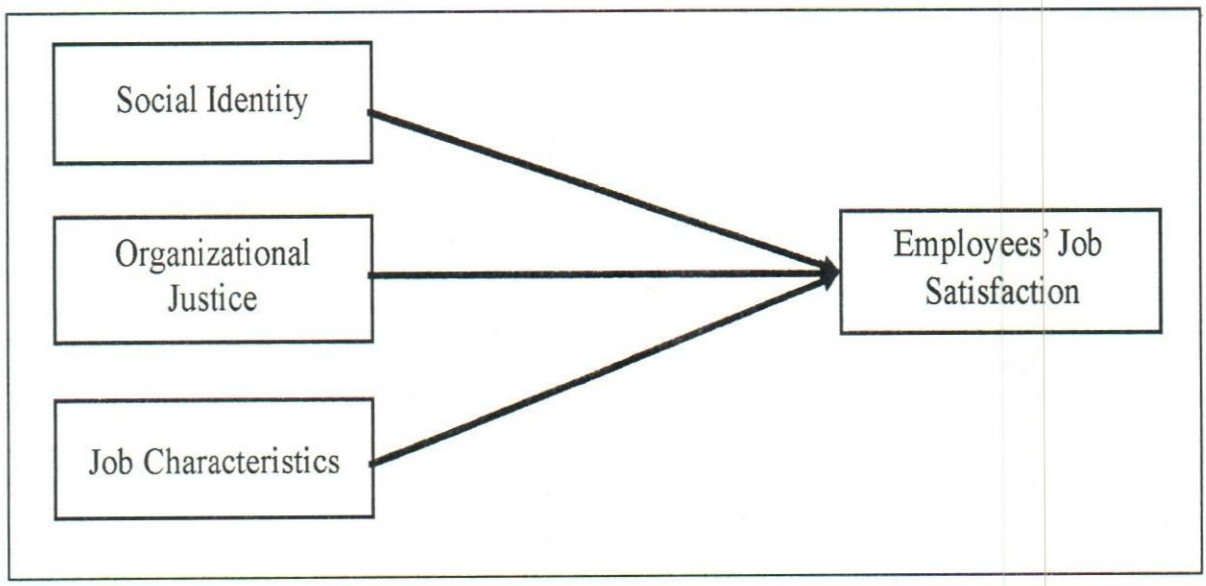
We argue that job characteristics theory influences the changes in perception of employees' towards the work environment. Job characteristics theory suggests that core job characteristics (skill variety, task identity, task significance, task autonomy, and task feedback) influence perceptions of the work environment and in turn affect motivation and job satisfaction (Hackman and Oldham, 1975; Hackman, and Lawler, 1971; Sims, Szilagyi, and Keller, 1976). Job characteristics have been identified as key components in employees' wellbeing (de Lange, Taris, Kompier, Houtman, and Bongers, 2003).

Newman and Krzystofiak (1993) studied job characteristics, facet satisfaction, overall satisfaction, and organizational commitment of bank employees both before the announcement of an acquisition and after the actual acquisition. Correlational analysis and repeated measures ANOVA indicated significant declines in perceived job characteristics, satisfaction, and organizational commitment after the acquisition. It clearly indicates that at job characteristics is a significant variable, which plays important role in M&A. Based on this we hypothesise the following.

Hypothesis 3: *Job Characteristics Influence Employees' Job Satisfaction*

Conceptual Model

The literature review provides us the causal linkages for our study variables and we can conceptualize the proposed model, which is shown in the following diagram.



Research Methodology

Measures

Job satisfaction: Job satisfaction is measured using the abridged version of the Job Descriptive Index (JDI). Smith and colleagues (Smith et al., 1969) developed the JDI in the year 1969. Initially, it was 72 item scales but the abridged version was developed by Stanton and colleagues (Stanton et al., 2001) which consists of 25 items. This abridged version measures satisfaction on five different aspects of the job, which consists of the work itself, pay, opportunity for promotion, satisfaction with supervisor and satisfaction with co-workers.

Social Identity: Social identity of respondents was measured by using seventeen items scale, which includes organizational identification, perception of opportunity, perceived organizational prestige, and perceived inter-organizational differences. All these items were measured using a five point Likert scale of agreement with response options ranging from 1 = strongly disagree to 5 = strongly agree. These 17 items are divided in 4 sub-variables. Organizational identification was assessed with three items derived from Kelly and Kelly (1994), Mael and Ashforth (1992), and Brown, Condor, Mathews, Wade, and Williams (1986); perception of opportunity was measured using two items specifically designed by Dutton, Dukerich and Harquail (1994). Perceived inter-organizational differences were measured using five items (Knippenberg, Knippenberg, Monden, and Lima, 2002) and perceived organizational prestige was measured using four items (Mael and Ashforth, 1992).

Organizational Justice: Organizational justice is measured using a twenty-item scale developed and validated by Colquitt (2001). These 20 items are divided into 4 different components, which include Procedural justice (7 items), Distributive justice (4 items), Interpersonal justice (4 items), and Informational justice (5 items).

Job Characteristics: Job characteristics are measured using 37 item scale (Sims, Szilagyi, and Keller, 1976). Each item is captured using five-point Likert scale ranging from 1 = strongly disagrees to 5 = strongly agree.

Sampling

Sampling Distribution

Total 164 branches are selected out of 293 branches operating in the divisional head of Rajasthan for research purpose. Out of these 164 branches of major cities (districts) of Rajasthan, 35 branches are selected on the stratified random sample basis for primary data collection. From each branch included in the sample, only 9 employees selected to constitute total sample of 313 (as per Yamane's formula) erstwhile BoR employees to fill up the questionnaire.

Sample Size Determination

Yamane (1967) sample adequacy formula is used for the purpose of the adequate representative sample. For this purpose, following formula is used.

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = Minimum Sample Size,

N = Population Size and

e = level of Precision (5 percent)

Thus, n = N/(1+N*e^2), whereas n = 1446 / [1 + 1446 * (0.05)^2] = 313

Sampling Method Adopted

Proportional stratified sampling method is used. All the divisional heads were selected as population that constitute 164 branches of erstwhile BoR, total 1,446 employees were associated with these branches, and that was the population for sample selection.

According to Panneerselvam (2011, p. 196); Gupta (2009, p. 15.22), the formula for proportional stratified sample selection is as follows.

$$\frac{n_1}{N_1} = \frac{n_2}{N_2} = \frac{n_3}{N_3} = ... = \frac{n_k}{N_k} = \frac{n}{N}$$

$$N_1 + N_2 + N_3 + ... + N_k = N$$

$$n_1 + n_2 + n_3 + ... + n_k = n$$

Therefore,

$$n_1 = \frac{n}{N} \times N_1$$

N = Size of the Population,

N_i = Size of the Stratum

n = Size of the Sample

n_i = size of the sub-sample to be taken from stratum N_i

Then, n_i should be decided based on the above relationship to draw sample size of 313 erstwhile Bank of Rajasthan employees.

Printed versions of (148) the questionnaires were distributed; of these 119 were received from the respondents (80 percent response rate). For the online version of the questionnaire, it was emailed to 222 respondents with personal contact; of these 206 responded. Thus, the final sample available for analysis is that of 325 respondents (119 and 206 from printed and online version respectively) out of 370 respondents with an aggregate response rate of 88 percent approximately.

Table 1: Demographic Details

	Demographics	Frequency	Percent
Age	21 to 30 years	27	8
	31 to 40 years	112	34
	41 to 50 years	124	38
	51 to 60 years	62	19
	Total	**325**	**100**
Gender	Male	209	64
	Female	116	36
	Total	**325**	**100**
Education	Graduation	16	5
	Post Graduation	232	71
	Diploma	23	7
	Ph.D.	5	2
	Other	49	15
	Total	**325**	**100**
Designation	BM	28	9
	MGR	60	18
	AM	56	17
	Sr. EXE	86	26
	Exe	95	29
	Total	**325**	**100**
Salary	21,000–30,000	95	29
	31,000–40,000	86	26
	41,000–50,000	56	17
	51,000–60,000	60	18
	61,000 and above	28	9
	Total	**325**	**100**
Tenure	5 to 10 years	55	17
	10 to 15 years	86	26
	15 to 20 years	40	12
	20 years and more	144	44
	Total	**325**	**100**

Source: Primary Data Collected through Questionnaire.

Table 1 reveals that 325 respondents were selected through stratified random sampling. Out of these, 209 respondents were males and 116 were females. The majority of them were from the age group of 41 to 50 years, i.e. 124 (38 percent). Seventy-one percent were found to be highly qualified, i.e. postgraduate. Demographics show that total Branch Managers were 28 (9 percent), the managers were 60 (18 percent), Assistant Managers were 56 (17 percent), Senior Executives were 86 (26 percent) and Executives were 95 (29 percent). Data shows that our respondents' association with erstwhile bank from 5 to 10 years were 55 (17 percent), from 10 to 15 years were 86 (26 percent), and from 15 to 20 years were 40 (12 percent) and majority, that is, 20 years and more were 144 (44 percent).

Table 2 presents the means, standard deviations, and correlations among all the study variables.

Analysis and Interpretation

The Hierarchical Multiple regression with stepwise method has been used to analyse the data. The effect of predictors on criterion variable has been checked by controlling the demographic variables. The model summary table reveals that the hierarchical multiple regression on SPSS has generated four models. In Model 1 JC, SI, and OJ are entered and it has been observed that the predictors account for the total 77.3 percent variance in outcome. Similarly, the demographic variables are entered one after the other and it is evident that in Model 4 the predictors account for the total 80.4 percent variance in outcome or AJDI. Therefore, the inclusion of the control variables as predictors has explained quite a large amount of variation in the satisfaction level of employees.

The hypothesized relationships among all the independent variables; that is, social identity, organizational justice and job characteristics influences the job satisfaction level of employees after the merger were tested using the regression analysis. The data confirmed to the regression requirements of linearity, normality, homoscedasticity, and multicollinearity. We modeled social identity, organizational justice and job characteristics as independent variable and job satisfaction level of employees as dependent variable. Further, the age,

Table 2: Mean, Standard Deviation and Correlations Matrix

S. No.	Variables	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10
1	Age	3.680	0.876										
2	Gender	1.357	0.480	.148**									
3	Education	3.505	1.135	.057	−.071								
4	Designation	3.492	1.314	.100	.283**	.135*							
5	Salary	3.508	1.314	−.100	−.283**	−.135*	−1.000**						
6	Tenure	3.840	1.168	−.174**	−.350**	−.116*	−.798**	.798**					
7	AJDI	3.289	0.522	.176**	.019	.078	.389**	−.389**	−.704**	.874***			
8	SI	3.607	0.457	.165**	.017	.013	.177**	−.177**	−.455**	.688**	.745***		
9	OJ	3.406	0.488	.195**	.039	−.003	.397**	−.397**	−.682**	.835**	.584**	.818***	
10	JC	3.487	0.469	.171**	.065	.075	.580**	−.580**	−.709**	.721**	.533**	.719**	.747***

Source: Author's own.*Notes*: **. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
*** Reliability Statistics
Abbreviations: AJDI = Abridged Job Descriptive Index; SI = Social Identity; OJ = Organizational Justice; JC = Job Characteristics.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.880[a]	.775	.773	.24872	.775	367.988	3	321	.000
2	.888[b]	.789	.786	.24111	.014	21.587	1	320	.000
3	.894[c]	.799	.796	.23551	.010	16.401	1	319	.000
4	.899[d]	.808	.804	.23093	.008	13.789	1	318	.000

Source: Author's own.

Notes: a. Predictors: (Constant), JC, SI, OJ
b. Predictors: (Constant), JC, SI, OJ, Tenure
c. Predictors: (Constant), JC, SI, OJ, Tenure, Salary
d. Predictors: (Constant), JC, SI, OJ, Tenure, Salary, Gender
e. Dependent Variable: AJDI

gender, salary, tenure and designation were controlled while regressing the independent variables on the dependent variable.

The regression coefficient in Table 5 reveals that results for independent variables, social identity (H1: $t = 6.957$, $\beta = .225$, $p < .005$), organizational justice (H2: $t = 9.301$, $\beta = .394$, $p < .005$), and job characteristics (H3: $t = 3.115$, $\beta = .130$, $p < .005$) in Model 4 are significant. The above results support the hypothesis that social identity, organizational justice and job characteristics positively influence the job satisfaction level post-merger.

Discussion

Post-liberalization Indian banking sector is passing through rapid reforms. Banks are taking initiatives to find a fit with the external environment for themselves and this is in the form of M&As. The existing literature, however, does not provide any reliable theoretical framework for conducting HRM studies in the present context. The present study investigated some important issues relating to the social identification, job characteristics, organizational justice, and employees satisfaction.

Table 4: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	68.294	3	22.765	367.988	.000[b]
	Residual	19.858	321	.062		
	Total	88.151	324			
2	Regression	69.549	4	17.387	299.088	.000[c]
	Residual	18.603	320	.058		
	Total	88.151	324			
3	Regression	70.458	5	14.092	254.066	.000[d]
	Residual	17.693	319	.055		
	Total	88.151	324			
4	Regression	71.194	6	11.866	222.508	.000[e]
	Residual	16.958	318	.053		
	Total	88.151	324			

Source: Author's own.*Notes*: a. Dependent Variable: AJDI
b. Predictors: (Constant), JC, SI, OJ
c. Predictors: (Constant), JC, SI, OJ, Tenure
d. Predictors: (Constant), JC, SI, OJ, Tenure, Salary
e. Predictors: (Constant), JC, SI, OJ, Tenure, Salary, Gender

Table 5: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	−.529	.122		−4.321	.000					
	SI	.311	.038	.272	8.174	.000	.688	.415	.217	.632	1.582
	OJ	.581	.043	.543	13.403	.000	.835	.599	.355	.427	2.341
	JC	.206	.043	.185	4.761	.000	.721	.257	.126	.464	2.156
2	(Constant)	.335	.221		1.520	.130					
	SI	.309	.037	.271	8.379	.000	.688	.424	.215	.632	1.582
	OJ	.513	.045	.480	11.525	.000	.835	.542	.296	.381	2.625
	JC	.115	.046	.104	2.498	.013	.721	.138	.064	.382	2.620
	Tenure	−.081	.017	−.181	−4.646	.000	−.704	−.251	−.119	.436	2.292
3	(Constant)	.537	.221		2.427	.016					
	SI	.264	.038	.231	7.004	.000	.688	.365	.176	.577	1.733
	OJ	.456	.046	.426	9.984	.000	.835	.488	.250	.345	2.899
	JC	.168	.047	.151	3.583	.000	.721	.197	.090	.352	2.840
	Tenure	−.158	.026	−.354	−6.186	.000	−.704	−.327	−.155	.192	5.200
	Salary	.076	.019	.192	4.050	.000	−.389	.221	.102	.281	3.557
4	(Constant)	1.031	.254		4.052	.000					
	SI	.257	.037	.225	6.957	.000	.688	.363	.171	.576	1.737
	OJ	.424	.046	.397	9.301	.000	.835	.462	.229	.333	3.006
	JC	.145	.047	.130	3.115	.002	.721	.172	.077	.346	2.894
	Tenure	−.196	.027	−.438	−7.241	.000	−.704	−.376	−.178	.165	6.052
	Salary	.081	.018	.204	4.393	.000	−.389	.239	.108	.280	3.576
	Gender	−.113	.030	−.104	−3.713	.000	.019	−.204	−.091	.776	1.289

Source: Author's own.*Notes*: a. Dependent Variable: AJDI, N = 325. Standardized beta values are used.

Our study showed that employees expect the same amount of recognition in the new organization. This is largely related to the job characteristics at new organization. Employees' consideration towards organizational justice is their expectation towards the new identity, which they receive in terms of opportunity for promotion, designation, and salary. Employees relate it to the organizational justice in the form of procedural, interpersonal, distributive, and informational justice. For reducing the trauma occurred during the process of merger can be mitigated by taking adequate actions towards these factors.

Direction for Future Research

This research provided directions for future research in terms of positive relationship between social identification with the previous organization and with the merged entity; top managers should nourish social identity with the previous organization and not devote all their attention to the new identity. Furthermore, top managers must facilitate communications among employees on topics such as teamwork and joint goals to develop their sense of belonging to the merged entity.

This research is not without limitations, each of which calls for further developments. First, this research is based on a single case study, which tends to reduce the external validity. Second, procedure may give rise to common method bias, which is liable to inflate the observed relationships in survey research. However, the mixed-method design is a remedy for dealing with this particular methodological issue because interviews help to achieve an element of triangulation with the quantitative data.

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I actually thought that it would be a little confusing during the same period of your life to be in one meeting when you're trying to make money, and then go to another meeting where you're giving it away.

—Bill Gates

Focus

Financial Inclusion vis-à-vis Economic Efficiency: The Case of Commercial Banks in India

MANJU S. NAIR

After the implementation of Narasimham Committee recommendations the variables of economic efficiency and profitability have occupied the centrestage of all banking activities. But in the recent years there has been a growing realization that while the trickledown effect of economic growth no doubt works, it takes too long a time and hence there is a need to focus on inclusive growth which in turn necessitates the need for an all inclusive financial sector which can act as a catalyst to accelerate the process of inclusive growth. The present study is designed to examine the performance of scheduled commercial banks in India with respect to financial inclusion vis-à-vis economic efficiency. The study develops a methodology using Principal Components Technique to examine the comparative performance of scheduled commercial banks with reference to economic efficiency and financial inclusion. The need of the present hour is to have a judicious blending of these objectives and framing necessary policy strategies for tuning banking sector towards this goal.

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Introduction

The Indian growth story has been steadily coming of age and the performance of the Indian economy has attracted worldwide attention.[1] The first decade of the current century has witnessed reasonable levels of economic growth as evidenced by the rate of GDP growth around 9.5 percent from 2000–01 to 2009–10. Although these achievements are impressive, a little reflection immediately shows that there is a flip side to this coin—the perspective of "Two Indias"—one "shining" and the other rather "bleak." An alarming 30 percent to 35 percent of India's total population still lives below the poverty line. Even within these poor are the poorest who live on less than USD 0.050 a day (Thorat, 2007). It becomes quite apparent that despite the impressive growth figures in the post reform period, gaps are widening across various sections of the society. While maintaining a high growth rate is important, it is also imperative to assure that the "trickle-down effect" works efficiently, and hence, the need for inclusive growth. In line with this thought, the Planning Commission in the Draft Approach paper to the Eleventh Five Year Plan has emphasised the need for faster and greater inclusive growth. The banking sector being the most important intermediary to mobilize savings leading to increased investments and facilitating growth can play the most crucial role in attaining the inclusive growth objective through the expansion of the coverage of banking services by reaching to the vast unbanked population of the country. The focus of banking policy during the 1990s and up to the early 2000s was more on creating a strong and efficient banking system. However, once the financial health of the banking system was restored, focused attention was again paid to financial inclusion. The important element of recent focus on financial inclusion is the adoption of

market-oriented approach that recognizes the importance of business considerations of banks for the long-term sustainability of the process. Hence, banks face the challenging job of striking a judicious mixture of economic efficiency (profitability and productivity) with social efficiency. Financial inclusion in terms of ensuring financial services where needed by vulnerable groups at an affordable cost is now the accepted measure of social efficiency. In this context, the article evaluates the performance of commercial banks in terms of financial inclusion vis-à-vis the economic efficiency during the post-reform period in India.

Investigating the efficiency of financial system, in particular, commercial banks has gained lot of popularity after the implementation of the reforms. Majority of the studies using approaches like Data Envelope Analysis (DEA) and Translog Production Function conclude that there is a positive impact of reforms on the efficiency of respective banking system and an increase occurred in performance of Indian banks caused by competition, innovation, etc. Although efficiency of all bank groups increased in the post–banking sector reforms period, private sector and foreign banks were the most beneficial. (Uppal and Kaur, 2006; Anjum, 2012; Kumbhar, 2010). Some studies argue that there has not been any significant change in efficiency and total factor productivity of bank groups (Kumbhakar and Sarkar, 2003; Mohan and Ray, 2004). Studies relating to financial inclusion of commercial banks in India focused on financial inclusion status of different states/regions in India. While Chattopadhaya (2012) examined the financial inclusion status of states Karanker et al. examined financial inclusion in rural areas. Government of India (2011) examined the financial inclusion of public sector banks in terms of additional branches covered and the number of no frills account.

However, there has been no attempt to examine the simultaneous performance of commercial banks in terms of financial inclusion on the one hand and economic efficiency in terms of productivity and profitability on the other hand. The present study proposes to fill this gap.

The article is organized into six sections. The first section gives the objectives and broad methodology of the study. The second section deals with a brief history of banking policies in India after nationalisation. The third section makes an empirical journey on the extent of financial inclusion in India with reference to scheduled commercial banks. The fourth part empirically measures the performance of commercial banks with respect to economic efficiency (in terms of productivity and profitability) and financial inclusion. The last section concludes the study.

Section I

Methodology of the Study

The objective of this article is to evaluate the performance of commercial banks with respect to financial inclusion vis-à-vis economic efficiency during the post-reform period in India. The study is based on scheduled commercial banks in India, which comprise of SBI and its associate banks (SBA), other nationalized banks (NB), private sector scheduled banks (PB) and foreign banks (FB). The first two categories come under public sector and the latter two are in the private sector. Economic efficiency is classified into productivity and profitability, which are evaluated with respect to employee and branch dimensions. Financial inclusion performance is evaluated with respect to sectoral outreach of banking service in agriculture and spatial outreach of banking services in rural and semi-urban areas. The mutual exclusiveness/ inclusiveness between economic performance and financial inclusiveness of banks is evaluated with the help of factor analysis. Four time points are considered for factor analysis—1980, which represents the year of second wave of nationalization, 1992—the year of initiation of liberal reforms, 2008—the year in which financial inclusion policies were legitimized and 2012—the latest year for which data on performance of commercial banks is available.

Section II

Changes in Banking Sector Policies Adopted in India: Shifting Focus between Financial Inclusion and Economic Efficiency

The period from 1967 to 1991 was characterized by major changes, viz. "Social Control" of Banks in 1967 and "Nationalization" of 14 banks in 1969 and further 8 more banks in 1980. Bank nationalization in India marked a paradigm shift in the focus of banking as it was intended to shift the focus from "class banking" to "mass banking" indicating the focus on financial inclusion. This period was also marked by the emphasis laid on priority sector lending which comprises of agriculture, small-scale industries, small road and water transport operators, small business, retail trade, professional and self-employed people, state-sponsored organization for SCs and STs, etc. The share of unorganized credit fell sharply and the economy seemed to come out of the vicious circle. However, the initial

enthusiasm gradually waned and because of certain problems in the banking sector, many banks remained unprofitable, inefficient, and unsound owing to their poor lending strategy and lack of internal risk management under government ownership. It was against this backdrop that the RBI set up a committee on the financial system in 1991 (chaired by Dr M. Narasimham). The Narasimham Committee Report aimed at bringing about "operational flexibility" and "functional autonomy" to enhance efficiency, productivity and profitability. The Narasimham Committee II was appointed in 1998, the report II focused on bringing structural changes to strengthen the banking system to make it more stable. It wanted to move towards "a vibrant and competitive financial system to sustain the ongoing reform in the structural aspects of the economy" (Government of India, 1998). It took a clear view against using the credit system for redistributive objectives and argued that the directed credit programmes should be phased out. In order that banks could compete globally it wanted a larger role for private Indian and foreign banks. These recommendations were implemented which paved the way for increased competition and economic efficiency in the banking industry. Once the financial health of the banking system was restored, focused attention was again paid to financial inclusion. The RBI in its Annual Policy statement for 2005–06 observed that although there had been expansion, greater competition and diversification of ownership of banks leading to both enhanced efficiency and systemic resilience, there were legitimate concerns with respect to banking practices that exclude vast sections of population. As such RBI started implementing polices that concentrate on financial inclusion. Under the directions of RBI, banks have opened no frills account, simplified Know Your Customer Norms, permitted business intermediaries, initiated financial literacy programs, etc., to promote financial inclusion.

Section III

Financial Inclusiveness of Scheduled Commercial Banks in India

Achieving financial inclusion in a country like India with a large and diverse population with significant segments in rural and unorganized sectors requires a high level of penetration by the formal financial system. Commercial Banks form the major players in the formal financial system with their widespread network all over India. An attempt has been made to measure financial inclusion in India after the implementation of reforms with reference to the scheduled commercial banks in India based on the definition put forward by Dr C. Rangarajan Committee on Financial Inclusion. The Committee defines Financial Inclusion as "The process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low income groups at an affordable cost.'

Financial Inclusion in Terms of Spatial Outreach

Physical and geographical barriers lead to financial exclusion (Jain, 2008). Rural/urban characteristics and the mobility of the population affect access to financial services. In a country like India where a vast majority of population live in the rural and semi urban areas, it becomes imperative to bring these areas under the formal banking net for effective financial inclusion. This section analyses

Table 1: Spatial Aspect of Financial Inclusion of Scheduled Commercial Banks in India with Respect to Bank Branches and Employees

Rural and Semi-urban branches of scheduled commercial banks in India*				
	SBA	NB	PB	FB
1992	9302 (75.94)	20518 (66.55)	2546 (64.13)	3 (2)
1996	11478 (88.11)	20809 (64.66)	2177 (60.63)	(0)
2000	9465 (70.21)	20776 (61.79)	2817 (55.1)	2 (1.07)
2004	9498 (69.33)	20864 (60.92)	2872 (49.05)	(0)
2008	9684 (63.4)	21351 (54.85)	3343 (41.45)	2 (0.75)
2012	12526 (61.82)	27947 (55.09)	6310 (45.15)	15 (4.64)
Rural and Semi-urban employment of banking personnel in scheduled commercial banks in India**				
	SBA	NB	PB	FB
1996	134001 (45.04)	196592 (34.61)	5123 (40.24)	234 (0.36)
2000	138800 (45.13)	199046 (34.86)	5441 (38.75)	107 (0.18)
2004	131268 (46.65)	195561 (37.43)	3558 (30.19)	47 (0.02)
2008	118013 (44.17)	152439 (34.95)	5238 (27.71)	50 (0.05)
2012	123736 (43.36)	224985 (38.66)	50823 (25.07)	127 (0.59)

Source: Basic Statistical Returns (Various Issues), Reserve Bank of India.

Note: * Figures in brackets shows the percentage of rural and semi-urban offices of each bank group to their respective total.

** Figures in brackets shows the percentage of employees in rural and semi-urban offices of each bank group to their respective total.

the spatial outreach of various services provided by scheduled commercial banks in India.

Table 1 shows the trends in rural and semi urban offices and employees of major scheduled commercial bank groups in India. Although SBA and NB have more than half of their offices in rural and semi-urban areas, there has been a fall in the percentage share of these branches to their total branches over the reform years. The fall has been highest for NB from 66.55 percent in 1992 to 54.85 percent in 2008. There has been a significant growth in the number of private banks in India, but their thrust has been away from rural and semi urban areas as is clear from the decline in the percentage share of these branches from 64.13 percent to 41.45 percent over the years of analysis. The foreign banks have always had a very negligible share of rural and semi-urban offices.

It is also discerned from the table that there has been in general a decline in the number of employees for all bank groups till 2008. As a proportion of total employees the fall has been less severe for SBA and NB. But for PB there has been not only a drastic decline in actual number but also a drastic decline in the percent share of employees in rural and urban areas. Regarding FB the outreach to rural and semi-urban areas in terms of employees is negligible as the number of branches in these areas is also very insignificant.

The financial inclusion policies were reinitiated in India 2008 onwards and the effect of this is visible in the year 2012, where the percentage share of branches and employees has increased both for the NB and for the private sector banks. The fall witnessed in the case of SBA has also been stalled and in actual terms, the number of branches and employees of SBA has shown an increase in 2012.

The fall in the share of rural and semi urban accounts has been steepest in the case of PB from a high of 65.59 percent in 1996 to a mere 9.91 percent in 2008, which means a fall of 55.68 percentage points. The decline has been minimal in the case of SBA group, falling from 78.82 percent in 1996 to 72.60 percent in 2008. The share of NB fell from 73.74 percent to 68.14 percent in 2008. But the financial inclusion

Table 2: Spatial Aspect of Financial Inclusion of Scheduled Commercial Banks in India with Reference to Credit Deployment and Deposit Mobilization (Amount in Crores, Accounts in '000s)

Rural and semi urban credit deployment*						
	SBA		NB		PB	
Year	Account	Amount	Account	Amount	Account	Amount
1996	11193 (78.82)	202374 (27.26)	18979 (73.74)	309670 (23.82)	1605 (65.59)	40952 (20.32)
2000	9978 (78)	352964 (24.5)	13894 (62.87)	554581 (21.22)	1786 (56.73)	100950 (14.16)
2004	9993 (74.25)	575905 (27.63)	17203 (68.07)	893444 (21.89)	2027 (30.42)	140692 (8.08)
2008	14796 (72.60)	134891 (24.87)	23716 (68.14)	1933023 (16.38)	2674 (9.91)	301080 (6.32)
2012	18796 (74.83)	272442 (26.03)	29049 (69.51)	3914408 (15.56)	4587 (13.56)	707247 (4.88)
rural and semi urban deposit mobilised**						
1996	61948 (60.33)	52138 (40.47)	110541 (49.43)	91187 (32.21)	10608 (44.7)	9653 (30.12)
2000	61028 (62.81)	85501 (42.11)	117301 (50.56)	144467 (32.65)	13113 (46.86)	18849 (23.57)
2004	61433 (62.34)	136053 (37.71)	125008 (51.36)	228504 (30.37)	14959 (32.54)	36646 (15.58)
2008	69024 (57.58)	226055 (29.95)	138462 (49.97)	353861 (22.64)	15670 (28.21)	54555 (10.35)
2012	143140 (62.79)	447373 (33.89)	450585 (53.16)	320819 (20.75)	30553 (29.29)	148559 (13.53)

Source: Same as Table 1.

Notes: * Figures in brackets shows the percentage of rural and semi urban credit accounts and amount of each bank group to their respective total.

**Figures in brackets shows the percentage of rural and semi urban deposit accounts and amount of each bank group to their respective total.

policies have increased the percent share of credit accounts from the rural and semi-urban areas of both the SBA and NB as is evidenced from the share in 2012. PB also shows increase in the percent share in the year 2012.

The outstanding credit in rural and semi-urban areas has registered a fall over the years. PB have registered the steepest fall in comparison to the other bank groups falling from 36.79 percent in 1992 to just 4.88 percent in 2012. In the case of SBA, the share of rural and semi urban outstanding credit has been fluctuating and in the year 2012 there is an increase in the share. NB also registered a fall from 29.47 percent of outstanding credit in rural and semi urban to 15.56 percent during the reference period.

Another visible trend is the difference between the percentage share of accounts and the percentage share of outstanding credit. For instance, in 1996 percentage share of accounts in rural and semi-urban areas for SBA, NB and PB was 72.82 percent, 73.74 percent and 65.59 percent, respectively, whereas the percentage share of outstanding credit was just 27.26 percent, 23.82 percent and 20.32 percent respectively. There is a wide disparity between the two variables implying that the high number of credit accounts does not mean that inclusion is taking place. Thus, the rise in the number of accounts (as often quoted as a measuring rod of inclusion) can be very misleading.

As in the case of credit variables the share of rural and semi-urban deposit accounts and deposits has declined over the years for all the bank groups. However, the fall has not been as steep as in the case of credit variables. The share of the number of accounts in the case of SBA and NB has not registered a significant fall. In fact, it rose from 49.43 percent in 1996 to 53.16 percent in 2012 in the case of NB. In the case of SBA, there has been a fall of just three percentage points (falling from 60.33 percent to 57.58 percent during the same period). But PB has registered a significant fall from 44.7 percent in 1996 to 28.21 percent in 2008.

The percentage share of rural and semi-urban deposits to total have also registered a fall in the case of all the bank groups. PB has registered the greatest fall, falling from 40.43 percent in 1992 to just 10.35 percent in 2008. It has been minimal in the case of SBA groups falling from 40 percent in 1992 to 29.95 percent in 2008. NB also registered a fall of around 11 percent points during the reference period falling from 33.38 percent in 1992 to 22.64 percent in 2008. In the case of foreign banks, the share of rural and semi urban deposits has always been less than 0.5 percent. The financial inclusion policies adopted has resulted in putting a check on the fall in the deposit accounts opened and deposits mobilized from rural and semi-urban areas as is evidenced by the data for 2012.

Sectoral Aspect of Financial Inclusion

Another important aspect of financial inclusion is the flow of credit to priority sectors such as agriculture and small sector industries where majority of marginalized sections in the society eke out a living. Trends in sectoral aspects of financial inclusion are given in this section.

Table 3: Sectoral Aspect of Financial Inclusion of Scheduled Commercial Banks in India with Respect to Agriculture (Amount in Crores and Accounts in '000s)

Credit allocation to agriculture by scheduled commercial banks in India								
	SBA		NB		PB		FB	
	Account	Amount	Account	Amount	Account	Amount	Account	Amount
1992	7901 (43.29)	6360 (16.95)	12629 (39.61)	111959 (14.64)	544 (22.52)	4944 (8.34)	1 (0.66)	768 (0.61)
1996	6377 (44.91)	9143 (12.32)	10879 (42.27)	149794 (11.52)	493 (20.19)	10500 (5.21)	0. 4 (0.04)	671 (0.29)
2000	5194 (38.85)	13172 (10.36)	8964 (36.16)	234975 (10.48)	606 (21.74)	25128 (4.42)	0.1 (0.01)	1387 (0.36)
2004	4612 (34.28)	25286 (12.13)	9425 (37.3)	511580 (12.54)	741 (11.13)	68852 (3.95)	0.7 (0.01)	6778 (1.07)
2008	9647 (47.59)	73328 (13.52)	16616 (47.73)	1320836 (11.19)	2221 (8.23)	360803 (7.58)	0.5 (0.0005)	5092 (0.031)
2012	12880 (51.28)	120771 (11.54)	23138 (55.36)	2964779 (11.78)	4139 (12.22)	824577 (5.69)	0.24 (0.0002)	7409 (0.03)

Source: Estimated results.

Note: *Figures in brackets shows the percentage of agriculture credit accounts and credit amount of each bank group to their respective total.

Table 3 shows the trends in credit to agriculture sector, both in terms of credit accounts and amount disbursed. The percentage share of agriculture deposit accounts of SBA and NB group has increased over the years. The share of outstanding credit for all the bank groups have registered a decline during the period (though with fluctuations), except for the NB group in 2012. There is a marked difference between the share of credit accounts and the share of outstanding credit; the share of outstanding credit has always been lower than the share of accounts. This is due to the reason that the majority of farmers belong to the small and marginal categories who take small amounts of loan from the formal financial institutions just to cover their operating costs and do not take loans for the sake of large-scale investment in their fields. Nevertheless, in the case of foreign banks there is not much of a difference between the percentage share of agricultural credit accounts and amount showing that FB group has more of transactions with the large corporate farmers who take huge loans for investment as they enjoy economies of scale and so can afford to repay back the loans.

Section IV

Financial Inclusion Against the Back Drop of Economic Efficiency—a Comparative Analysis of Scheduled Commercial Banks in India

While recognizing the fact that commercial banks have a major role in providing access to finance to the poor and vulnerable groups as a prerequisite for poverty reduction, it is also important to recognize that commercial banks are institutions which can financially survive only if they earn profit and remain efficient. This aspect of profitability and productivity as measures of performance of commercial banks were given prime importance ever since the implementation of Narasimhan Committee recommendations. To assess the levels of performance among various commercial bank groups in India, the multivariable factor analysis of Principal Component Technique[2] is used.

Performance is assessed based on three broad groups of indicators. They are: (1) productivity, (2) profitability and (3) financial inclusion. The performance in financial inclusion is again classified into (a) inclusion through sectoral outreach and (b) inclusion through spatial outreach. The following are the indicators selected to estimate the performance of bank groups in terms of the above measures:

Indicators of performance in productivity

(X1) Deposit per employee

(X2) Credit per employee

(X3) Turnover per employee

(X4) Inverse of total expenditure per employee

(X5) Total earnings per employee

(X6) Inverse of establishment expenses per employee

(X7) Deposit per branch

(X8) Credit per branch

(X9) Turnover per branch

(X10) Total earnings per branch

(X11) Inverse of total expenditure per branch

(X12) Total earnings as percentage of total credit

(X13) Establishment expenses as percentage of total expenditure

(X14) Share of turnover to establishment expenses

(X15) Share of turnover to total expenses

Indicators of performance in profitability

(X1) Ratio of operational profit to income

(X2) Ratio of operational profit to asset

(X3) Ratio of operational profit to deposit

(X4) Ratio of operational profit to total expenditure

(X5) Ratio of operational profit to establishment expenses

Indicators of performance in financial inclusion (sectoral outreach)

(X1) Ratio of advances to agriculture to total advances

(X2) Number of agricultural credit accounts to total credit accounts

(X3) Credit per agriculture account

Indicators of performance in financial inclusion (spatial outreach)

(X1) Ratio of rural branches to total branches

(X2) Ratio of semi-urban branches to total branches

(X3) Ratio of rural credit to total credit

(X4) Ratio of semi-urban credit to total credit

(X5) Ratio of rural deposit to total deposit

(X6) Ratio of semi-urban deposit to total deposit

Empirical Result of Performance Indicators

The performance of commercial banks for the above-mentioned indicators empirically evaluated with the help of Principal Component technique. The objective behind the analysis is to understand, first, the changing status of various bank groups with respect to various dimensions of performance. Second, to delineate various factors within a dimension to decipher the percentage of variation explained for its development.

The estimation is done for all bank groups for four time points: 1980, 1992, 2008, and 2012. The variables selected for the analysis are in such a way that they are supposed to have a positive linear relation on the performance of banks. The score obtained from the PCA is used for ranking bank groups for separate performance.

Performance in Terms of Productivity

With the use of 15 productivity indices two Principal Factors are derived for 1980 and 1992 and one principal factor for 2008 and 2012. The logical explanation and interpretation of each factors derived is based on the factor loadings corresponding to each factors. For all time points,

Table 4: Factor Loadings of Principal Components of Performance in Productivity

Variables	1980		1992		2008	2012
	Factor Loadings1	Factor Loadings2	Factor Loadings1	Factor Loadings2	Factor Loadings1	Factor Loadings1
X1	0.912	–0.306	0.984	0.101	0.994	0.966
X2	0.967	–0.254	0.994	0.075	0.997	0.953
X3	0.947	–0.284	0.988	0.092	0.996	0.961
X4	–0.922	0.387	–0.932	0.290	–0.958	–0.847
X5	0.997	–0.071	0.987	0.124	0.991	0.931
X6	–0.997	0.077	–0.984	0.149	–0.961	–0.721
X7	0.999	0.036	0.977	0.155	0.987	0.952
X8	0.999	0.046	0.981	0.150	0.982	0.170
X9	0.999	0.041	0.979	0.153	0.985	0.945
X10	0.997	0.072	0.977	0.160	0.969	0.949
X11	–0.764	0.572	–0.882	0.343	–0.908	–0.821
X12	0.834	0.502	0.976	0.206	0.998	0.777
X13	0.874	0.486	–0.934	0.249	0.975	0.805
X14	–0.833	–0.530	0.286	–0.832	–0.974	–0.328
X15	–0.915	–0.278	–0.921	0.004	–0.987	–0.328
Percentage of variation explained	87.02	10.56	87.34	7.71	95.6	95.54

Source: Estimated results.

the first factor shows the combined productivity efficiency of employees and branches in deposit mobilisation and credit disbursement. This factor accounts for 87 percent of total variation for 1980 and 1992. In 2008 only one factor is derived which shows the combined productivity performance of employees and branches in deposit mobilization, credit disbursement and turnover. The second factor explains 10 percent and 7 percent of total variation respectively for 1980 and 1992, where the factor loadings reveal the productivity performance in per branch expenditure. The relevant factor loadings for various time points are given in the Table 4.

The factor scores and ranks obtained by different bank groups over different time points are given in the Table 5.

In terms of first factor (i.e., productivity performance with respect to employees and branches), foreign banks fared well and ranked top followed by NB and SBA in 1980. With respect to second Factor in 1980 (i.e., productivity

Table 5: Factor Scores of Performance in Productivity

Bank Groups	1980			1992			2008	2012
	F1	F2	TotalScore	F1	F2	TotalScore	F1	F1
SBA	–0.42	–0.31	–3.66	–0.23	–0.21	–1.83	–0.71	–0.29
NB	–0.39	–1.14	–12.34	–0.42	–1.23	–9.82	–0.82	–1.23
PB	–0.68	1.25	12.65	–0.80	1.18	8.38	0.20	1.10
FB	1.49	0.20	3.35	1.46	0.26	3.27	1.34	0.42

Source: Estimated results.

efficiency in expenditure), also PB ranked first followed by FB. Combining these two factors with specific weights of Principal Components gives the total performance score which reveals that PB ranked first followed by FB in 1980. In 1992 also, the position of banks with respect to two factors is similar as that of 1980. The highest rank is obtained by PB followed by FB. In 2008, FB stands first in productivity performance followed by PB and in 2012 their respective ranks are interchanged. Thus, in terms of productivity performance, the private banks both domestic and foreign are better placed compared to their public counterparts.

Performance in Terms of Profitability

In profitability performance also, a single factor is derived which explains 99 percent, 98 percent, 96 percent and 90 percent of total variation respectively for 1980, 1992, 2008, and 2012. The factor shows the combined profitability performance of all variables selected.

Table 6: Factor Loadings of Principal Components of Performance in Profitability

	1980	1992	2008	2012
Variables	Factor Loadings	Factor Loadings	Factor Loadings	Factor Loadings
X1	1.000	0.988	0.999	0.989
X2	1.000	0.998	0.992	0.946
X3	0.999	0.993	0.995	0.995
X4	1.000	0.993	0.999	0.675
X5	0.998	0.987	0.914	
Percentage of variation Explained	99.88	98.56	96.22	90.25

Source: Estimated results.

The scores and positions of various bank groups in profitability are given in Table 7.

In terms of profitability performance throughout the analysis period, FB ranked first and PB second. NB remains the least performing bank in terms of profitability in all the years of analysis.

Table 7: Factor Scores of Performance in Profitability

Bank Groups	Factor scores in 1980	Factor scores in 1992	Factor scores in 2008	Factor scores in 2012
	F1	F1	F1	F1
SBA	–0.56	0.10	–0.52	–0.39
NB	–0.51	–1.03	–0.54	–0.61
PB	0.42	0.40	0.44	0.49
FB	1.50	1.33	1.50	1.49

Source: Estimated results.

Performance in Financial Inclusion (Sectoral Outreach)

While analyzing the performance in financial inclusion (sectoral outreach) in 1980 two factors are delineated which accounts for 82 percent and 17 percent of the total variation. For 1992, 2008 and 2012 one factor is derived which accounts for 94 percent, 91 percent and 90 percent of the total variation. In the year 1980, the factor derived shows the overall performance in financial inclusion (sectoral outreach) and the second factor shows the performance in agricultural credit account. For the years 1992, 2008 and 2012, the single factor derived shows the overall performance in sectoral outreach. Table 8 shows the factor loadings of factors of performance in financial inclusion with respect to spatial outreach.

Table 9 shows the factor scores and rank obtained by various bank groups with respect to financial inclusion (sectoral outreach). In 1980, SBA ranked first in this respect followed by NB. The factor scores of PB and FB regarding sectoral outreach have been very low in this year. The same pattern is visible during 1992 and 2008, the only change being a shift in the relative position of SBA and NB. NB group scored the first position during 1992 and 2008, while SBA occupied first place in 2012. Thus,

Table 8: Factor Loadings of Principal Components of Performance in Financial Inclusion (Sectoral Outreach)

	1980		1992	2008	2012
Variables	Factor Loadings1	Factor Loadings2	Factor Loadings1	Factor Loadings1	Factor Loadings1
X1	0.993	0.112	0.989	0.998	0.994
X2	0.859	0.501	0.977	0.969	0.896
X3	0.950	–0.289	–0.967	–0.886	–0.952
Percentage of VariationExplained	82.19	16.98	93.95	90.71	89.88

Source: Estimated results.

Table 9: Factor Scores of Performance in Financial Inclusion (Sectoral)

Bank Groups	1980			1992	2008	2012
	F1	F2	Total score	F1	F1	F1
SBA	–0.39	1.29	21.65	0.63	0.76	0.95
NB	0.43	0.26	4.75	0.7	0.85	0.73
PB	1.14	–0.61	–9.5	0.12	–0.35	0.03
FB	–1.17	–0.94	–16.89	–1.45	–1.26	–1.42

Source: Estimated results.

analysis reveals that in performance in financial inclusion operation, the NB and SBA are far outpaced compared to PB and FB.

Performance in Financial Inclusion (Spatial Outreach)

By using the six indicators of spatial outreach of financial inclusion a unique Principal Factor could be derived for 1980 and 1992 which explains 97 percent and 88 percent of total variation in this respect. For the year 2008, two factors are delineated which explains 58 percent and 38 percent of total variation. Here the first factor pertains to performance in rural branches and deposits and semi-urban credit and the second factor pertains mainly to outreach towards semi-urban areas.

Table 10: Factor Loadings of Principal Component of Performance in Financial Inclusion (Spatial)

	1980	1992	2008		2012
Variables	Factor Loadings1	Factor Loadings1	Factor Loadings1	Factor Loading2	Factor Loading1
X1	0.950	0.907	0.768	0.605	0.961
X2	0.995	0.936	0.196	0.977	0.722
X3	0.995	0.964	0.472	–0.873	0.959
X4	0.973	0.965	0.955	–0.136	0.975
X5	0.992	0.912	0.908	–0.355	0.975
X6	0.995	0.966	0.937	0.288	0.972
Percentage of variation explained	96.71	88.78	57.81	38.43	86.82

Source: Estimated results.

Table 11 reveals the scores and ranks attained by various bank groups in financial inclusion (spatial outreach). Table 11 reveals that SBA, NB and PB have good performance in 1980 and 1991. As expected FB is the least performing group in all the three time points with respect to spatial outreach. By 2008, all the banks groups show decline in spatial aspect of financial inclusion, which reflects the impact of financial sector reforms implemented from 1992 onwards. By 2012, as a result of the financial inclusion policies adopted there has been an increase in the performance of public sector banks in this respect.

Table 11: Factor Scores of Performance in Financial Inclusion (Spatial)

Bank Groups	1980	1991	2008			2012
	F1	F1	F1	F2	Total score	F1
SBA	0.56	0.46	0.94	–0.31	–11.31	1.11
NB	0.74	0.41	0.52	–0.62	–23.39	0.39
OSB	0.15	0.13	–0.10	1.49	–27.07	–0.26
FB	–1.45	–1.49	–1.36	–0.56	–33.36	–1.24

Source: Estimated results.

Comparative Performance of Commercial Banks with Respect to Financial Inclusion and Economic Efficiency

Table 12 makes an analysis of the comparative performance of the four major bank groups with respect to financial inclusiveness and economic efficiency over the four points of time. In terms of financial inclusion with respect to sectoral and spatial outreach the public sector banks have been in the forefront; however, the factor scores reveals that the financial inclusiveness of these banks have declined over the period of analysis and became worse in 2008. However, the impact of the financial inclusion policies since 2008 has started to get itself reflected in the indicators of financial inclusion by 2012. In terms of productivity and profitability, the private sector banks dominate the scene.

Table 12: Comparative Performance of Commercial Banks with Respect to Financial Inclusion and Economic Efficiency

Year	Performance Indicators	SBA	NB	PB	FB
1980	PI1	–3.66(3)	–12.34(4)	12.65(1)	3.35(2)
	PI2	–0.56(4)	–0.51(3)	0.42(2)	1.50(1)
	PI3	21.65(1)	4.75(2)	–9.5(3)	–16.89(4)
	PI4	0.56(2)	0.74(1)	0.15(3)	–1.45(4)
1992	PI1	–1.83(3)	–9.82(4)	8.38(1)	3.27(2)
	PI2	0.10(3)	–1.03(4)	0.40(2)	1.33(1)
	PI3	0.63(2)	0.7(1)	0.12(3)	–1.45(4)
	PI4	0.46(1)	0.41(2)	0.13(3)	–1.49(4)
2008	PI1	–0.71(3)	–0.82(4)	0.20(2)	1.34(1)
	PI2	–0.52(3)	–0.54(4)	0.44(2)	1.50(1)
	PI3	0.76(2)	0.85(1)	–0.35(3)	–1.26(4)
	PI4	–11.31(1)	–23.39(2)	–27.07(3)	–33.36(4)
2012	PI1	–0.29(3)	–1.23(4)	1.10(1)	0.42(2)
	PI2	–0.39(3)	–0.61(4)	0.49(2)	1.49(1)
	PI3	0.95(1)	0.73(2)	0.03(3)	–1.42(4)
	PI4	1.11(1)	0.39(2)	–0.26(3)	–1.24(4)

Source: Estimated results.
Note: Figures in brackets represents ranks obtained
PI 1 = Performance Indicator of Productivity
PI 2 = Performance Indicator of Profitability
P13 = Performance Indicator of Financial Inclusion (Sectoral outreach)
P14 = Performance Indicator of Financial Inclusion (Spatial outreach)

Section V: Conclusion

The country, today has reached at a juncture on growth trajectory where from the direction and acceleration of forward journey depends on the application of "inclusive" booster on the economy. Realising this aspect, the expansive growth strategy has given way for inclusive growth. Among the various mechanisms through which growth can become more inclusive, financial inclusiveness is of prime importance. As financial inclusion is the provision

of a broad range of financial services such as deposits, loans, payment services, money transfers and insurance to poor and low-income households and their micro-enterprises, the degree of financial inclusiveness depends greatly on the growth and access of services of formal financial institutions by the poor. In India, the commercial banks directed through social obligatory responsibilities of the governance since Independence, have been playing a critical role in the provision of banking services to socially marginalized sections, sectors and regions. However, the emphasis on these social obligations of banks confront with their commercial interest of economic efficiency and sustainability. The shuttling between the focus on economic efficiency and socially obligatory functions leading to financial inclusion also depends on the changing banking sector policies initiated by government and central bank from time to time. The reduction in profitability, productivity and inefficient allocation and the use of banking resource as an aftermath result of financial repression followed till the 1980s compelled RBI to initiate far-reaching, path-breaking and revolutionary banking reforms since 1992. The time has reached for evaluating the effectiveness of the multifaceted reform measures initiated in the country on the basic principle of banking activities. The evaluation highlights the fact that commercial banks were able to rise to the occasion for enhancing the economic efficiency with respect to higher growth of profitability, productivity and other areas of financial management. However, these achievements is not commensurate with their performance in financial inclusiveness which are characterised by increasing sectoral outreach of banking services to priority sectors of agriculture and small-scale sectors and spatial outreach to rural and semi-urban areas. The objective of financial inclusion has received a great set-back in the race towards higher economic efficiency across all bank groups both public and private. The pertinent question raised in this context is whether performance of commercial banks in India with respect to economic efficiency is complementary or competitive to the objective of financial inclusion. Judging the performance of commercial banks avoiding the obligation for financial inclusion is partial, incorrect and socially undesirable in a country like India where the majority is still far away from formal financial institution network. The need of the present hour is to have a judicious blending of these objectives and framing necessary policy strategies for tuning banking sector towards this goal.

Notes

1. The annual growth rate of the economy accelerated to around 6 percent in 1980s and 1990s from a tardy and stagnant rate of 3.5 percent for the period from 1950 to 1980.

2. Principal component analysis (PCA) is a statistical procedure that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components. This transformation is defined in such a way that the first principal component has the largest possible variance (that is, accounts for as much of the variability in the data as possible), and each succeeding component in turn has the highest variance possible under the constraint that it is orthogonal to (i.e., uncorrelated with) the preceding components.

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Capital isn't scarce. Vision is.

—Sam Walton

Focus

An Analysis of Use of Social Network Sites in Indian Banking Sector

POOJA MALHOTRA AND BALWINDER SINGH

In present era of technology, social networking sites have become an important marketing tool for all business concerns including banking industry. It helps the banks to share business information and interact with their actual and potential customers. The objective of this study was to evaluate the use of Facebook by the Public and Private Sector banks in India. The article is based on an instrument called Facebook Assessment Index (FAI) developed by Miranda (2013), which uses three categories to evaluate the essential information on a firm's Facebook page: popularity, interactivity, and content. The results found that only 41.3 percent of the banks observed had their official Facebook page. Amongst, the three measures of FAI, new private sector banks (ICICI, Axis and Yes bank) performed well as compared to other banks. In general, the banks were not fully harnessing the utility of Facebook as a marketing tool and a great opportunity exists for the banks for improvement in their usage of Facebook.

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Introduction

In present competitive scenario, the business houses are adopting all innovative marketing tools that are interactive and have the ability to build corporate image by understanding and influencing the consumers. Today's consumers are not dependent onphysical stores for their requirements. The advent of technological advancements particularly, Internet, has provided the power to consumers to choose the product as per their requirements and convenience. Social media, which include use of social network sites like Facebook, Twitter, etc., have enhanced their power. Social media have thereby transformed online consumer behavior, which has important consequences for firms, products and brands (Kaplan and Haenlein, 2010). The growing usage of social media has provided opportunities for the business organizations to enhance their value. At present, all over the world, use of social network sites has increased tremendously. The statistics provided by Statistia.com shows that in 2014, it is estimated that there will be around 1.82 billion social network users around the globe, up from 1.47 billion in 2012. During 2013, region-wise, North America was ranked first with a social media penetration rate of 56 percent, followed by Western Europe with 44 percent. The global average penetration rate was 26 percent. In India, in 2014, it is estimated that there will be 168.7 million social network users in India showing nearly 32 percent growth rate. eMarketer (2013) expected that the global social network audience will total 2.55 billion. This growing usage of social networking sites has provided an opportunity to corporate world to utilize the value of social media as a marketing tool and build and manage their corporate image. IBM expects that during 2015–18, the number of companies that use social media to interact with customers will more than triple (Chinapost.com, 2012). In almost all the fields, the companies are using social networking sites, particularly, Facebook and Twitter

to interact with their current and potential customers. Banking industry is not an exception to it. Banks are utilizing social networking sites to share information about their products and services, interact with the customers by receiving and responding to their complaints and suggestions. Some of the banks have fully utilized the concept of s-commerce by providing access to their banking services through social media.

Banks in India have also their presence on social network sites. Most have realised that social media offers an invaluable opportunity to reach sections of the target audience, particularly the youth (Mukherjee, 2013). However, only a handful of banks are engaged in two-way conversations with customers (Financialbrand.com, 2013). A study released by Unmetric, a social media benchmarking firm, HDFC Bank, ICICI and Axis Bank performed well in terms of use of online channels, like, Facebook, Twitter and YouTube. In The Financial Brand's own study, ICICI ranks number 3 and Axis ranks number 7 among all financial institutions worldwide (Financialbrand.com, 2013).

The present study aims to quantify the current state of use of social network sites particularly Facebook by banks in India. It will provide a comparative analysis of the Public and Private Sector banks in India. The study has been divided into four sections. Section I reviews the current literature. Rest of the article has been organized as follows: next section describes the database and research methodology designed for the study. Section III depicts the detailed results of the survey. Finally, a number of conclusions and suggestions for further research have been drawn.

Data Base and Methodology

The present study is an attempt to provide a comprehensive analysis of Facebook pages of the banks in India and to examine the effectiveness of Facebook for banks. The article is based on an instrument called Facebook Assessment Index (FAI) developed by Miranda (2013) on the basis of Delphi method, which uses three categories to evaluate the essential information on a firm's Facebook page: popularity, interactivity, and content.

Popularity

The measure commonly used to evaluate the effectiveness of firms' use of social networks is the number of followers (or fans) of their pages (Michaelidou et al., 2011). The second measure taken for popularity is number of persons talking about the site.

Interactivity

Effectiveness of Facebook is measured by its interactivity with its current and potential customers. It is related with degree of a users' engagement with a brand and is usually measured by the number of times the user comments, shares, or "likes" the information shared by the brand (Miranda, 2013). To analyze the degree of interactivity of pages following five indicators have been adopted:

- Number of wall posts made by the bank in the last 7 days.
- Average number of "likes" per post, calculated from the last 10 posts.
- Average number of comments per post, calculated from the last 10 posts.
- Average number of shared posts, calculated from the last 10 posts.
- Average number of user's post answered by the company in less than 24 hours, calculated from the last 10 posts that need an answer.

Content

The last measure of Facebook effectiveness is the quality of the page's content. This is measured by evaluating the presence of relevant information. As evaluating only the presence/absence of certain information as an indicator of "quality" is probably may not be the best alternative, but it is the solution proposed in the literature to avoid the use of subjective factors (Miranda, 2013). In building the index of content value, 24 items are analyzed (see Table 1).

Table 1: Content items

Bank information	Video
Product information	Photos
Corporate identity	Other Facebook pages
Marketing messages	Claims and suggestions
Events	Charity events
Polls	Web site
External links	S-commerce application
Location	Coupons or specific offers
Phone	Gamification apps/contest
E-mail	Downloads
Contact form	Careers
Tools and Calculator	ATM and Branch Locator

Source: Adapted from Mirinda (2011).

Formation of Facebook Assessment Index

In the two categories (popularity and interactivity), the data is displayed on a scale of 0 to 100. To arrive at those values, each value is divided by the highest value and then multiplied by 100. The score for each category is obtained as the arithmetic mean of the scores of each of the items within it.

In order to measure the content score, one point has been given to the bank for a content item of those shown in Table 1, if it was provided by the bank. Using this rule, a bank can score a maximum of 24 points on this index and a minimum of zero. Total score has been calculated for each of the banks by adding the total number of content items provided by them. After calculating the total score of content value for each bank, the content value for each bank has been calculated as follows.

$$\text{Content value of a particular bank} = \frac{\text{Total score of the bank}}{\text{Total no. of content items considered (i.e. 24 items)}} \times 100$$

However, it should be noted that the logic behind assigning points to the attributes does not depend on the importance of the attribute nor on the quality of the information provided by the bank. Rather, it provides a measure of the quantity of content items made available through Facebook to the users.

The final index value is a weighted sum of the scores obtained in each of these categories.

$$FAI = w_1 * \text{Popularity Value} + w_2 * \text{Interactivity Value} + w_3 * \text{Content Value}$$

The weights (w_i) for each category are assigned on the basis of Miranda (2013). The assigned weights were: popularity 25 percent, interactivity 40 percent, and page content 35 percent.

Data Collection

For the present study, Facebook pages of the 46 banks which include public and private (domestic) banks as operating on March 31, 2013 are analyzed (see Table 2). The Facebook pages of the banks are analyzed in the month of May 2014. Banks with official Facebook page have been taken into account. Fan pages or Facebook pages at local level were not included.

Results

Table 2 shows the result of banks having official Facebook page. It was found that only 41.3 percent of the sample banks are having an official Facebook page. Amongst them, private sector banks particularly new private sector banks (85.7 percent) lead others. Only 19 percent of public sector banks are having official Facebook page. Hence, a large number of banks are lagging behind in the use of Facebook.

Table 2: Banks with Facebook Pages

Bank	Number of Banks	Number of Banks with Official Facebook Page	Percentage of Banks in Category
Private Sector Banks	**20**	**14**	**70.0**
New[1]	7	6	85.7
Old[2]	13	8	61.5
Public Sector Banks	**26**	**5**	**19.2**
SBIGroup[3]	6	2	33.3
Nationalized[4]	20	3	15.0
All Banks	**46**	**19**	**41.3**

Source: Facebook Pages of the individual banks (accessed during May, 2014), Statistical Tables relating to banks available at RBI website.

Notes:
[1] Includes banks established after the liberalization reforms as recommended by Narsimham Committee in 1991.
[2] Includes banks established before the liberalization reforms as recommended by Narsimham Committee in 1991.
[3] Includes State bank of India and its five subsidiaries.
[4] Includes banks nationalized by the government in 1969 and 1980 and IDBI Bank.

Table 3 presents the FAI scores obtained by the banks along with the three measures, Popularity value, Interactivity value and Content value. Highest FAI value of 74 percent is scored by ICICI bank, followed by Axis bank with 56.3 percent. Only two banks (10.5 percent) are having FAI value more than 50 percent. Four banks (21 percent) are having scores between 30 and 50. And remaining 68.4 percent of banks are not able to reach the score of 30. Amongst public sector banks, SBI stands at fifth place with 37.7 percent value of FAI.

The results also confirm the results of Financialbrand.com (2013), where ICICI and Axis banks are in top 10 of financial institutions worldwide.

Amongst Popularity, number of followers ranges from 142 (RBL Bank) to 2,963,626 (ICICI). Here again, ICICI Bank topped 74.6 percent of popularity value. While Yes Bank does have a higher average score of 64.8 percent as compared to Axis Bank with 61.7 percent. If we consider only number of persons talking about the bank, Yes bank

Table 3: Facebook Assessment Index (FAI)

Bank	Popularity Value	Interactivity Value	Content Value	FAI
ICICI Bank	74.60	65.39	83.33	73.97
HDFC Bank	40.25	11.87	66.67	38.14
Axis bank	61.70	58.56	50.00	56.35
Kotak Mahindra Bank	4.87	5.86	70.83	28.35
Yes bank	64.79	22.94	62.50	47.25
IndusInd Bank	1.21	6.73	41.67	17.58
Catholic Syrian Bank	0.19	2.12	33.33	12.56
Dhanlaxmi Bank	0.23	1.59	41.67	15.28
Federal Bank	5.39	4.20	50.00	20.53
INGVysya Bank	2.06	4.33	45.83	18.29
J&K Bank	0.15	2.23	37.50	14.05
RBL Bank	0.03	7.89	45.83	19.20
South Indian Bank	0.90	10.00	70.83	29.02
TMB	0.66	6.64	41.67	17.40
SBI	3.77	22.67	79.17	37.72
SB Travancore	0.12	5.27	41.67	16.72
Dena Bank	0.04	0.00	16.67	5.84
IDBI	14.21	9.17	70.83	32.01
IOB	0.11	3.52	33.33	13.10

Source: survey of bank's Facebook pages conducted in the month of May 2014.

has topped with 80,369, while number of persons talking about ICICI bank is only 39,546. Only 21 percent of banks are having popularity score more than 40, making their Facebook pages as an important instrument as a marketing strategy.

The results of Interactivity value that again ICICI bank is with highest interactivity value 65.4 percent, while Axis bank is having 58.6 value. All other banks have not been able to even touch 50 points. There is a bank, Dena Bank, which has 0 value. Hence, most of the banks are not able to make utilization of social media as a marketing tool. The interactivity value is further measured by five sub-measures. The first measure is number of posts during last 7 days,on an average, the banks made 6.8 posts per week. Only 47.4 percent of banks post more than 7 posts per week. Even ICICI bank did not made seven posts per week. The second measure of interactivity was the number of likes per post. In this case, there were remarkable differences between banks. Some pages such asthat of ICICI and Axis bank have over 2,000 likes per post, while other pages have hardly any impact on their followers. With respect to the average number of comments per post, only 10.5 percent of the banks had an average of over 20 comments per post, compared with 68.4 percent with less than five. The greatest value was ICICI with 48 comments per post on an average. As far as, the average number of posts shared by followers is concerned, 42 percent of the banks had an average of more than 10 posts shared by their followers. ICICI bank is having the highest value of 434.5. On the other hand, 36.8 percenthad an average less than three. The last indicator of interactivity value was average number of user's post answered by the bank in less than 24 hours, calculated from the last 10 posts that need an answer, which is an important measure of interactivity. However, only one bank, Axis bank showed on average 10.7 posts answered while all other banks averaged less than three. Thus, a very low level of interactivity was shown by banks.

Table 3 also shows the results of content value. It shows that ICICI bank is having highest content value of 83.3 percent, showing large number of information on their Facebook page; 52.6 percent of banks have less than 50 percent of content value. Hence, the utility of Facebook pages still needs to be harnessed. Here, SBI, the leading public sector bank has got 79.2 percent of content value, IDBI again public sector bank with 70.8 percent of content value. Thus, public sector banks have also realized the competitive pressure in new age of technology. Table 4 shows the item-wise content analysis. Total 24 items were included for content value analysis.

As shown inTable 4, all of the pages had information about the bank's own website and information about the bank and 94.7 percent of the banks used the page to include marketing messages, photos and corporate identity. Only one bank included S-commerce application in its page, which allows the users in online buying of products and services directly from Facebook page; 68.4 percent of banks included videos either directly or by providing links to YouTube. As per contact information is concerned, 84.2 percent of the pages provided information on the location of the bank, 73.68 percent provided telephone information and 57.89 percent have provided email ID. Only 26 percent of the banks had contact forms to request information. Information on events was included by 78.95 percent of the pages. Surveys and opinion polls among their followers was not included by any of the banks. In order to attract website visitors to Facebook page, banks must provide some social incentives in the form of coupons or specific offers. However, only 26 percent of the banks

Table 4: Content Analysis

Content Item	Percentage of Banks
Polls	0.00
S-commerce application	5.26
Tools n calculator	5.26
Charity events	10.53
Careers	10.53
Downloads	10.53
Other Facebook pages	26.32
Coupons or specific offers	26.32
Contact form	26.32
ATM and branch locator	31.58
Claims and suggestions	36.84
Gramification apps/contest	42.11
E-mail	57.89
Video	68.42
Phone	73.68
Product information	78.95
Events	78.95
External links	84.21
Location	84.21
Corporate identity	94.74
Marketing messages	94.74
Photos	94.74
Bank information	100.00
Web site	100.00

Source:Survey of bank's Facebook pages conducted in the month of May 2014.

included specific offers for their visitors. About 42 percent of the banks included games and contests to attract new users, only 10.5 percent offered the facility of downloading different content as well as using Facebook as a medium for recruitment and selection of staff, i.e. careers. Hence, in general, banks have opportunity to make full utilization of the Facebook pages for information dissemination.

Table 5 presents the bank category-wise results of FAI. An analysis of bank category wise, public and private, shows no significant differences amongst the overall index, and all three measures of FAI. However, significant difference (at 10 percent level of significance) amongst public and private banks was found as far as popularity value was concerned.

Table 5: FAI by Category-wise

	t-value	*p*-value
Popularity Value	1.82	0.088*
Interactivity Value	0.714	0.485
Content Value	0.376	0.723
FAI	0.891	0.385

Source: Author's survey.
Note: *Significant at 10 percent level.

Table 6 presents the regression results showing the impact of the three measures of FAI. It shows that all the three measures are having significant impact. Here, interactivity value is having highest impact with beta value

Table 6: Regression Results

	β-value	*p*-value
Popularity Value	0.619	0.000***
Interactivity Value	0.873	0.000***
Content Value	0.734	0.000***

Source:Author's survey.
Note: *** Significant at 1 percent level of significance.

of 0.873. Hence, interactivity is the most important measure of FAI. Content value has beta value of 0.734 and popularity value is having beta value of 0.619. To have an effective benefit of social network sites, banks will have to be interactive with their current and prospective consumers. Banks will have to provide more and more relevant content and new applications for the benefit of their consumers.

Discussion and Conclusion

With the growing use of social media, it has become a need of the hour for the corporate to use social media as marketing as well as a communication tool. Though there has been a good response from companies in the usage of social network sites, such as Facebook and Twitter, however, banking industry is still at its infant stage in its adoption. Some of the banks have their presence in Facebook due to competitive pressures. Mere presence on Facebook cannot serve the purpose. They will truly have to meet the expectations of consumers. Banks will have to adopt a well-defined strategy to design and use the social media to reap its real benefits.

Present study is an attempt to analyze the use of Facebook pages by banks in India. It covered 46 banks, which included public and private (domestic) banks. The results found that only 41.3 percent of the banks had their official Facebook page. Out of which, sector banks particularly new private sector banks (85.7 percent) lead

others. Only 19 percent of public sector banks are having official Facebook page. Hence, a large number of banks are lagging behind in the use of Facebook. Amongst, the three measures of FAI, new private sector banks (ICICI, Axis and Yes bank) performed well as compared to other banks. There exist differences in the use of Facebook pages amongst the banks. In general, the banks were not fully harnessing the utility of Facebook as a marketing tool and a great opportunity exists for the banks for improvement in their usage of Facebook.

The present study is not only an attempt to provide current situation in the use of Facebook for the Indian banking industry and do ranking of banks, but the FAIbuilt in this study provides anopportunity to the bank marketers to make a comparison amongst the competitors and make improvements in the indicators of FAI to attract more visitors to their Facebook pages. Most important indicator is content, which must be designed as such to attract current and potential consumers. Facebook pages must include more and more new applications like, s-commerce, webinars, webcasts, surveys and opinion polls, gamification apps, online games, videos, e-newsletters, etc., to move from traditional media to Web generation media.

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The modern banking system manufactures money out of nothing.

—Josiah Stamp

Focus

Government Budgets and Financing Gender Equality in Haryana

DEVINDER SINGH HOODA

Recognized as the largest single source of financing for gender equality and women's empowerment, government budgets, working through national and sub-national budgets, strive to be translated into practical policies and programs. Recommendations are made on how governments can better integrate a gender perspective into their public finance systems as well as increase the participation of women in macroeconomic and budgetary policy formulation. Budget is an important tool in the hands of state for affirmative action for improvement of gender relations through reduction of gender gap in the development process. It can help to reduce economic inequalities, between men and women as well as between the rich and the poor. Understanding the relationship between macroeconomic policies and the Union Budget, states' budget and the local self-government institutions in the context of economic reforms and globalization is a must as it has influenced women's lives in several ways.

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Introduction

In both developing and industrially advanced countries, reforms are being introduced to assess and evaluate budgets on their performance. Unfortunately, these performance- or results-based budgetary systems seldom explicitly include performance criteria that adequately reflect gender sensitivity or equity. A central characteristic of gender-responsive budgeting initiatives is that they seek to improve the results of budgets generally, and gender equality and women's empowerment in particular, by focusing on key economic and social matters that are frequently overlooked or obscured in conventional budget and policy analysis and decision-making. These issues include the role of unpaid work in economic and social outcomes, particularly women's disproportionate responsibility for unpaid work; the distribution of resources between families as well as within families; and the impact of taxation and expenditures on poor women and their dependants (Sharp, 2003). Gender-responsive budget initiatives are strategies for assessing and changing budgetary processes and policies so that expenditures and revenues reflect the differences and inequalities between women and men in incomes assets, decision-making power, service needs and social responsibilities for care. The key question is: What impact does this fiscal measure have on gender equality? Does it reduce gender inequality; increase it; or leave it unchanged? Economic growth has been amply demonstrated to be uneven and unsustainable in the long run if it is sought to be realized in a situation where there are significant gender inequalities (UNDP, 2006). Gender equality with social justice is, therefore, considered as an integral part of human development. Mahbub-ul Haq argued, "Development if not engendered is endangered" and no society can be called developed if one half of humanity remains voiceless, invisible and undervalued (Mahbub-ul Haq, 2000). Amartya

Sen's capabilities approach, a new social welfare theorem, is also highly compatible with the human development framework since it enables us to deal with gender empowerment issues in a more holistic manner (Martha, 2000). Banerjee and Krishanraj reviewed the public schemes which are meant for women and found that there was low expenditure for poor and voiceless women (Banerjee and Krishnraj, 2004). A cross-country analysis suggests that countries with smaller gaps between women and men in areas such as education, employment, and property rights have lower child malnutrition and mortality; more transparent government; faster economic growth by 0.5 to 0.9 percentage points higher per year—which in turn helps to further narrow the gender gap (Mason and King, 2001). Integrating the gender perspective into macroeconomic policy has dual dimensions: First, equality dimension; i.e. gender equality is not a mere outcome of development policy but simultaneously an instrument of balanced development for both male and female. This gender equality can benefit the economy through efficiency gains; and second, efficiency dimension; i.e. the social rate of return of investment in women is greater than the corresponding rate for men (Chakraborty, 2003). Therefore, macroeconomic and budgetary policies can have differential impact on men and women because of the systemic differences between the sexes in relation to the economy (Stotsky, 2006). M. Acharya summarized the experience of gender budgeting in India and Nepal and noted that the inadequacies of spending into categories, such as women specific, pro-women and general programs. However, the study pointed out that it is more important to examine the effectiveness, adequacy and efficiency of the allocations to achieve the program objectives set for women's programs, rather than focusing on percent allocations per se. An additional investment on women-related schemes (such as female education, health, etc.) is usually likely to yield a higher social rate of return and Gross National Product than a corresponding outlay on men whereas any cutback in public expenditure worsens the status of women (Hill and King, 1995; Palmer, 1995). Gender budgeting is not a separate budget for women, or for men, but, it translates gender commitments into budgetary commitments (Elson, 1999). It attempts to disaggregate, the government's mainstream budget according to its impact on different groups of women and men. It examines the gendered incidence of budgetary policies for effective targeting of public spending and offsetting any undesirable gender-specific consequences of previous budgetary measures. An important aim of gender budgeting is to allocate funds to improve the position of women, hence contributing to gender equality (Sharp, 1999). Gender budgeting has gained prominence in recent years, and was given additional impetus by the Fourth World Conference on Women, held in Beijing in 1995, which called for ensuring the integration of a gender perspective in budgetary policies and programs (Sarraf, 2003). Elson observed that government budgets are not "gender-neutral" and that the appearance of gender-neutrality is more accurately described as "gender blindness," because fiscal measures may have a different effect on women and men (Elson, 2002). Gender budgeting seeks to mainstream gender analysis of issues within government policies; promote greater accountability for the commitment of governments to gender equality; and influence budgets and policies (Sharp and Broomhill, 2002). Gender budgeting is not intended to analyze only programs that are specifically targeted to females or to produce a separate "women's" budget, but rather to examine the gender effects of all government programs and policies, their effects on resource allocation and outcomes, and how to improve them. It draws upon the literature on the measurement of inequality in that it tries to improve the allocation of resources within the government budget to reduce those inequalities with consequent benefits to economic and social well-being. The probability of children being enrolled in school increased with their mother's educational level, and extra income going to mothers has a more positive impact on household investment in nutrition, health and education of children than extra income going to fathers (World Bank, 1995). Union Government of India, for the first time included a statement on gender budgeting in budget 2005–06. It is gaining attention throughout the world. Gender budgeting refers to a method of looking at the budget formulation process, budgetary policies and budget outlays from the gender lens. It is an analytical tool, which scrutinizes the government budget to reveal its gender-differentiated impact and advocate for greater priorities for programs and schemes to address the gender-based disadvantages faced by women. In fact, gender budgeting as an approach is not confined to government budgets alone; it also includes analyzing various socio-economic policies from the gender perspective (Das and Mishra 2006). Gender budgeting has started in Haryana from the year 2008–09. Ministry of Women and Child Development has stressed upon the importance of state governments taking up gender budgeting initiatives in view of their dominant contribution in allocation of resources for women and critical role in

implementation of all major public expenditure programs. The success of gender budgeting rests on gender-sensitive implementation of important centrally-sponsored schemes entrusted to the states and on engendering the state budgets. The Planning Commission has also instructed all state governments that it should be ensured that gender budgeting is a part of the planning process of all states as part of the directions issued to states for the Eleventh Five Year Plan and Annual Plan 2007–08. The present article is thus an attempt to examine the budgetary allocation of Haryana state government in social sector from gender perspective from 2001–02 to 2008–09 and also analyse that how much spending is financed from the central government to state.

Methodology and Data Base

The key purpose of this article is to examine the levels and trends of social sector spending in Haryana state from gender considerations. To analyze the gender budgets at central and state level, a framework has been provided by Australian economist Sharp in 1998. This framework was followed in Australia and South African for Gender Budgeting analysis. In Sharp's framework, each department's allocations can be broken up into three categories of expenditure. That is, (i) Expenditure specifically targeted for women, (ii) Expenditure on equal employment opportunities within the public sector, and (iii) mainstream budget expenditure. The three categories add up to 100 percent of budget (Lahiri et al., 2003). This article analyzes the levels and trends of gender budget expenditure by taking into account the different state government's budgetary schemes benefitted to women and categorizes them into two components as follows:

i. Expenditure on WSS: 100 percent targeted for women. The expenditure on women specific scheme is of great importance as it includes 100 percent allocation for women and has more impact on women empowerment.

ii. Pro-Women Allocations (PWA): This is the composite expenditure (for men and women) scheme with a significant women's component (at least 30 percent targeted for women).

The pro-women allocation is calculated by using the following formula.

PWA = (TE – WSP)

Where,

PWA = Pro-Women Allocation

TE = total social sector expenditure.

WSP = allocation on women specific programs

Further, the first category has been classified into four clusters. The grouping of these clusters is based on the objective and purpose of the particular scheme and its potential impact on women. That is, (i) Protective and Welfare Services, (ii) Social Services, (iii) Economic Services, and (iv) Regulatory and Awareness Generation Services.

Gender Budget Analysis: Allocation on Social Sector

The resources allocation for the advancement of women is routed through various departments/ministries. These departments include different schemes and programs related to women empowerment. The essential thing is that most of the programs and schemes fall under social sector. For instance, the Ministry of Women and Child Development spearheading the gender budgeting initiative in 2004 defined a broad strategic framework for gender budgeting and defined "Budgeting for Equity" as the mission statement, is also fall under this sector. Other ministries, like health, education, rural development, social welfare, etc. come under this sector. Therefore, the analysis of social sector is important. The public allocation on women is analysed from 2001–02 to 2008–09 and this analysis includes only social sector spending on women. The social sector include various department like, education, sports, arts and culture; Health and family welfare; social security, Social welfare and other social services; housing, water supply, sanitation and nutrition; and labour and employment, rural and urban development, cooperation, information and publicity. Further, the allocations of women-specific schemes among these departments are also classified in to four clusters on the basis of their potential impact on women's social position. Further, the department-wise spending of social sector is also classified according to source of spending. For instance, total spending in these departments are made through State Plan Scheme, Share Basis Central Scheme, and 100 percent centrally sponsored scheme. This exercise helps us in identifying that how much spending is transferred from the central government to state. This classification includes the following departments: General Education, Technical Education, Youth and Sports, Art and Culture, Medical and Public Health, Family Welfare, Water Supply and Sanitation, Nutrition, Welfare of CSs, STs and OBCs, Social security and welfare, Special Programme for Rural Development, Other Rural Development Program, Urban Development, Rural Employment, Labour and employment, Cooperation, and Information and Publicity, etc. While doing analysis of Haryana gender budget, we collected data on women-

Table 1: Budgetary Allocation to Social Sector and on WSS (Rs in lakh)

Year	Social Sector Allocation			Pro Women Allocation (at least 30% for women)			Allocation to women-specific (100% for women)		
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
2001–02	82186	195406	277592	66454	192926	259380	15732	2480	18212
2002–03	68001	222048	290049	50927	219292	270219	17074	2756	19830
2003–04	76797	224143	300940	64542	221553	286094	12255	2590	14846
2004–05	93414	234936	328349	72620	232130	304749	20794	2806	23600
2005–06	140476	266746	407222	110353	263254	373607	30123	3492	33615
2006–07	175543	297478	473021	139379	293748	433127	36164	3730	39895
2007–08 –BE	219256	347169	566425	181314	341789	523103	37942	5379	43321
2007–08 –RE	272484	356053	628537	232484	349600	582084	39999	6453	46452
2008–09 –BE	302219	373677	675896	259701	366867	626568	42517	6811	49328
C.V.	–24.28	–2.56	–10.97	–28.22	–2.29	–11.28	–5.42	–19.96	–7.23
(as percent of Total State Budget)									
2001–02	7.88	18.74	26.63	6.37	18.51	24.88	1.51	0.24	1.75
2002–03	6.64	21.70	28.34	4.98	21.43	26.40	1.67	0.27	1.94
2003–04	5.93	17.31	23.23	4.98	17.11	22.09	0.95	0.20	1.15
2004–05	7.47	18.78	26.24	5.80	18.55	24.36	1.66	0.22	1.89
2005–06	9.74	18.49	28.22	7.65	18.24	25.89	2.09	0.24	2.33
2006–07	9.25	15.68	24.93	7.35	15.48	22.83	1.91	0.20	2.10
2007–08	12.66	16.54	29.21	10.80	16.24	27.05	1.86	0.30	2.16
2008–09	12.58	15.55	28.13	10.81	15.27	26.07	1.77	0.28	2.05

Source: Original Budget Paper of Haryana State Government, Various Years.

Note: The value of (C.V.) Variation is calculated between the 2007–08 Budget Estimate and Revised Estimate. For calculating this variation we use this method: CV= {(BE – RE)/BE}*100.

Table 2: Budgetary Allocation to WSS of Total Social Sector Allocation

(Percent)

	Pro-women (30%) Allocation as % to total social sector allocation			Allocation to women specific Scheme as % to Social Sector Allocation		
Year	Plan	Non-Plan	Total	Plan	Non-Plan	Total
2001–02	80.9	98.7	93.4	19.1	1.3	6.6
2002–03	74.9	98.8	93.2	25.1	1.2	6.8
2003–04	84.0	98.8	95.1	16.0	1.2	4.9
2004–05	77.7	98.8	92.8	22.3	1.2	7.2
2005–06	78.6	98.7	91.7	21.4	1.3	8.3
2006–07	79.4	98.7	91.6	20.6	1.3	8.4
2007–08–RE	85.3	98.2	92.6	14.7	1.8	7.4
2008–09–BE	85.9	98.2	92.7	14.1	1.8	7.3

Source: Calculated from Table 1.

specific/targeted schemes in social sector. Since social sector allocation relates to public expenditure for services aimed at ensuring well-being and quality of life of masses; thus, to do so, status of allocation to this sector required to be studied in the context of gender budgets.

The gross estimation of the levels of resources available to women through the budget has been made by cumulating the allocations for targeted and pro-women scheme. In the state budget some schemes are for specifically for women and some are joint. Therefore, we calculated the pro-women allocations after deducting the women-specific allocations from the overall social sector spending, since this is the only way to arrive at estimated amounts which are allocated for advancement and development of women at the state level.

Table 1 makes it crystal clear that the share of the social sector spending as a ratio of total state budget is declining from 26.6 percent in 2001–02 to 24.9 percent in 2006–07. This indicates that state government has no given priorities to social sector spending. The allocation to women specific scheme as percentage of total state budget shows almost constant (nearly 1–2 percent) trends throughout the study period (Table 1). Nevertheless, the spending on women specific scheme as a ratio of total social sector has increased from 6.6 percent in 2001–02 to 8.4 percent in 2006–07. The pro- women allocation as percentage to total state budget remains almost constant. Table 1 indicates that total social sector expenditure as percent of total state budget is less than 30 percent. It falls below the desired and recommended levels. This recommendation was made by Planning Commission under Women Component Plan that every state should spend at least 30 percent of their state budget on social sector for increment in social welfare. It may be concluded that the study of state budgets do not reflect gender perspective in the flow of fiscal resources.

One of the exciting features can also be noted when we compare the variation between the budget estimate and revised estimates of the state budget in case of plan, non-plan and total expenditure to show the reality of budget commitment. Here we calculated the variation of Budget estimate and revised estimate for the year 2007–08. We noted that both in plan and non-plan expenditure there has always been downward trends, i.e. downward revision. This downward revision is much higher in plan component of expenditure ranging from 20 percent to 28 percent and it varies from 2 percent to 7 percent in case of non-plan expenditure (Table 1). This indicates that the government always makes erroneous commitment to public in the budget and does not give priority to the social sector.

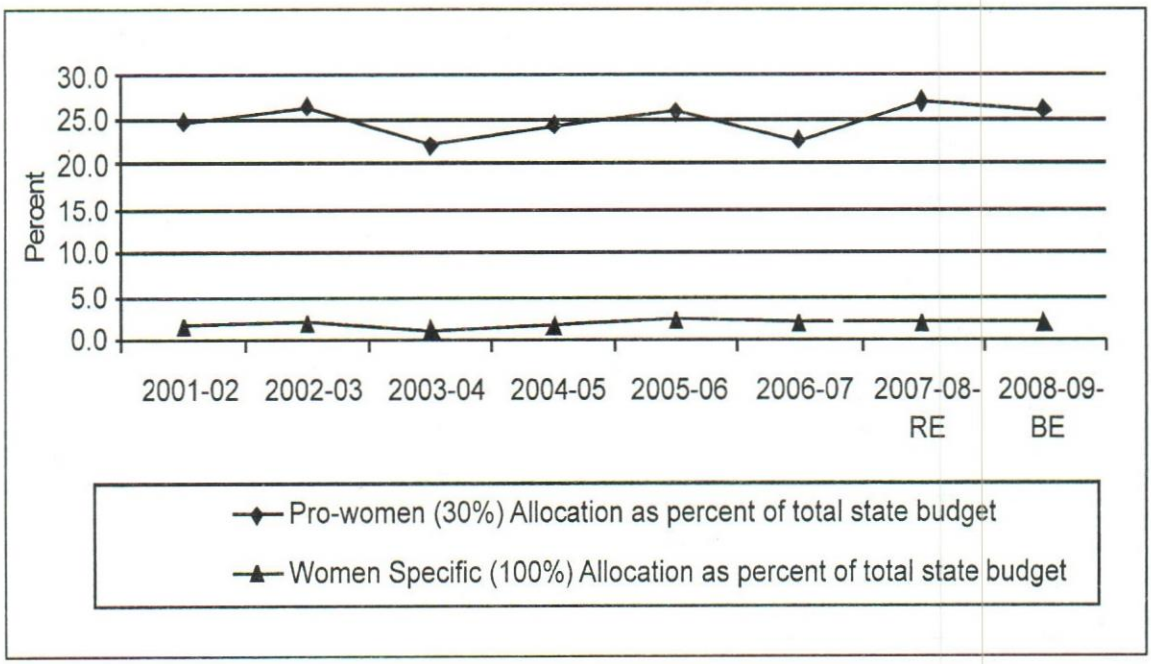

Figure 1: Women Specific Scheme as Percentage of Total State Budget

Source: From Table 1.

It has been argued that the girl literacy is lower among economically weaker section (EWS), SC and ST. So, there is need to provide some special incentives (in terms of free uniforms, text book, bicycle, scholarship etc.) to these sections to attend the school. However, such incentives to SC/ST/EWS students are provided in terms of grants for books and stationery articles and are awarded scholarships and reimbursement of tuition fees. But, these incentives are not adequate to promote them. The sex ratio situation in the state has deteriorated. However, the spending on health and family welfare as a ratio of total state budget has decreased from 3.0 percent in 2001–02 to 2.5 percent in 2006–07. Second, the spending on social welfare department remains almost constant during the same period (Table 3). Similar trends can also be seen in case of allocation on housing, water supply, sanitation

Table 3: Department-wise Social Sector Spending (Rs in lakh)

Year	Allocation on Education, sports, arts and culture	Allocation on Health and family welfare	Allocation on social security, Social welfare and other social services	Allocation on housing, water supply, sanitation and nutrition	labour and employment, rural and urban development, cooperation, information and publicity	Total Social sector
2001–02	147614	31438	43652	30615	18838	272157
2002–03	144718	34249	44361	34899	28116	286343
2003–04	153587	35037	46776	41368	20372	297140
2004–05	167504	38060	53329	38301	26123	323318
2005–06	196977	44912	77288	42231	38762	400170
2006–07	229208	46647	88086	50240	52465	466647
2007–08–RE	297661	54149	100582	66119	100632	619143
2008–09–BE	321858	63424	110224	62860	110779	669145
Composition in Percent (or as percent to total social sector spending)						
2001–02	54.2	11.6	16.0	11.2	6.9	100.0
2002–03	50.5	12.0	15.5	12.2	9.8	100.0
2003–04	51.7	11.8	15.7	13.9	6.9	100.0
2004–05	51.8	11.8	16.5	11.8	8.1	100.0
2005–06	49.2	11.2	19.3	10.6	9.7	100.0
2006–07	49.1	10.0	18.9	10.8	11.2	100.0
2007–08–RE	48.1	8.7	16.2	10.7	16.3	100.0
2008–09–BE	48.1	9.5	16.5	9.4	16.6	100.0
(as percent to total state budget)						
2001–02	14.16	3.02	4.19	2.94	1.81	26.11
2002–03	14.14	3.35	4.33	3.41	2.75	27.98
2003–04	11.86	2.71	3.61	3.19	1.57	22.94
2004–05	13.39	3.04	4.26	3.06	2.09	25.84
2005–06	13.65	3.11	5.36	2.93	2.69	27.73
2006–07	12.08	2.46	4.64	2.65	2.77	24.59
2007–08–RE	13.83	2.52	4.67	3.07	4.68	28.77
2008–09–BE	13.39	2.64	4.59	2.62	4.61	27.84

Source: Original Budget Paper of Haryana State Government, Various Years.

Table 4: Department-Wise Budgetary Allocation on WSS (Rs in lakh)

Year	Women Scheme on Education, sports, arts and culture	Women Scheme on Health and family welfare	Women arts and culture Scheme on social security, Social welfare and other social services	Women Scheme on housing, water supply, sanitation and nutrition	Women Scheme on labour and employment, rural and urban development, cooperation, information and publicity	Total of women specific schemes
2001–02	549.3	3871.2	13782.1	2.4	7.0	18212.0
2002–03	415.6	4847.3	14510.3	30.0	7.0	19810.3
2003–04	555.6	4503.8	9747.7	0.0	9.6	14816.6
2004–05	509.0	5748.8	17176.9	127.5	8.0	23570.2
2005–06	1316.7	7809.7	24111.5	132.0	204.1	33573.9
2006–07	2358.2	8156.5	28947.4	218.6	152.7	39833.4
2007–08–RE	3897.9	6136.9	35839.3	500.0	28.3	46402.3
2008–09–BE	1135.0	8860.4	38667.2	400.0	215.6	49278.1
Composition (in percent)						
2001–02	3.016	21.256	75.676	0.013	0.038	100.0
2002–03	2.098	24.469	73.246	0.151	0.035	100.0
2003–04	3.750	30.397	65.789	0.000	0.065	100.0
2004–05	2.160	24.390	72.875	0.541	0.034	100.0
2005–06	3.922	23.261	71.816	0.393	0.608	100.0
2006–07	5.920	20.477	72.671	0.549	0.383	100.0
2007–08–RE	8.400	13.225	77.236	1.078	0.061	100.0
2008–09–BE	2.303	17.980	78.467	0.812	0.438	100.0
as percentage of total state budget						
2001–02	0.053	0.371	1.322	0.000	0.001	1.61
2002–03	0.041	0.474	1.418	0.003	0.001	1.78
2003–04	0.043	0.348	0.753	0.000	0.001	1.05
2004–05	0.041	0.459	1.373	0.010	0.001	1.74
2005–06	0.091	0.541	1.671	0.009	0.014	2.14
2006–07	0.124	0.430	1.526	0.012	0.008	1.93
2007–08–RE	0.181	0.285	1.665	0.023	0.001	1.99
2008–09–BE	0.047	0.369	1.609	0.017	0.009	1.89
as percentage of social sector spending						
2001–02	0.198	1.395	4.965	0.001	0.003	6.561
2002–03	0.143	1.671	5.003	0.010	0.002	6.830
2003–04	0.185	1.497	3.239	0.000	0.003	4.923
2004–05	0.155	1.751	5.231	0.039	0.002	7.178
2005–06	0.323	1.918	5.921	0.032	0.050	8.245
2006–07	0.499	1.724	6.120	0.046	0.032	8.421
2007–08–RE	0.620	0.976	5.702	0.080	0.005	7.383
2008–09–BE	0.168	1.311	5.721	0.059	0.032	7.291

Source: Original Budget Paper of Haryana State Government, Various Years.

and nutrition; and labour and employment, rural and urban development, cooperation, information and publicity. That is, expenditure on these departments remains almost constant (Table 3).

Department-wise Allocations on Women-Specific Schemes

To analyse the department-wise allocation on women-specific schemes, we categorize the various departments into five major departments; namely, (i) department of education, sport, art and culture, (ii) department of health and family welfare, (iii) department of social security, Social welfare and other social services, (iv) housing, water supply, sanitation and nutrition, and (v) department of labour and employment, rural and urban development, cooperation, information and publicity, etc. The department-wise allocations to women-specific programs are provided in Table 4. The state government allocated a substantial amount of its departmental budget to the department of social welfare, about 80 percent. It was followed by the department of health and family welfare ranging from about 13 percent to 30 percent and then education and others. The department of education has presented a dismal picture as it account only about 2 percent to 5 percent as a ratio of total women-specific allocation.

However, it may be noted that despite a major problem of sex ratio in the state, the share of health and family welfare declined from 30 percent in 2003–04 to 13 percent in 2007–08. The trends of spending on women-specific schemes as percentage of total state budget, it turns out to be less than 1 percent on health and family welfare department. This figure is about 1–2 percent as a ratio of total social sector spending. The health and family welfare seem to be very conservative in having specific schemes for women despite the importance of maternity and child health (MCH). The allocation on social welfare services as a ratio of total state budget turns out to be nearly 1–2 percent. This ratio is less than 1 percent in case of rural development and other departments (Table 4). These spendings seem to be inadequate for the upliftment of women status in Haryana. So, there is urgent requirement to increase the spending on these services.

Allocations for Advancement of Women

For the advancement of women different schemes and programs have been grouped into four clusters. The grouping of these clusters is based on the objective and purpose of the particular scheme and its potential impact on women. Under these clusters, the social services comprise over 80 percent. However, its ratio declined from 90 percent in 2001–02 to 72 percent in 2008–09 (Figure 2). Similarly, the share of regulatory and awareness generation services also declined from 3.17 percent to 0.63 percent during the same period. The share of economic services

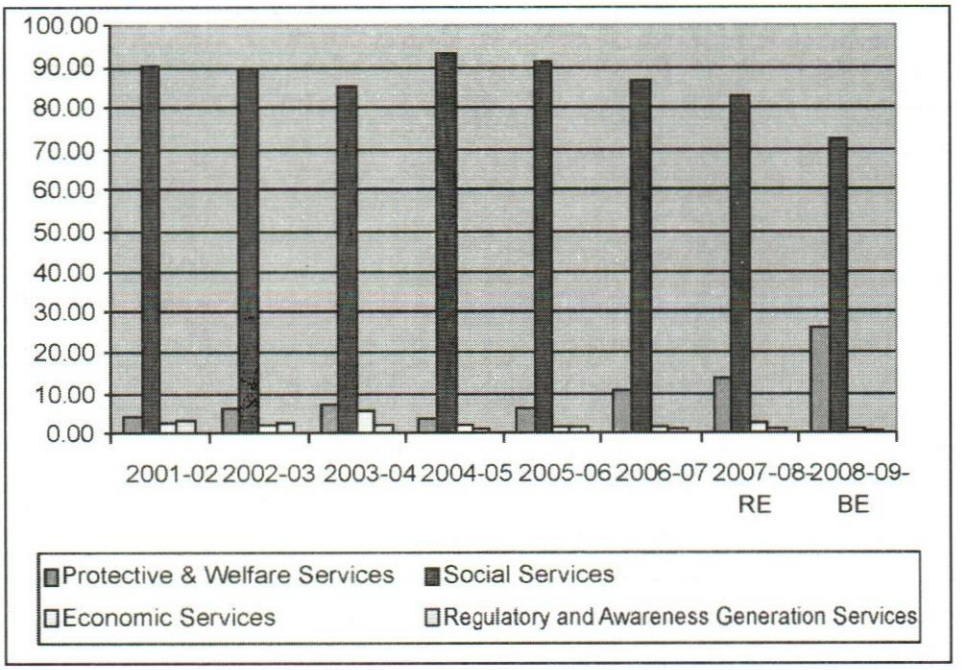

Figure 2: Composition of Women-Specific Schemes in Four Major Clusters

Source: Calculated from Table 5.

Table 5: Classification of WSS into Four Major Clusters

Year	(Value in Rs Lakh)				
	Protective and Welfare Services	Social Services	Economic Services	Regulatory and Awareness Generation Services	Total of women specific schemes
2001–02	734.4	16092.9	457.9	566.8	17852.0
2002–03	1209.4	17383.7	351.2	463.4	19407.7
2003–04	1063.0	12598.3	830.6	295.5	14787.4
2004–05	850.7	21600.9	513.4	296.7	23261.7
2005–06	2042.0	30003.3	481.6	586.1	33113.1
2006–07	4312.2	34164.8	542.7	440.3	39460.0
2007–08–RE	6402.0	37906.5	1245.0	423.9	45977.3
2008–09–BE	12871.2	35423.1	496.9	307.0	49098.1
(Composition in Percent)					
2001–02	4.11	90.15	2.56	3.17	100
2002–03	6.23	89.57	1.81	2.39	100
2003–04	7.19	85.20	5.62	2.00	100
2004–05	3.66	92.86	2.21	1.28	100
2005–06	6.17	90.61	1.45	1.77	100
2006–07	10.93	86.58	1.38	1.12	100
2007–08–RE	13.92	82.45	2.71	0.92	100
2008–09–BE	26.22	72.15	1.01	0.63	100
(as Percent to Total State Budget)					
2001–02	0.070	1.544	0.044	0.054	1.712
2002–03	0.118	1.699	0.034	0.045	1.896
2003–04	0.084	0.973	0.064	0.021	1.142
2004–05	0.068	1.726	0.041	0.024	1.859
2005–06	0.142	2.079	0.033	0.041	2.295
2006–07	0.227	1.801	0.029	0.023	2.080
2007–08–RE	0.297	1.761	0.058	0.020	2.136
2008–09–BE	0.536	1.474	0.021	0.013	2.043
(as Percent of Total Social Sector Spending)					
2001–02	0.265	5.797	0.165	0.204	6.431
2002–03	0.417	5.993	0.121	0.160	6.691
2003–04	0.360	4.186	0.276	0.092	4.914
2004–05	0.259	6.579	0.156	0.090	7.084
2005–06	0.501	7.368	0.118	0.144	8.131
2006–07	0.912	7.223	0.115	0.093	8.342
2007–08–RE	1.019	6.031	0.198	0.067	7.315
2008–09–BE	1.904	5.241	0.074	0.045	7.264

Source: Original Budget Paper of Haryana State Government, Various Years.

remained also constant nearly 1–2 percent. However, the share of protective and welfare services has increased from 4.11 percent to 26.22 percent during the study period. The ratio of these services as percentage of total state budget and social sector spending vary between from 0.04–2.04 percent and 0.09–7.2 percent respectively during our study period (Table 5).

The implication of these clusters depends on the variations across the cluster. As, the allocations to different clusters reflect the sensitivity awareness and strategic approach of the state towards planning of women empowerment programs. It is noticeable from the above analysis that the state has made an attempt to propose allocations (ranging from about 70–90 percent) for schemes and services in "social services cluster." The allocation to this cluster directly has a bearing on the well-being of women and provides support services for their development. This cluster includes allocations to programs for education, health, supply of fuel and fodder and drinking water supply, etc. Although these schemes have the potential to contribute to empowerment of women and enable them to actively participate in their own development, Haryana state, however, somehow has not been able to plan and initiate adequate number of schemes related to economic services, aimed at building skills for income generation activities, marketing, credit availability, etc. It may be pointed that this cluster is critical for women empowerment, economic independence and autonomy. Hence, it is imperative to reorient the policies related to women targeted schemes and have a holistic perspective of women's development in the planning process. Similarly, planning related to Regulatory and Awareness Services requires attention. Unless institutional mechanisms are created to guard against violations of the right of women and generate awareness, the inequality in genders cannot be bridged.

Funds Transfer from Central to State Government for Social Sector

We have pointed out that the bulk of the expenditure on social sector is done by the state governments. Nevertheless, central government is also contributing and spending on social sector. For this purpose central government transfers the funds to the state governments. The total expenditure of state governments are classified into three components, viz. (i) state plan scheme, (ii) share basis of central plan scheme, and (iii) 100 percent centrally sponsored scheme. Among them, the central government transfers fund through these schemes: (a) share basis of central plan scheme, and (b) 100 percent centrally sponsored scheme. In some of the sectors/programs the central government made allocation and transfer 100 percent fund to state governments. For illustration, the family welfare scheme is totally a centrally sponsored

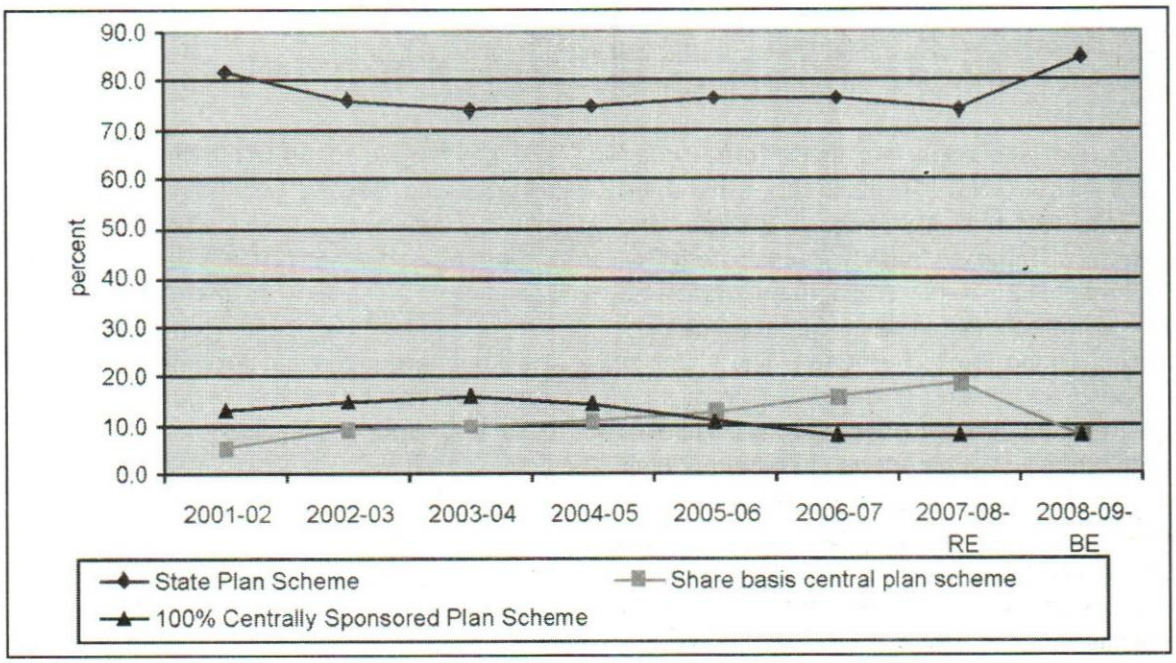

Figure 3: Composition of Central Transfer to State Government on Social Sector (in Percent)

Source: From Table 6.

Table 6: Transfers from Central to State Government on Social Sector (Plan Component)

Year	State Plan Scheme	Share basis central plan scheme	100% Centrally Sponsored Plan Scheme	Grand Total	State Plan Scheme	Share basis central plan scheme	100% Centrally Sponsored Plan Scheme	Grand Total
	Values Rs. in lakh				Composition in percent			
2001–02	67503	4384	10754	82642	81.7	5.3	13.0	100.0
2002–03	58924	7114	11452	77491	76.0	9.2	14.8	100.0
2003–04	59491	7998	13055	80545	73.9	9.9	16.2	100.0
2004–05	70294	10049	13379	93723	75.0	10.7	14.3	100.0
2005–06	112201	18575	15743	146518	76.6	12.7	10.7	100.0
2006–07	133572	27542	13351	174466	76.6	15.8	7.7	100.0
2007–08–BE	149388	57807	20840	228035	65.5	25.3	9.1	100.0
2007–08–RE	201807	49952	21742	273501	73.8	18.3	7.9	100.0
2008–09–BE	357975	32896	32610	423481	84.5	7.8	7.7	100.0
as Percent of total state budget					as percent of total state plan budget			
2001–02	6.5	0.4	1.0	7.9	29.8	1.9	4.7	36.5
2002–03	5.8	0.7	1.1	7.6	28.6	3.4	5.5	37.5
2003–04	4.6	0.6	1.0	6.2	25.1	3.4	5.5	34.0
2004–05	5.6	0.8	1.1	7.5	26.0	3.7	4.9	34.6
2005–06	7.8	1.3	1.1	10.2	30.3	5.0	4.2	39.5
2006–07	7.0	1.5	0.7	9.2	26.8	5.5	2.7	35.1
2007–08–BE	7.6	2.9	1.1	11.5	24.9	9.6	3.5	38.0
2007–08–RE	9.4	2.3	1.0	12.7	30.7	7.6	3.3	41.6
2008–09–BE	14.9	1.4	1.4	17.6	47.3	4.3	4.3	56.0

Source: Original Budget Paper of Haryana State Government, Various Years.

scheme. The total allocation into these three broad categories is shown in Table 6. The table shows that share of state plan scheme is much higher about 70–80 percent. However, its share decreased from 81.7 percent in 2001–02 to 76.7 percent in 2006–07. While, the allocation on "share basis central scheme" increased from 5.3 percent to 15.8 percent during the same period. The share of centrally sponsored scheme is decreased from 13.0 percent to 7.7 percent during the study period (Figure 3). It indicates that state government has to meet out their obligations/commitments from their own sources. Central government is not going to transfer more funds to state government. However, central government has announced 2001 as year of women empowerment even then central government has financed less (and it is also decreasing) amount on the social sector. It is a matter of serious concern. The state government has lot of responsibility and they have to spend on others economic and general services also. Second, with their low revenue generation capacity they have to fulfill the Fiscal Responsibility and Budget Management (FRBM) act obligation also. After spending on these services, there remains little room with state governments for spending on social sector. Therefore, it is urgently required that the central government should transfer more fund to the state government for upliftment of social welfare of the society.

Conclusion

The allocation to women-specific schemes shows that there is no systematic way of spending. The allocation to these schemes as a ratio of total social sector spending shows increasing and decreasing trends throughout the year. The article concludes that the allocation to social sector is falling below the desired and recommended levels

of 30 percent as per guidelines of Planning Commission under Women Component Plan. The study of state budgets does not reflect gender perspective in the flow of fiscal resources. One of the interesting features can be noted when we compare the variation between the budget estimates and revised estimates of the state budget in case of plan, non-plan and total expenditure to show the reality of budget speech/commitments. Here we calculated this variation for the 2007–08 year between BE and RE. We noted that both in plan and non-plan expenditure there has always been downward trends, i.e. downward revision. This downward revision is much higher in plan component of expenditure ranging from 20 percent to 28 percent and it varies from 2 percent to 7 percent in case of non-plan expenditure. This indicates that government always makes false commitment to the people in the budget.

The social changes, however, cannot be brought about merely on the strength of law or through government allocation/actions alone. A necessary and essential condition is the existence of a suitable environment in terms of heightened community awareness and willingness to identify and accept such problems. With this, it is also necessary to take affirmative action in finding solutions both in terms of isolating the law breakers and assisting law enforcers. In the end, it can be stated that the gender budget initiative is a significant first step towards a larger strategy of integrating gender perspective into economic policies and mainstreaming for achieving gender equality. A gender-responsive budget would create a virtuous circle in which the policy itself contributes to the reduction of gender inequality, and hence reduce the gender constraints in successful macroeconomic outcomes. The result is the simultaneous improvement of economic growth and human development performance in ways that also empowers women. There are some glaring methodological inaccuracies in the GBS, and it is critical that all necessary steps be taken to correct them. Equally important is the need to monitor the GBS. Currently, no such monitoring or audit mechanism of the GBS is in place in India. Therefore, there is no way to ascertain whether what has been promised in the GBS is actually being fulfilled or not. This needs to be supplemented by a closer look at the format of the GBS, which remains purely quantitative. What are the possibilities and limits of this approach? In the following section, the article discusses some of these challenges.

a. **Limits in Disaggregating Allocations by Sex of the Beneficiary:** The current format of the Indian GBS disaggregates allocations by the sex of the beneficiary. In other words, it breaks down the allocations in terms of whom it falls on—men or women. The fundamental question that the GBS therefore answers is—What percentage of allocations is meant for women? Disaggregating allocation by sex of the beneficiary is critical to assess targeted expenditure towards women, especially in a country like India, where allocations for the promotion of gender expenditure remain extremely low.

b. **Limits in Relation to Policymaking:** The second major problem is that it neither serves as a tool (that informs policymaking nor does it enable policymakers to assess the additional steps needed to make policies/schemes gender responsive. Gender relations are complex, and any exercise which seeks to capture these complex relations through a number is evidently problematic. Therefore, the second major limitation of a purely quantitative format is this: While it helps us answer the question as to how much is supposedly being allocated and spent on women, it does not directly facilitate gender responsive planning and budgeting. Thus, it would be more useful if the GBS began with (a) identifying the pressing gender gaps in a particular sector/ scheme, followed by (b) what steps the ministry/ department will take, in the particular year, to address the gap and (c) then identifying the budgetary resources needed to address these pressing gender gaps and ensure that the requisite funds are made available and spent well. Unfortunately, because the current format reduces GRB to an allocation exercise and, moreover, takes the form of something that is done as an afterthought, it is not in a position to inform policymaking.

c. **Engaging with Other GRB Tools:** As mentioned earlier, although other GRB tools have been used sporadically, GBS is the only tool which has been institutionalised. Valuable though the GBS is, it is important to reiterate that it is just one of the GRB tools. The GBS by its very design is best suited for certain ministries, particularly those engaged in service delivery. For other ministries, it is critical to engage with other tools. It is important to look at the entire choice-set of GRB tools available and accordingly reflect on which tool is most appropriate to meet the larger objective of making policies and programs of different ministries/departments more

gender responsive. For instance, gender disaggregated revenue analysis (in which one tries to assess how men and women are affected differently by the kind of revenues raised by government) is a tool that revenue-generating ministries (and only they) can use.

d. **Lack of a Coordinating/Monitoring Mechanism**: Since GRB by its very definition entails cross-sectoral work and requires coordination between various sectoral ministries; some institutional mechanism to facilitate the process is required. Different countries have experimented with different structures—some have set up committees and task forces, others have set up cells within line ministries and/or a secretariat to coordinate, among others. Unfortunately in India, GRB efforts have been severely impeded due to the absence of such a coordinating mechanism for harmonising the work of GBCs across line ministries. Based on the experiences of other countries, it can be argued that a basic minimum in terms of an institutional mechanism is required to make GRB a success. Some of these criteria are outlined as follows:

   (a) It is imperative that the GRB machinery involved in the sectoral ministries (not just in the Ministry of Women and Child Development and the Ministry of Finance) is robust and functional. This is critical because it is the sectoral ministries which need to use GRB as a tool to make their policies and budgets more gender responsive.

   (b) Since GRB is about budgets, the GRB architecture must also find legitimate space in the budget making cycle of the country. This is one of the most critical weaknesses of the GRB architecture (or the gender architecture that GRB uses) in many countries. In India, for instance, the MoF issues circulars, gender budget statements are produced by the sectoral ministries, but there is no space for the GRB machinery within the formal budget making process.

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The budget is not just a collection of numbers, but an expression of our values and aspirations.

—Jacob Lew

Focus

Funds Management in Select Dairy Units of Andhra Pradesh

P. SARVESWARA RAO

Dairy industry is an internal component of any modern economy. India is the largest producer of milk in the world. In the near future India will become the best producer of dairy products in the world. In the present paper "funds management of dairy industry in Andhra Pradesh" seven dairy units were selected for the study from different parts of Andhra Pradesh. The funds flow of seven select dairy units in Andhra Pradesh has been analyzed by preparing two statements for each dairy unit covering the period from 2004–05 to 2005–06, and the period from 2010–11 to 2011–12. Funds flow statements for the seven dairy units in Andhra Pradesh. ANOVA test has been conducted by The formulated hypothesis is that there is heterogeneity in the funds from operations between years and among seven dairy units located in different places in Andhra Pradesh. To test the consistency or fluctuations in funds flow from operations during the study period and for mutual comparison F-test is carried out. ANOVA results reveal that the calculated F values are greater than table value at 5 percent level. Hence, the formulated hypothesis is accepted that there is no similarity in the funds from operations between years and also among seven dairy units located in different places in Andhra Pradesh.

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Introduction

One of the valuable aids to the financial manager or the creditor is the funds flow statement with which he may evaluate how a firm uses funds and determine how these uses are financed. In addition to studying the past flow, the analyst can evaluate further flows by means of the funds statement based on forecasts. Such a statement provides an efficient method of financial management to assess the growth of the firm and its resulting financial needs as well as to determine the best way in which the needs may be financed. In particular, funds statements are very useful in planning intermediate and long-term financing (Van Horne 1993).

The most commonly used forms of statement of changes in financial position are called the statement of source and uses of funds (or simply funds flow statement) and the cash flow statement. The statement of changes in financial position is now regarded as an important part of financial reporting by most companies. In India, though the statement of changes has not so far become a part of the financial reporting of a large number of companies, banks and financial institutions require it when a company approaches them for loans. In the USA, the Accounting Principles Board's Opinion No. 19 (1971) has made it obligatory to publish this statement as a part of the financial statement (Pandey, 1996).

Information concerning the financial and investing activities of the business enterprise and the changes in its financial position for a period is essential for financial statement users particularly owners and creditors , in making economic decisions (AICPA 1971) when the financial statements purporting to present both financial positions (balance sheet) and results of operations (statement of income and retained earnings) are issued, a statement summarizing changes in financial position

should also be presented as a basic statement for which an income statement is presented.

Concept of Funds

Kinneth Midgely and Ronald G. Burns define the term "funds" as one used in the sense of spending power and opine that it refers to the value embedded in Assets. According to Bonneville and Dewey, "funds" are of the prime importance in starting and operating any business enterprise. In the ordinary parlance, funds means cash only (Ratnam, 1997).

Meaning of Flow of Funds

The term "flow" means change and, therefore, the term "flow of funds" means change in funds or "change in working capital". In other words, any increase or decrease in working capital means "flow of funds".

Funds Flow Statement

It is a statement, which discloses the analytical information about the different sources of a fund and application of the same in an accounting cycle. It deals with the transaction, which changes either the amount of current assets and current liabilities (in the form of increase or decrease in working capital) or fixed assets, and long-term loans including ownership fund. It gives a clear picture of the movement of funds between the opening and closing dates of the balance sheet. It is also called by different names such as the statement of sources and application of funds, movement of funds statement, where got where gone statement, and inflow and outflow of fund statement, etc.

Objectives of Preparing Funds Flow Statement

The main purpose of preparing funds flow statement is that it reveals clearly the important items relating to sources and applications of funds of fixed assets, and long-term loans including capital. It also informs how far the assets derived from normal activities of business have been utilized properly with adequate consideration.

Second, it also reveals how much out of the total funds is collected by disposing of fixed assets, how much from long-term or short-term loans and how much from normal operational activities of the business.

Third, it also provides information about the specific utilization of such funds, that is, how much has been applied for acquiring fixed assets, how much for repayment of long-term or short-term loans as well as for payment of tax and dividend, etc.

Lastly, it helps the management to prepare budgets and formulate the policies that will be adopted for future operational activities.

Parties Interested in Funds Flow Statement

The important parties are:

a) **Shareholders :** They are interested in knowing how much is available for payment of dividend, and the position of their investment in the company.

b) **Short-term creditors (Including bankers):** They are interested in having an idea of the risk, which may be involved in granting credit to the company.

c) **Management:** Management is interested in knowing the trend of different forms of financing and their utilization so that they can prepare budgets and estimates. They are also interested in knowing whether the working capital has been properly utilized.

d) **Investors :** They are interested in knowing whether any investments can be made in the company and, if so, what should be the expected rate of return (Paul, 1994).

Techniques of Funds Flow Statement

Just to bring the form of funds flow statement on scientific line, the funds statement is divided into two parts:

a) Schedule of change in working capital; and

b) Statement of sources and uses of funds (Gupta, 1994).

In this article an attempt has been made to analyse the funds flow position of seven select dairy units in Andhra Pradesh.

Funds Flow Analysis in Select Dairy Units

The funds flow of seven select dairy units in Andhra Pradesh has been analysed by preparing two statements for each dairy unit covering the period from 2004–05 to 2005–06, and the period from 2010–11 to 2011–12. Funds flow statements for the seven dairy units in Andhra Pradesh have been presented and analysed in the following sections.

Funds Flow Statement of Sangam Dairy

a) For the period from 2004–05 to 2005–06.

Table 1: Funds Flow Statement of Sangam Dairy for the Period 2004–05 and 2005–06

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Decrease in working capital	306.43 (82.20)	1.	Borrowings and deposits	341.34 (91.36)
2.	Funds from Operations	67.19 (17.98)	2.	Purchase of fixed assets	29.27 (7.83)
			3.	Payment of deposits	3.01 (0.81)
		373.62 (100.00)			**373.62 (100.00)**

Source: Compiled from the annual reports of Sangam Diary.

The funds flow statement of Sangam Dairy has been depicted in Table 1.

The total funds flow during the period from 2004–05 to 2005–06 amounted to Rs 373.62 lakh, of which the dairy had received funds from business operations amounting to 17.98 percent of the total and the remaining 82.2 percent from the decrease in the net working capital (see Appendix 1).

In the application of funds, 91.36 percent was spent for the repayment of borrowings and deposits, 7.83 percent for the purchase of fixed assets and the remaining 0.8 percent for the payment of deposits collected.

b) For the period from 2010–11 and 2011–12

The funds flow statement of Sangam Dairy for the period 2010–11 to 2011–12 is presented in Table 2.

It may be seen from Table 2 that the total funds flow of the dairy during the year stood at Rs 3584.97 lakh. The main contribution was from the borrowings and deposits to the extent of 89.96 percent, 5.38 percent of the sources were from the issue of share capital and the remaining 4.66 percent funds from operations.

Table 2: Funds Flow Statement of Sangam Diary for the Period 2010–11 and 2011–12

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1	Issue of share capital	192.68 (5.38)	1	Purchase of fixed assets	639.70 (17.85)
2	Borrowings and deposits	3225.16 (89.96)	2	Repayment of deposits	1563.54 (43.61)
3.	Funds from operations	167.13 (4.66)	3	Increase in working capital	1381.73 (38.54)
		3584.97 (100.00)			**3584.97 (100.00)**

Source: Compiled from the annual reports of Sangam Dairy

The dairy spent 43.61 percent for the repayment of deposits, 38.54 percent for financing current assets in the form of increase in the Net Working Capital (see Appendix 2) and 17.85 percent was spent for the purchase of fixed assets.

Funds Flow Statement of Heritage Foods (India) Limited

a) For the period 2004–05 to 2005–06

Table 3 shows funds flow statement of Heritage Foods (India) Limited during the period 2004–05 to 2005–06.

It is evident from Table 3 that the total funds flow of Heritage Foods (India) limited amounted to Rs 2425 lakh. In the total 68.12 percent was received from funds from operations and the remaining 32.88 percent from unsecured loans.

In the case of application of money the dairy had spent 51.59 percent for financing the current assets in the form of increase in the net working capital (see Appendix 3), 30.76 percent for the purchase of fixed assets, i.e. Gross block, 6.10 percent for capital work in progress, 4.83 percent for payment of the contingent

Table 3: Funds Flow Statement of Heritage Foods (India) Private Limited for the Years 2004–05 to 2005–06

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1	Funds from operations	1652.00 (68.12)	1	Purchase of gross block	746.00 (30.76)
2	Unsecured loans	773.00 (31.88)	2	Capital working in progress	148.00 (6.10)
			3	Purchase of Investments	49.00 (2.02)
			4	Repayment of Secured loan	114.00 (4.70)
			5	Increase in Net Working Capital	1251.00 (51.59)
			6	Payment of Contingent liabilities	117.00 (4.83)
		2425.00 (100.00)			**2425.00 (100.00)**

Source: Compiled from the annual reports of Heritage Foods (India) Limited.

liabilities, 4.70 percent for payment of secured loans and the least amount was spent for the purchase of investment that is 2.02 percent or 49 lakhs.

b) For the period from 2010–11 to 2011–12

The funds flow statement of Heritage Foods (India) Limited for the period 2010–11 to 2011–12 is shown in Table 4.

It is very clear from Table 4 that the total funds flow of Heritage Foods (India) Limited for the yeaRs 2010–11 to 2011–12 amounted to Rs 6877 lakh. In the total fund the main contribution was from decrease in the working capital (see Appendix 4), which is 64.97 percent. The funds from operations contributed to the extent of 30.58 percent

Table 4: Funds Flow Statement of Heritage Foods (India) Limitedfor the Years2010–11 to 2011–12

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Decrease in working capital	4468 (64.97)	1.	Repayment of Share capital money	319 (4.64)
2.	Capital works in progress	306 (4.45)	2.	Payment of Secured loans	4238 (61.63)
3.	Funds from operations	2103 (30.58)	3.	Payment of Unsecured loans	331 (4.81)
			4.	Purchase of Gross block	1979 (28.78)
			5.	Purchase of Investments	10 (0.14)
		6877 (100.00)			**6877 (100.00)**

Source: Compiled from the annual reports of Heritage Foods (India) Limited.

and the remaining 4.45 percent is from the capital work in progress.

In the application of funds major amount is towards the payment of secured loans which constituted 61.63 percent followed by the purchase of fixed assets (Gross block) to the extent of 28.78 percent. Payment of unsecured loans was to the extent of 4.81 percent, Share capital money 4.64 percent and the remaining 0.14 percent was utilized for purchase of investments.

Funds Flow Statement of Krishna Milk Union

a) For the period 2004–05 to 2005–06

Table 5 shows funds flow statement of Krishna Milk Union during the period 2004–05 to 2005–06.

It is evident from Table 5 that the total fund of Krishna Milk Union for the year 2004–05 and 2005–06 amounted to Rs 446.18 lakh. In the total fund the main contribution was the cash credit from NDDB to the tune of 45.03 percent,

Table 5: Funds Flow Statement of Krishna Milk Union for the Year 2004–05 to 2005–06

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Share capital	69.00 (15.46)	1	Purchase of fixed Assets	81.52 (18.27)
2.	Share premium	4.18 (0.94)	2.	Purchase of Other assets	22.94 (5.14)
3.	Funds from operations	74.75 (16.75)	3.	Payment of Fixed deposits	67.96 (15.23)
4.	Milk cans	21.44 (4.81)	4	Payment of Unsecured loan	92.17 (20.66)
5.	Deposits with institutions	12.61 (2.83)	5	Payment of Reserve Fund Deposits	2.28 (0.51)
6.	Deficiency recoupment fund	2.80 (0.63)	6	Increase in Net Working capital	179.31 (40.19)
7.	Cash credit from NDDB	200.93 (45.03)			
8.	NDDB O.F. loan	21.30 (4.77)			
9.	Fixed security deposits collected	39.17 (8.78)			
		446.18 (100.00)			**446.18 (100.00)**

Source: Computed from the annual reports of Krishna Milk Union.

16.75 percent of funds from operations, 15.46 percent from the issue of shares, 8.78 percent from the collection of security deposits, 4.81 percent from milk cans, 4.77 percent from NDDB O.F. loan, 2.83 percent from fixed deposits, share premium 0.94 percent, 0.63 percent from deficiency recoupment fund.

In the application of funds major amount was utilized for financing current assets to the extent of 40.19 percent, i.e. increase in Net Working Capital (see Appendix 5), 18.27 percent for the purchase of fixed assets, 20.66 percent for the payment of unsecured loan, 15.23 percent for the repayment of fixed deposits, 5.14 percent for the purchase of other assets and the remaining 0.51 percent for payment of reserve fund deposits.

b) For the period from 2010–11 to 2011–12

Table 6 shows funds flow statement of Krishna Milk Union during the period 2010–11 to 2011–12.

It is clear from Table 6 that the total funds flow of Krishna Milk Union for the year 2010–11 and 2011–12

Table 6: Funds Flow Statement of Krishna Milk Union for the Year 2010–11 to 2011–12

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Deposits with institutions	2.22 (0.14)	1	Increase in Net Working capital	1380.11 (90.11)
2.	Grants from other agencies and share capital	18.77 (1.23)	3	Purchase of fixed assets	82.88 (5.41)
3.	Reserve Fund deposits, fixed deposits and security deposits	57.58 (3.76)	3	Purchase of other assets and shares in cooperatives	43.47 (2.87)
4.	Funds from operations	511.27 (33.38)	4	Loan paid to NDDB, Anand	24.63 (1.61)
5.	FDs with banks	941.75 (61.49)			
		(1531.59) (100.00)			**1531.59 (100.00)**

Source: Computed from the annual reports of Krishna Milk Union.

amounted to Rs 1531.59 lakh. In the total fund the main contribution was from the fixed deposits with banks to the extent of 61.49 percent and the next contribution was from funds from operations which constituted 33.38 percent. Security deposits contributed 3.76 percent, Grants from other agencies and share capital 1.23 percent and deposits with institutions, 0.14 per cent.

In the application of funds, a major amount was towards financing current assets to the extent of 90.11 percent, 2.87 percent for the purchase of other assets and shares in cooperatives, 5.41 percent of the for the purchase of assets and the remaining 1.61 percent for the payment of NDDB, Anand loan.

Funds Flow Statement of Tirumala Milk Products Pvt. Ltd

a) For the period from 2004–05 to 2005–06

Table 7 shows funds flow statement of Tirumala Milk Products Private Limited during the period 2004–05 to 2005–06.

It is very clear from Table 7 that the total flow of funds of Tirumala Milk Products Private Limited for the year 2004–05 and 2005–06 amounted to Rs 3222.95 lakh. In the total fund main contributions from the sale of fixed assets formed 36.47 percent, unsecured loans 24.99 percent, funds from operations 15.99 percent, issue

Table 7: Funds Flow Statement of Tirumala Milk Products Private Limited for the Period 2004–05 and 2005–06

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Unsecured loans	805.44 (24.99)	1.	Payment of secured loans	790.71 (24.54)
2.	Decrease in capital works inprogress	342.99 (1064)	2.	Purchase of fixed assets	949.88 (29.47)
3.	Funds from operations	515.28 (15.99)	3.	Increase in working capital	1482.36 (45.99)
4.	Difference in fixed assets	1175.42 (36.47)			
5.	Difference in share holder funds	383.82 (11.91)			
		3222.95 (100.00)			**3222.95 (100.00)**

Source: Compiled from the annual reports of Tirumala Milk Products Private Limited.

of shares 11.91 percent and the remaining 10.64 percent was from the decrease in capital works in progress.

In the application of funds the major amount was for financing the current assets, i.e. increase in the working capital (see Appendix 7), accounted for 45.99 percent purchase of fixed assets 29.47 percent and the remaining 24.54 percent was spent towards payment of secured loans.

b) For the period from 2010–11 to 2011–12

Table 8 shows funds flow statement of Tirumala Milk Products Private Limited during the period 2010–11 and 2011–12.

Table 8: Funds Flow Statement of Tirumala Milk Products Private Limited for the Year 2010–11 to 2011–12

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Decrease in Net working capital	5945.68 (43.03)	1.	Payment of long term liabilities	5923.45 (42.87)
2.	Increase in long-term borrowings and liabilities	342.88 (2.48)	2.	Purchase of fixed assets	7893.06 (57.13)
3.	Capital work in progress & differed Tax	316.50 (2.29)			
4.	Long term loans, advances and other non-current assets	527.46 (3.82)			
5.	Funds from operations	6683.99 (48.38)			
		13816.51 (100.00)			**13816.51 (100.00)**

Source: Compiled from the annual reports of Tirumala Milk Products Private Limited.

It is evident from the Table 8 that the total funds flow of Tirumala Milk Products Private Limited for the year 2010–11 and 2011–12 amounted to Rs 13816.51 lakh. In the total fund the main contribution was from funds from operations which accounted for 48.38 percent. The other main contribution was from the decrease in working capital (see Appendix 8), which accounts for 43.03 percent. Long-term loans and advances and other non-current assets contributed upto 3.82 percent, capital work in progress and differed tax contributed 2.29 percent, increase in long-term liabilities and borrowings contributed 2.48 percent.

In the application of funds 57.13 percent of the funds was used for the purchase of fixed assets, and the remaining was utilized for payment of long-term liabilities.

Funds Flow Statement of Vijaya Dairy

a) For the period from 2004–05 to 2005–06

Table 9 shows funds flow statement of Vijaya Dairy during the period 2004–05 to 2005–06.

It is very clear from Table 9 that the total funds flow of Vijaya Dairy for the year 2004–05 to 2005–06 amounted to Rs 988.26 lakh. In the total funds, the main contribution was from the funds from operations, which was 60.14 percent. Borrowings from Govt. of A.P. formed 20.24 percent, Grants 12.10 percent, Differed Revenue Expenses (VRS) was 4.68 percent, sale of other assets acccunted for 0.88 percent, deposits (EMD & SD) 1.19 percent and salary recoveries and financial assistance to the DCs 0.77 percent.

Table 9: Funds Flow Statement of Vijaya Dairy for the Year 2004–05 to 2005–06

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Deposits (EMD & SD)	11.75 (1.19)	1.	Repayment of borrowing NDDBIDC and others	58.40 (5.91)
2.	Borrowings from Govt. of A.P.	200.00 (20.24)	2.	Purchase of fixed assets	95.94 (9.71)
3.	Deferred Revenue Expenses (VRS) voluntary Retirement scheme	46.26 (4.68)	3.	Payment of term deposits	723.82 (73.24)
4.	Sale of other assets	8.69 (0.88)	4.	Increase in Net working capital	110.10 (11.14)
5.	Salary recoveries and financial assistance to DCs (District Cooperative societies)	7.67 (0.77)			
6.	Funds from operations	594.35 (60.14)			
7.	Grants	119.54 (12.10)			
		988.26 (100.00)			**988.26 (100.00)**

Source: Compiled from the annual reports of Vijaya Dairy.

In the application of funds 73.24 percent was used for the payment of term deposits, 11.14 percent was utilized for financing current assets through increase in Net Working Capital (See Appendix 9), 9.71 percent for purchase of fixed assets and 5.91 percent for repayment to NDDB and others .

b) For the period from 2010–11 to 2011–12

Table 10 shows funds flow statement of Vijaya Dairy during the period 2010–11 to 2011–12.

It is evident from Table 10 that the total funds flow of Vijaya Dairy for the year 2010–11 and 2011–12 amounted to Rs 5,288.69 lakh. In the total funds 33.74 percent was received in the form of grants, followed by Capital work in progress 19.48 percent, funds from operations 17.54 percent, loans from Government of A.P. NDDB (OTS) 14.37 percent, term deposits collection 13.35 percent and the remaining 1.33 percent was contributed by deposits from others (EMD & SD) while salary recoveries constituted 0.19 per cent.

In the application of funds 67.25 percent was used for on financing current assets in the form of increase in net working capital (see Appendix 10), followed by purchase of fixed assets with 32.56 percent and the remaining 0.19 percent for apportionable loss.

Table 10: Funds Flow Statement of Vijaya Dairy for the Year 2010–11 to 2011–12

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Deposits others (EMD & SD)	70.01 (1.33)	1.	Purchase of Fixed Assets	1721.94 (32.56)
2.	Loans from Govt. of A.P. NDDB (OTS)	760.12 (14.37)	2.	Increase in Net Working Capital	3556.75 (67.25)
3.	Grants	1784.39 (33.74)	3.	Apportionable losses	10.00 (0.19)
4.	Term deposits	706.13 (13.35)			
5.	Capital work in progress	1030.32 (19.48)			
6.	Salary recoveries	9.99 (0.19)			
7.	Funds from operations	927.73 (17.54)			
		5288.69 (100.00)			**5288.69 (100.00)**

Source: Compiled from the annual reports of Vijaya Dairy.

Funds Flow Statement of Nandi Milk Products Private Limited

a) For the period from 2004–05 to 2005–06

Table 11 shows funds flow statement of Nandi Milk Products Private Limited during the period 2004–05 to 2005–06.

It is very clear from Table 11 that the total funds flow of Nandi Dairy for the year 2004–05 and 2005–06 amounted to Rs 23. 24 lakh.

In the total funds flow, the funds received through share capital formed 38.72 percent, unsecured loans 31.20 percent and the remaining 30.08 percent was generated from funds from operations.

Table 11: Funds Flow Statement of Nandi Milk Products Private Limited for the Year 2004–05 to 2005–06

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Share capital	9.00 (38.72)	1.	Payment of secured loans	1.13 (4.86)
2.	Unsecured loans	7.25 (31.20)	2.	Purchase of Fixed assets	2.83 (12.18)
3.	Funds from operations	6.99 (30.08)	3.	Increase in Net working capital	19.28 (82.96)
		23.24 (100.00)			**23.24 (100.00)**

Source: Compiled from the annual reports of Nandi Milk Products private limited.

In the application of funds, major amount was for financing the current assets, i.e. increase in Net Working Capital (See Appendix 11) which formed 82.96 percent. For the purchase of fixed assets 12.18 percent of funds were spent and the remaining 4.86 percent was used for repaying secured loans.

b) For the period from 2010–11 to 2011–12

Table 12 shows funds flow statement of Nandi Milk Products Private Limited for the period 2010–11 to 2011–12.

It is evident from Table 12 that the total funds flow of Nandi Dairy for the year 2010–11 and 2011–12 amounted to Rs 96.11 lakhs. In the total fund, funds from operations formed 60.23 percent, unsecured loans formed 32.49 percent and the remaining 7.28 percent was from the deferred tax liability.

In the application of funds difference in assets had a major share constituting 78.16 percent, purchase of fixed assets 11.74 percent and the remaining 9.65 percent was for the payment of long-term borrowings.

Table 12: Funds Flow Statement of Nandi Milk Products Private Limited for the Year 2010–11 to 2011–12

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Un secured loans	31.22 (32.49)	1.	Payment of long term borrowings	9.28 (9.65)
2.	Funds from operations	57.89 (60.23)	2.	Purchase of Fixed assets	11.28 (11.74)
3.	Differed tax liability	7.00 (7.28)	3.	Increase in networking capital	75.55 (78.16)
		96.11 (100.00)			**96.11 (100.00)**

Source: Compiled from the annual reports of Nandi Milk Products private limited.

Funds Flow Statement of Mulukanoor Women's Cooperative Dairy

a) For the period from 2004–05 to 2005–06.

Table 13 shows funds flow statement of Mulukanoor women's cooperative dairy during the period 2004–05 to 2005–06.

It is very clear from Table 13 that the total funds flow of Mulukanoor women's cooperative dairy for the year 2004–05 to 2005–06 amounted to Rs 274.11 lakh. In the total fund the main contribution was from the decrease in working capital (see Appendix 13) which was 54.69 percent, funds from Vikasa Podupu was 16.77 percent, funds from operations 12.85 percent, NDDB loan 8.41 percent, and the remaining 7.28 percent through issue of share capital.

In the application of funds, major amount, i.e. 82.51 percent utilized for repayment of fixed deposits, 14.59 percent used for payment of business loan and the remaining for purchase of cans, plant and machinery and vehicles.

b) For the period from 2010–11 to 2011–12

Table 13: Funds Flow Statement of Mulukanoor Women's Cooperative Dairy for the Year 2004–05 to 2005–06

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Funds from operations	35.23 (12.85)	1.	Purchase of cans, plant and machinery	4.64 (1.69)
2.	Decrease in working capital	149.91 (54.69)	2.	Purchase of vehicles and software	3.3 (1.21)
3.	Issue of share capital	19.95 (7.28)	3.	Repayment of Fixed deposits	226.17 (82.51)
4.	Increase in Vikasa podupu	45.97 (16.77)	4.	Payment of Business loan	40.00 (14.59)
5.	NDDB loan	23.05 (8.41)			
		274.11 (100.00)			**274.11 (100.00)**

Source: Compiled from the annual reports of Mulukanoor Women's Cooperative Dairy.

Table 14 shows funds flow statement of Mulukanoor women's cooperative dairy for the period from 2010–11 to 2011–12.

It is evident from Table 14 that the total funds flow of Mulukanoor Women's cooperative dairy for the year 2010–11 and 2011–12 amounted to Rs 269.24 lakh. In the total funds the deposits of member WDCs formed major portion to the extent of 37.14 percent, increase in other liabilities 29.65 percent, funds from operations 17.52 percent and the remaining 15.69 percent came from the issue of share capital.

In the application of funds major amount was used to finance current assets through increase in working capital (see Appendix 14) which was 44.36 percent, 24.53 percent of the funds was used for buildings and plant and machinery, 15.14 percent for the payment of fixed deposits, 10.11 percent, for repayment of Axis Bank loan, 2.35 percent for the purchase of cans and vehicles and 3.51 percent for purchase of other assets.

Table 14: Funds Flow Statement of Mulukanoor Womens Cooperative Dairy for the Year 2010–11 to 2011–12

S. No.	Sources	Rs in Lakhs	S. No.	Applications	Rs in lakhs
1.	Funds from operations	47.16 (17.52)	1.	Purchase of Buildings, plant and machinery	66.06 (24.53)
2.	Issue of share capital	42.25 (15.69)	2.	Purchase of other assets	9.44 (3.51)
3.	Member WDCs deposits	99.99 (37.14)	3.	Purchase of Vehicles and Cans	6.32 (2.35)
4.	Increase in other liabilities	79.84 (29.65)	4.	Payment of Fixed deposits	40.75 (15.14)
			5.	Repayment of axis bank loan	27.23 (10.11)
			6.	Increase in working capital	119.44 (44.36)
		269.24 (100.00)			**269.24 (100.00)**

Source: Compiled from the annual reports of Mulukanoor Women's Cooperative Dairy.

Analysis of Variance Test

The objective of analysis of variance (ANOVA) test is to find out whether the funds flow from operations are in same manner in their variances.To test the consistency or fluctuations in funds flow from operations during the study period and for mutual comparison F-test is carried out.

The formulated hypothesis is that there is heterogeneity in the funds from operations between yeaRs and among seven dairy units located in different places in Andhra Pradesh. Details of funds from business operations of seven select dairy units in Andhra Pradesh during the period from 2005–06 to 2011–12 is presented in Table 15 and graphically shown in Figure 1.

Table 15: Funds from Business Operations of Select Dairy Units during the Year from 2004–05 to 2011–12

Years	Sangam dairy	Heritage	Krishna	Tirumala	Vijaya	Nandi	Mulu-kanoor
2005–06	67.19	1652	74.75	515.28	594.35	6.99	35.23
2006–07	68.40	1033	75.04	1011.79	554.35	6.81	56.11
2007–08	58.95	1123	97.29	1850.76	517.46	7.35	67.20
2008–09	144.80	–1107	101.02	2668.53	2101.04	13.94	40.20
2009–10	145.81	3035	376.08	3586.28	1094.25	34.28	61.35
2010–11	155.69	2162	503.30	5456.36	863.75	58.46	55.26
2011–12	167.13	2103	511.27	6683.99	927.73	57.89	47.16

Source: Compiled from the annual reports of the dairy unit.

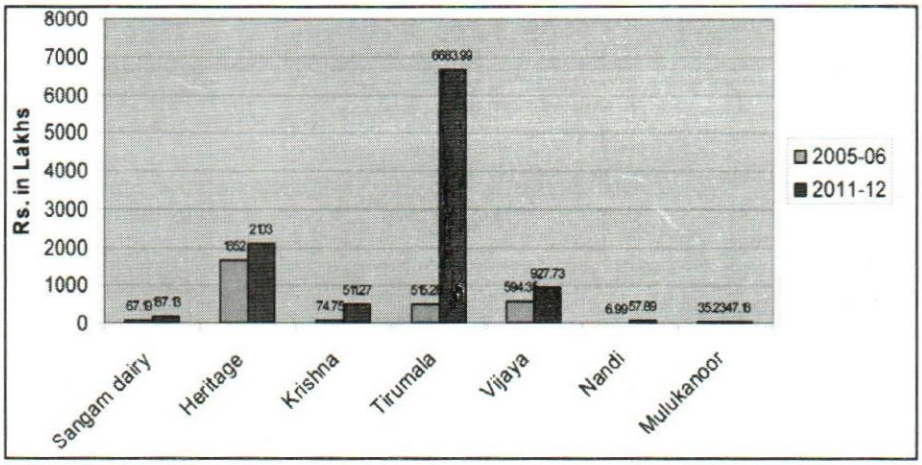

Figure 1: Funds from Operations of Select Dairy Units during the Period 2005–06 and 2011–12

Table 16: ANOVA Results

Source of variation	Sum of squares	Degree of freedom	Mean squares	FC	FT
Rows (years)	2.48	6	0.413	19.86*	2.46
Columns (Dairy units)	1.67	6	0.278	13.37*	2.46
Error	0.75	36	0.0208	–	–
Total	4.90	48	–	–	–

Note: * Significant at 5 percent level.
Source: Table 15.

ANOVA is computed for the data available in Table 15 to test the following hypothesis and the results are shown in Table 16.

Hypothesis

There is no similarity in the funds from operations among dairy units and also between years .

ANOVA results reveal that the calculated F values are greater than table value at 5 percent level. Hence, the formulated hypothesis is accepted that there is no similarity in the funds from operations between yeaRs and among the seven dairy units located in different places in Andhra Pradesh.

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A big part of financial freedom is having your heart and mind free from worry about the what-ifs of life.

—Suze Orman

APPENDICES

Appendix 1: Statement Showing Changes in Working Capital of Sangam Dairy for the Year 2004–05 and 2005–06

Rs. in lakhs

Particulars		2004–05	2005–06
A.	Current assets		
	Advances	160.67	159.58
	Sundry debtors	369.90	210.67
	Closing stock	2334.88	2222.93
	Cash & bank balances	555.06	446.06
		3420.51	**3039.24**
B.	Current liabilities		
	Deposits	344.70	349.68
	Suspense	24.94	27.11
	Provisions & outstandings	399.15	362.52
	Sundry creditors	57.54	12.18
		826.33	**751.49**
C.	Networking capital (A-B)	2594.18	2287.75
D.	Decrease in working capital	–	306.43
		2594.18	**2594.18**

Appendix 2

Rs. in lakhs

Particulars		2010–11	2011–12
A.	Current assets		
	Advances	66.49	72.19
	Sundry debtors	79.46	75.17
	Closing stock	2673.75	3926.02
	Cash & bank balances	925.87	1226.77
		3745.57	**5300.15**
B.	Current liabilities		
	Deposits	473.35	520.58
	Suspense	19.33	10.28
	Provisions & outstandings	1520.45	1409.42
	Sundry creditors	(–70.17)	175.53
		2083.3	**2115.81**
C.	Networking capital (A-B)	1802.62	3184.34
D.	Increase in working capital	1381.73	–
		3184.34	**3184.34**

Appendix 3: Statement Showing Changes in Working Capital of Heritage Foods (India) Limited for the Year 2004–05 and 2005–06

Rs. in lakhs

Particulars		2004–05	2005–06
A.	Current assets		
	Inventories	2360	2573
	Sundry debtors	166	233
	Cash and bank balances	1525	2279
	Loans and advances	1150	1925
		5201	**7010**
B.	Current liabilities		
	Current liabilities	2090	2508
	Provisions	875	997
		2965	**3505**
C.	Networking capital (A-B)	2254	3505
D.	Increase in working capital	1251	–
		3505	**3505**

Appendix 4

Rs. in lakhs

Particulars		2010–11	2011–12
A.	Current assets		
	Current assets, loans and advances	14436	16878
		14436	16878
B.	Current liabilities and provisions	10648	17559
		10648	17559
C.	Net current assets (A-B)	3787	–681
D.	Decrease in working capital	–	4468
		3787	**3787**

Appendix 5: Statement Showing Changes in Working Capital of Krishna Milk Union for the Year 2004–05 and 2005–06

Rs. in lakhs

Particulars	2004–05	2005–06
A. Current assets		
Closing stock	1442.28	1297.31
Cash and bank balances	532.64	1052.05
Sundry debtors	697.10	442.01
Advance to employees and suppliers	59.25	50.82
Prepaid expenses and taxes	10.65	14.08
	2741.92	**2856.27**
B. Current liabilities		
Sundry creditors	313.58	251.38
Creditors for milk purchases	460.63	439.43
Out standing expenses	809.65	828.09
	1583.86	**1518.90**
C. Networking capital	1158.06	1337.37
D. Increase in working capital	179.31	–
	1337.37	**1337.37**

Appendix 6:

Rs. in lakhs

Particulars	2010–11	2011–12
A. Current assets		
Closing stock	1771.58	2315.32
Cash and bank balances	794.00	1835.52
Sundry debtors	525.28	605.48
Advance to employees and suppliers	246.05	258.65
Prepaid expenses and taxes	9.27	16.06
	3346.18	**5031.03**
B. Current liabilities		
Sundry creditors	495.25	341.60
Creditors for the purchase of milk	1120.12	1410.64
Creditors for outstanding expenses	876.85	1025.67
Provision for interest on security deposits	–	6.00
Provision for income tax	31.00	44.05
	2523.22	**2827.96**
C. Networking capital (A-B)	822.96	2203.07
D. Increase in net working capital	1380.11	–
	2203.07	**2203.07**

Appendix 7: Statement Showing Changes in Working Capital of Tirumala Milk Products Private Limited for the Year 2004–05 and 2005–06

Rs. in lakhs

Particulars	2004–05	2005–06
A. Current assets		
Inventory	1090.75	1992.61
Sundry debtors	63.58	288.79
Deposits	43.22	114.96
Cash and bank balances	263.67	601.11
Loans, advances and prepaid expenses	253.68	380.49
	1714.90	**3377.96**
B. Current liabilities		
Current liabilities	434.92	602.99
Provision for expenses	70.87	83.50
	505.79	**686.49**
C. Networking capital (A-B)	1209.11	2691.47
D. Increase in net working capital	1482.36	–
	2691.47	**2691.47**

Appendix 8

Rs. in lakhs

Particulars	2010–11	2011–12
A. Current assets		
Inventory	7199.36	1041.42
Sundry debtors	333.12	–
Deposits	138.85	–
Cash and bank balances	3503.25	4154.33
Loans, advances and prepaid expenses	3904.24	2992.28
Trade receivables	–	1546.02
Other current assets	–	371.34
	15078.82	**19205.39**
B. Current liabilities		
Current liabilities	3302.39	–
Provision for expenses	600.91	282.59
Short term borrowings	–	7249.08
Trade payables	–	4341.05
Other current liabilities	–	2102.83
	3903.30	**13975.55**
C. Networking capital (A-B)	11175.52	5229.84
D. Decrease in net working capital	-	5945.68
	11175.52	**11175.52**

Appendix 9: Statement Showing Changes in Working Capital of Vijaya Dairy for the Year 2004–05 and 2005–06

Rs. in lakhs

Particulars	2004–05	2005–06
A. Current assets	1741.53	2426.35
Cash and bank balances	1810.43	1195.93
Value of stock on hand	818.21	425.25
Sundry debtors	1383.02	1222.91
Advances to staff, firms / suppliers	124.59	127.07
Deposits with others	470.00	1439.75
Adjustments due to coop. institutions	140.51	1400.54
Unions net current assets		
	6488.32	**6977.80**
B. Current liabilities		
Interest payable	280.05	280.04
Deposit works	163.83	163.83
Advances relieved	122.74	112.58
Salary recoveries	–	4.76
Other liabilities	1601.12	1972.49
APDDC Ltd	1496.58	1510.00
	3664.32	**4043.70**
C. Networking capital (A-B)	2824.00	2934.10
D. Increase in net working capital	110.10	–
	2934.10	**2934.10**

Appendix 10

Rs. in lakhs

Particulars	2010–11	2011–12
A. Current assets		
Cash and balance	2373.03	1942.74
Value of stock on hand	3044.26	4577.46
Interest accrued	114.72	114.72
Sundry debtors	1323.98	10.30
Financial assts. to DCS	18.67	18.67
Advance to staff, dairies/firms	2185.85	4764.03
Deposits	133.88	144.84
Others	48.48	48.48
Cooperative institutions	4111.22	4142.27
Union net current assets	96.75	96.75
Apportionable losses	2165.03	2155.01
	15615.87	**18015.27**
B. Current liabilities		
Deposit works	224.03	224.03
Advances received	254.38	4.36
Salary received	–	33.20
Other liabilities	2634.35	1284.40
APDDC ltd	1604.60	1604.60
Interest payable	1767.60	2177.02
	6484.96	**5327.61**
C. Networking capital (A-B)	9130.91	12687.66
D. Increase in net working capital	3556.75	–
	12687.66	**12687.66**

Appendix 11: Statement Showing Changes in Working Capital of Nandi Milk Products Private Limited for the Year 2004–05 and 2005–06

Rs. in lakhs

Particulars	2004–05	2005–06
A. Current assets		
Inventories	4.31	9.38
Sundry debtors	57.16	89.52
Cash and bank balances	1.25	20.65
Other current assets	5.87	14.53
	68.59	**134.08**
B. Current liabilities		
Current liabilities and provisions	34.63	-
Creditors for milk supplies		78.34
AP VAT payable		0.16
PF payable		0.31
ESI payable		0.08
Electricity charges payable		0.74
Salaries and wages payable		1.21
	34.63	**80.84**
C. Networking capital (A-B)	33.96	53.24
D. Increase in net working capital	19.28	–
	53.24	**53.24**

Appendix 12

Rs. in lakhs

Particulars	2010–11	2011–12
A. Current assets		
Inventories	56.95	100.09
Trade receivables	84.28	118.29
Cash and equivalents	25.74	70.58
Other current assets	28.91	69.85
	195.88	**358.81**
B. Current liabilities		
Short term borrowings		124.77
Trade payables	186.85	116.02
Other current liabilities		39.58
Short term provisions	6.57	0.41
	193.42	**280.78**
C. Networking capital (A-B)	2.46	78.01
D. Increase in net working capital	75.55	–
	78.01	**78.01**

Appendix 13: Statement Showing Changes in Working Capital Mulukanoor Women's Cooperative Dairy for the Year 2004–05 and 2005–06

Rs. in lakhs

Particulars	2004–05	2005–06
A. Current assets		
Inventories	153.59	127.13
Cash & bank balances	133.42	65.94
Sundry.debtors	54.21	36.44
Advance to employees	1.49	1.45
Other advances	17.86	18.61
	360.57	**249.57**
B. Current liabilities		
Deposits	15.72	36.20
Outstanding bills	31.90	42.98
Advances	92.99	100.34
	140.61	**179.52**
C. Networking capital (A-B)	219.96	70.05
D. Decrease in net working capital	-	149.91
	219.96	**219.96**

Appendix 14

Rs. in lakhs

Particulars	2010–11	2011–12
A. Current assets		
Inventories	183.11	310.61
Cash and bank balances	166.21	183.22
Debtors	60.02	74.93
Other advances	55.97	44.42
	465.31	**613.18**
B. Current liabilities		
Deposits	36.96	36.01
Outstanding bills	181.93	211.31
	218.93	**247.32**
C. Networking capital (A–B)	246.42	365.86
D. Increase in net working capital	119.44	–
	365.86	**365.86**

Feature

Role of Technology-Based Training Towards Competency Building

RAMA KRISHNA GUPTA AND CHANDAN KUMAR SAHOO*

Over the last few years the world has seen a series of innovations that have fundamentally altered the business function. Technology is moving from the back end, and becoming increasingly a part of each employee's everyday tool set. This changing scenario is creating a gap in skills that many organizations are struggling to fill the gap that blends the needs of Information Technology (IT) with sales, marketing, and other departments. This gap may be best bridged through advanced and Technology-Based Training (TBT) rather than hiring. Technological innovation has rapidly transformed the way people are being educated and trained, while at the same time, it has equally become a key tool in building business capacity and increasing workforce skills and competencies. The article discusses the role of TBT towards building competencies of the employees required for the sustainable development of the organization. The article also presents the implications of the different TBT methods to the employees.

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Introduction

In present context the functioning of business organizations are changing due to globalization, competitive business environment, information technology revolution, economical changes and development of knowledge sharing and transfer mechanism. To survive in the technologically advanced business environment, organizations are struggling to train and develop their talent as quickly, efficiently and effectively as possible. As many jobs in organizations are becoming less structured and more knowledge driven the need to develop depth to the knowledge and skills are raised. The jobs and functions in organizations are enacted in virtual rather than face-to-face interactions, which require enhancement of collaboration and cooperation of jobs and functions. TBT and new strategies helps in meeting these challenges. The present article explains how TBT meets the challenges in changing nature of work in organization. It also describes various TBT methods, which are found to be useful in building employee competency for the sustainable development of the organization.

Literature Review

Training is considered as the process of upgrading the knowledge, developing skills, bringing about attitude and behavioral changes, and improving the ability of the trainee to perform tasks effectively and efficiently in organizations (Wills, 1994; Palo et al., 2003; and Robert et al., 2004). It is generally defined as a planned and systematic effort to modify or develop knowledge, skills and attitudes through learning experiences, to achieve effective performance in an activity or a range of activities (Garavan et al., 1995 and Reid et al., 1994). The recent decade marked with development of technology and innovations. The technological advancements assured the economical growth and soon the technology penetrated into the working organization and all their processes and practices have

come to be influenced by new technologies (Dussauge et al., 1992). The human resources is not an exception, in training design, delivery and implementation of digital technology and internet has been incorporated in different phases, which a new phenomenon took place, that isTBT (Saghafian, 2010).

TBTrefers to training that involves the use of technology to deliver training, such as Web-based training; computerized self study; satellite or broadcast TV; and teleconferencing. Any technology that delivers education or training, or support the delivery of these subjects would be defined as TBT (Alan and Haccoun 2010).It is also defined as, "anything that involves using technology to deliver training, include Web-based training; computerized self study; satellite T.V; video conferencing; audio conferencing and teleconferencing"(Robert, 2005). According to U.S Congress, Office of Technology Assessment (1990), TBT is the training system substitutes for real equipment or situation, or for worker memory. In its broadcast sense, training technology encompasses both hardware (television, satellite dishes, computers, overhead projectors) and software (such as computer programmes, television programming, written materials, and their instructional design), as well as the physical setting in which training take place.TBT in today's business organization has already spread into different forms like Computer-based Training (CBT), Web-based Training (WBT), Net work-based Training (NBT) and Training through Digital Devices (Saghafian, 2010).

Work is becoming more knowledge driven and global in scope, requiring a deeper combination of information, experience, understanding, and problem solving skills that can be applied to decision or situations (Kraiger and Ford, 2007). It is estimated that 50 percent of all employees' skills become outdated within 3–5 years. "Time to competence" is a major factor of determining competiveness of all companies (Khirallah, 2000). With the increasing use of networked computers and achievements of telecommunication technology, the Internet has been widely recognized as a medium for network-enabled transfer of skills, information and knowledge in various areas (Carswell, 1997).TBT is a form of training in which digital technology is purposefully applied as a tool to deliver knowledge, skills and abilities (KSAs) required for the improvement of on-the-job performance (Salas and Cannon-Bowers, 2001; Schreiber and Berge, 1998).

Organization's human resource is increasingly becoming the key competitive factor, companies are searching for tools that provide insights in to human resources competencies so that they can align with corporate objectives. Competitive advantage lies in management's ability to consolidate organization wide technologies and production and service skills into competencies that empower individual organizations to adapt quickly to changing opportunities (Ronald, 2006). Lyle Spencer's (1993) research had showed that improving average competencies had two to three times pay off than selecting better people. Training technologies play an important role in building competency of work force in ever-changing workplace environment, which builds a strong competitive force of the originations.

Earlier researchers had focused research on the factors like cost of implementing TBT, different applications of training technologies, and cost–benefit analysis of TBT, etc. Limited study has been conducted on the role of TBT in building employee competency.The present article highlights on the building of employee competency through different TBT methods by comparing and contrastingeach of them with key employee competency constraints.

Importance of TBT

Advances in technology, globalization, and economical growth have changed the process of manufacturing and business. The changing workplace demands for calling a wide range of skills and competence from the work force. Progress in information technology has enabled greater degree of coordination between various businesses units spread across the globe. In order to keep employees abreast with the changes, the employees must learn new techniques to make use of advances in the technology and bridge the gap between skill requirements and skill availability. The changing market and cultural environment of business made employees to work in multi-dimensional areas which employees have to learn and trained to work in multi-dimensional areas.Competitive market and ever-changing job requirements of organization created insecurity in employees. The employees have to plan their career according to organizational demands and should develop their knowledge, skill, abilities and attitudes. Career development and self-development of any employee in the current working organization depends upon development of employee skills and knowledge gained by training and experience.

Influence of Technology on Training

Now-a-days an increasing number of people are connecting with technology and are being replaced by induction of

technology-based and automated systems. The prompt of technological development had made traditional methods of training difficult to meet the demands of organizations. Introduction of technology to training made the demands obtainable. As organizations make the transformation into learning organizations, technology will facilitate in the sharing of knowledge (Duhaney, 2005). New technologies have made it possible to reduce the cost associated with delivering training to employees, to increase the effectiveness of the learning environment, and to help training contribute to business goals (Noe, 2008). Today's high-end technologies offer grater bandwidth, which means that the programs can transmit more information rich content and immerse trainees in high fidelity, synthetic training worlds (Bell and Kozlowski, 2007). The fact that the media (Compressed video, personnel computers, internet) that support these advanced technologies have become more cost-efficient, reliable and accessible, has led organization to increasingly utilize TBT to respond to their emerging employee development needs (Bell and Kozlowski, 2007).

TBT Methods

Computer-based Training

Computer-based training (CBT) is an interactive training experience in which the computer provides the learning stimulus, the trainee must respond, and the computer analyzes the responses and provides feedback to the trainee (Hannum, 1990). According US Congress, Office of Technology Assessment (1990), Computers can be the subject of instruction, as in courses on computers literacy, programming, or particular software packages: they can be used as tools for accomplishing other learning tasks; they can be used to deliver instruction either prior to application (computer assisted instruction) or at the time and place of applications (embedded training) and they can be used to keep track of instruction (computer-managed instruction). Modern CBT features multimedia including images, text, audio, video, and allows activating multiple sense, which increases knowledge retention (Schwaninger, 2004; Koller et al., 2008). CBT allows one to measure learning progress and skills, knowledge and competencies acquired using objective, fair reliable, valid and standardized tests, which is difficult to achieve by an instructor alone (Koller and Schwaninger, 2006; Schwaninger et al., 2006).

Web-based Training

Horton (2000) defined Web-based training as "any purposeful, considered application of Web technologies to the task of educating a fellow human being."It is a combination of distance learning, computer-based learning and internet.Web-based training and learning systems can be enhanced immensely by making them adaptive, i.e. letting the system estimate the personal characteristics of the user and adapting content and presentation to them (Brusilovsky and Eklund, 1998; Kay and Kummerfield,1994; and Nakabayashi et al.,1997). According to Blocker (2005), Web-based or e-learning provides an opportunity to address many known business issues, such as cost reduction, access to information, learning accountability, and increased employee competence. If there is no trade-off in the pedagogical equivalence as determined by knowledge gains and if certain components of Web-based instruction are identified as effective then the cost benefit of employing video-driven multimedia, Web-based training may be used to create new opportunities for competency-based learning and to promote worker success and achievement (Katherine, 2009).

Simulations

A simulation is a training method that represents a real life situation with trainee's decisions resulting in outcomes that mirror what would happen if they were on the job (Noe, 2007). According US Congress, Office of Technology Assessment (1990), simulators are devices that duplicate the behavior of real life machines or complex systems. They typically contain a computerized model of the real equipment, and, depending on their level of sophistication, may duplicate all of the hardware and operating characteristics of the equipment and its operational environment. The instructor or a computer-managed instruction system presents operational situations to which the trainee responds. Simulations are meaningful, they get trainees involved in learning, and they are emotionally engaging, which increases employee's willingness to practice, encourage retention, and improve their skills (Cornell, 2006). Simulators provide a consistent message of what needs to be learned; trainees can work at their own pace; and, compared to face-to-face instruction, simulators can incorporate more situations or problems that a trainee might encounter (Noe, 2008). Simulations have been found to result in such positive outcomes at shorter training times and increased return on investment (Frauenhein, 2006).

Virtual Reality

Virtual reality is a computer-based technology that provides trainees with a three dimensional learning experience (Noe, 2008). Using specialized equipment or viewing the virtual

model on the computer screen, trainees move through the simulated environment and interact with its components (Adams, 1995). Technology is used to stimulate multiple sense of the trainee (Quinones and Ehrenstein, 1997).Virtual reality training has high level of immersion to achieve greater effectiveness in the process of learning or skill acquisition (Weidlich et al., 2007).The virtual environment can imitate an actual workplace such as lab, processing plant, or hospital emergency room, allowing trainees to both practice their skills without harming products or patients and at the same time see the real life consequences of their actions and decisions (Noe, 2007). Virtual worlds also can be useful for teaching interpersonal skills such as time management, communication, leadership, and working under pressure (Nancheria, 2008).

Personal Digital Assistance

A personal digital assistant (PDA), or handheld computer, is a small, mobile, handheld device that provides computing and information storage/retrieval capabilities. The vast majority of PDAs have five basic functions of contact management, scheduling (calendar), to-do list, note-taking and many PDA manufacturers now include additional functionality in their products, such as, access to the Internet, the ability to play MP3 files, the ability to read electronic books, the ability to play games, Bluetooth connectivity (Alexander, 2009). In addition to being used for communication, mobile phones allow trainees to access online courses and virtual learning programme, which have control over the pace of the courses (Ahmad and Orton, 2010). IBM has found that mobile phones can be successfully used as an EPSS (Electronic Performance Support System) to increase trainee job performance (Ahmad and Orton, 2010).According to Wikipedia, a *podcast* is a type of digital media consisting of an episodic series of audio, video, PDF, or ePub files subscribed to and downloaded through Web syndication or streamed online to a computer or mobile device. By podcasting, recorded material can be downloaded from the Internet and listened to at the trainee's convenience (Scutter et al., 2010).

Programmed Instructions

In the 1950s, B.F. Skinner introduced programmed instruction (PI) with his patented teaching machine. Initially, his teaching machine would recognize correct answers and progress to the next. If an answer were wrong, the machine would explain the correct answer (Magliaro et al., 2005). It is carefully specified, systematically planned, empirically established, skillfully arranged, and effectively controlled self-instructional technique for providing individualized instruction or learning experiences to the learner (Fathima, 2013). Programmed instructions can be effective in helping learners to achieve specified behavioral objectives, in a variety of subject areas, and using a variety of programming techniques and presentation devices (Schramm, 1964).

Intelligent Tutorial System

Intelligent tutoring systems (ITS) are instructional systems that use artificial intelligence (Stelle and Hyde, 1997). There are three types of ITS environment: tutoring, coaching, and empowering. Tutoring is a structured attempt to increase trainee understanding of a content domain, coaching provides trainees with the flexibility to practice skills in artificial environments and empowering refers to the student's ability to freely explore the content of the training programme (Noe, 2007). ITS enables participants to practice their skills by carrying out tasks with in highly interactive learning environments and assess each learner's action within these in interactive environments and develop a model of their knowledge, skills, and expertise (James and Sowmya, 2003). By providing decision-making practice with feedback they improve employee's problem-solving skills (Stottler and Domeshek, 2005).

Technology-based Competency Matrix

Employee competency constitutes one of the key sources of competitive advantage for an organization. The employee competency can be referred to as a collection of attitude, skills, and knowledge required to perform a task to a minimum standard. Employee competency at work place is generally reflected in several dimensions such as attitude, rational strategies, mechanical skills, judgmental skills, and knowledge.Training mediated through technology serves as a powerful tool in building employee competency.

TBT is composite amalgamation of computer-based training, Web-based training, simulations, virtual reality, personal digital assistance, programmed instructions, intelligent tutorial system, etc., which have their unique, varying and individual impact on the dimensions of competency. Different methods of TBT can be incorporated to facilitate the competency building by means of attitudinal changes, formulation of rational strategies, improvement of mechanical skills, developmental of judgmental skills, and enhancement of knowledge. The methods of TBT and competency dimensions are represented in the form a

Table 1: Comparison Matrix of TBT Methods

Competencies	Attitudes	Rational Strategies	Mechanical Skills	Judgmental Skills	Knowledge
TBT Methods					
Computer-based Training	No	Yes	No	No	Yes
Web-based Training	No	Yes	No	No	Yes
Simulations or Simulators	Yes	Yes	Yes	Yes	Yes
Virtual Reality	Yes	Yes	Yes	Yes	Yes
Personal Digital Assistance	No	No	No	No	Yes
Programmed Instructions	No	Yes	No	Yes	Yes
Intelligent Tutorial System	No	Yes	Yes	Yes	Yes

matrix. Each cell with respect to its corresponding row and column elements depicts a citation YES/NO. "YES" indicates the applicability of the particular method (Row element) in helping the employee acquire the desired competency dimensions (Column element), where as "NO" indicates non-applicability. By briefing the matrix structure, it can be stated that the different methods of TBT extensively contribute towards the employee competency building (degree of effectiveness may varies). An organization is required to design an ideal elemental mix of TBT methods that will help in required competency building.

Implications of the Study

Most of organizations are following the traditional training methods that are becoming obsolete owing to the changes in business process.To sustain in the knowledge driven and dynamic world, the organizations have to improve their employee's competencies with incorporating the modern and TBT methods. The present study helps the organizations in planning and selecting the appropriate TBT method in building the desired employeecompetency. The present research may help the strategic managers or policy-makers to formulate a strategy through which they can build a strong pool of human resource to implement the strategy effectively in the organizations.

Limitations of the Study

The present study focused only on the employee's competency building through TBT methods but has not discussed the cost and benefits associated with the successful implementation of such methods. This study lacks the detailed explanation of each selected TBT method like where the method can be applicable, availability of technical knowhow and time required to complete the training.

Conclusion

Enhanced technologies and technological devices have made the business process in some way easier and in some way more difficult. The need for development and building of employee competency has increased to ensure the survival of organizations in the rapidly changing and competitive market environment. TBT methods help the employees to acquire the required skills and knowledge in their respective area of specialization. If there is appropriate selection and applicability of different TBT methods according to requirements of organization strategy and building employee competency will harvests profits from the market and remain competitive in the market.

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An investment in knowledge pays the best interest.

—Benjamin Frankli

Feature

Experimental Studies on the Erosion Rate of Annealed and Normalised Low Carbon Steel-Bank Tubes of Process Boilers

T. S. G. NARAYANNEN, ASHISH AGARWAL, AND D.A. MELWIN THOMAS

The experimental studies are carried out to find the erosion rate of annealed SA192 low carbon steel bank tube and normalized SA 192 low carbon steel bank tube using fly ash particles of different size, velocity impingement angle and feed rate. Erosion rates are evaluated with different impingement angles ranging from 15° to 90°,at four different velocities of 32.5 ,35,37.5 and 40 m/s and four feed rates of 2,4,6, and 8 g/min. The erodent used is fly ash particles of different sizes ranging from 50–250 µm of irregular shapes. In all the experimental conditions of fly ash particles it is found that the erosion rate of low carbon steel normalized bank tube is higher than annealed tube.

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Introduction

Solid particle erosion may be defined as the removal of material from the surface by the repeated impact of hard and angular particles travelling at considerable velocities. The erosion of metallic tubes in tube banks by particles suspended in gas flows is a serious problem in chemical plants, coal combustion equipment and process when operated in contaminated environments. The damaging effect of erosion substantially reduces the useful life of the tubes. Various ferrous and non-ferrous materials are extensively used in erosive wear situations. Hence solid particle erosion of surface has received considerable attention in the past decades.

Past Work in Erosion Rate of Material

Satyanathan (2001) showed that in M/s. Bharat Heavy Electricals Limited (BHEL) supplied boilers, the fly ash erosion is the major concern for almost one third of total tube failures. The major factors influencing the erosion process are the amount of ash particles, its velocity and the design conditions. Finnie et al. (1967) developed analytical model to find the erosion rate based on the assumption that the mechanism of erosion was due to micro cutting. Later it was demonstrated by Levy (1981) that the micro cutting was not the primary mechanism by which ductile structural metal erode . They conducted experiments and concluded that for ductile material the impacting particles cause severe localized plastic strain, which exceed the strain of material and cause the failure of deformed material, and for brittle materials the energy possessed by erodent particles cause cracking and removal as micro size pieces. Levy (1981) also demonstrated that in ductile materials erosion rate is lowered when its ductility is increased. Misra and Finnie (1981) explained that the number of particles actually

striking the surface do not increase the erosion rate in the same way as the number of particles traveling towards the specimen due to the shielding effect provided by the rebounding particles. Levy (1982) tested the same material of specification with different micro structures like fine pearlite and coarse pearlite having different elongation percentage, and found that the erosion rate is less for the material having higher elongation percentage.

Liebhard and Levy (1991) had highlighted that the erosion rates for change in particle size are difficult to explain quantitatively because a number of factors like particle velocity and kinetic energy, number of particles striking the target, interference between the striking and rebounding particles, shape of the particles and the angle of impact of particles are involved. Lyczkowski et al. (2002) had stated that the clear understanding of erosion mechanism is essential because erosion is very serious in the areas of combustion where coal is to be burnt cleanly. Mbabazi et al. (2004) had conducted erosion test on mild steel plate with three different fly ash samples from Lethabo, Matimba and Matla power plants at different fly ash velocities and found that experimentally calibrated general model which yielded results that differed by less than 15 per cent from the values measured experimentally. Oka and Yoshida (2005) had stated that material removal is caused by indentation process. It was found that degree of load relaxation depends on the ability of plastic flow for soft materials. It was concluded that a predictive equation containing material hardness and load relaxation ratio which could be related to find experimental erosion damage data. Oka et al. (2005) had expressed that the mechanical properties of the material can be regarded as the main parameter for estimating erosion damage. Desale et al. (2006) had expressed that the surface morphology of the specimen showed deep craters and higher value of average surface roughness for angular particles. Harsha et al. (2008) had conducted experiments for ferrous and non-ferrous materials to find the erosion rate against the cumulative weight of impinging particles. It was observed that the erosion rate initially increases with increasing cumulative weight of impinging particles and then reaches a steady state value. Wang and Guoyang (2008) had demonstrated that for ductile materials the erosion is caused by the micro cutting and micro ploughing of the erodent particles. For brittle materials like ceramics the energy transfers from erodent material to the specimen. This process induces the material deformation, crack initiation and propagation, and causes removal of material from the specimen surface. Kain et al. (2007) studied the failure of low carbon steel tubes considering the SA-210GrA-1 material.

Hutchings and Winter (1974) studied the mechanism of metal removal by impacting the metal targets at an oblique angle by metal balls at velocities up to 250 m/s. They suggested that the initial stage of metal removal is the formation of lip at the exit end of the crater by shearing of the surface layers. Above critical velocity, this lip is detached from the surface by the propagation of ruptures at the base of the lip.

Manish Roy (2006) investigated erosion testing at elevated temperature with special emphasis on microscopic observation, giving details of the Erosion–Oxidation (E–O) interaction mechanisms and developed Erosion-Oxidation map experimentally for the first time. The influence of various erosion conditions on such a map has been explained on the basis of oxidation characteristics and mechanical properties of the eroding materials, and it has also been inferred that the erosion rate is higher in the oxide erosion regime than in the oxidation-controlled erosion regime, oxidation-affected erosion and metal erosion.

Lindsley and Lewnard (1995) performed a series of tests to determine the erosivity of several different circulating fluidized bed materials. The tests were conducted with 1020 steel as the target material at 400°C and particle velocities of 75 m/sec. The bed material erosivity was found by measuring the sample weight change with time and determining the steady-state erosion rate. It was found that for some conditions, the steel target showed a weight gain owing to soft constituents in the erodent forming a deposit of particle fragments on the surface. Two bed materials were then separated by particle size and each size fraction was erosion tested. The shape of the particles was measured using a quantitative image analysis system and it was found that particle shape changed with the size fraction of the bed particles. Particle composition, which was also found to vary with particle size, was determined using elemental analysis.

Sundararajan and Shewmon (1983) had proposed a correlation between the erosion rate and the thermo-physical properties of the target, for the erosion of metals by particles at normal incidence. This model employed a criterion of critical plastic strain to determine when the material will be removed. Their erosion model (localized model) predicted very well the experimentally observed erosion rates rather than the fatigue-type model.

Jennings et al. (1976) have derived mathematical models based on target melting and kinetic energy transfer for predicting ductile target erosion. Dimensional analysis was employed in the development of a mathematical model for predicting the erosion of ductile materials. The basis of the model was an identified erosion mechanism (target melting) and the model was verified in an erosion testing programme using three stainless steels, two aluminium alloys, a beryllium copper alloy and a titanium alloy; the erosive agents were three dusts with hard angular particles and one dust with spherical particles.

Hussainova et al. (1999) investigated the surface damage and material removal process during particle-wall collision of the solid particles and hard metal and cermets targets. Targets were impacted with particles over the range of impact velocities: (7–50 m/s) at impact angle of 67°. The experimentally observed variations of the coefficient of velocity restitution as a function of the test material properties, impact velocity and hardness ratio were adequately explained by a theoretical model presented by them.

Levy and Foley (1983) studied the erosion behavior of different steel like a plain carbon steel (AISI-SAE 1020), an austenitic stainless steel (type 304) and a low alloy steel (AISI-SAE 4340). The testing was conducted at room temperature using aluminum oxide particles with an average size of 140 microns in an air stream. An attempt was made to characterize the erosion behavior as it relates to the mechanical properties obtainable in these alloys by conventional heat treatments. It was found that the ductility of the steels had a significant effect on their erosion resistance which increased with increasing ductility and that hardness, strength, fracture toughness and impact strength had little effect on erosion behavior.

Oflynn et al. (2001) created a model to predict the solid particle erosion rate of metals and its assessment using heat-treated steels. The model proposed that erosion rate is related to the product of toughness and uniform strain. Two steels (EN 24 and EN 42) were heat treated to form a total of 12 different microstructures, each having distinctly different mechanical behavior. Erosion tests were carried out at a combination of three impact velocities and three angles of particle impingement in a rotating disc accelerator erosion tester. Tensile tests were carried out on all the heat-treated steels over a range of temperatures from room temperature to 400°C. The model predictions were not satisfied by mechanical property measurements made at room temperature. However, for each given erosion test condition, a good linear relationship was found between room temperature erosion rate and 1 / (toughness uniform strain) when mechanical properties were measured at elevated temperatures. The elevated temperature chosen to give the best-fit was between 200° and 300°C depending on the impact velocity. It is believed that the significance of the elevated temperature property measurements is that they account for localized heating occurring at the impacting particle during the high strain/ strain-rate deformation typical of erosion. Certain heat-treatments gave a poorer fit to the relationship and explanations for this are proffered.

Fan et al. (1992) had conducted an experimental investigation of finned tube erosion processes. It was made by placing erosion prone wax cylinders with fins in a bench-scale cold flow circulating fluidized bed to simulate the long-term erosion effect. A numerical study was conducted for the flow of a dilute particle-laden gas moving past a finned tube undergoing erosion. The results from this study show that the finned tube is a simple and efficient erosion protection method in most industrial two-phase systems where erosion occurs. The fin relative height, the fin number and the angle between two adjacent fins are the three important parameters which affect finned tube erosion protection abilities.

The traditional Eulerian formulation has difficulty in determining the physical properties of the impacting particles, including impact velocity, impact angle and particle number at impact on the wall surface. Lee et al. (2002) proposed a new computational procedure for the Eulerian approach to estimate the equivalent Lagrangian solutions for incident and reflected particles near the wall surface. Numerical results of the physical properties of impacting particles using the present Eulerian method show good agreement with those predicted using the Lagrangian method. Comparisons of numerical predictions with reported data show that both approaches are successful in predicting the main feature of the particulate flow near the wall and the erosion rate on the surface; however, the Eulerian approach needs far less computational time than using the Lagrangian approach.

Byeong-Eun Lee et al. (2000) concluded from the study that the Eulerian approach as well as the Lagrangian approach can be used in the prediction of solid particle erosion.

Fan et al. (1998) had investigated numerically the finned tube erosion-protection techniques. The numerical results indicate that the fins fixed on tubes provide a simple

and efficient erosion-protection method in most industrial particle-laden systems where erosion occurs.

Material Removal (Erosion) Model

The mechanical interaction is different for ductile and brittle materials. In the case of ductile materials the impacting particle cause severe, localised plastic strain which is more than the strain to failure of the deformed materials. For brittle materials, the force of erodent particles causes cracking and chipping off of micro size pieces, known as micro cutting (Wang and Guoyang, 2008). This difference is clearly shown in Figure 1 (a) and (b).

For ductile material, the erosion mechanism involves sequential plastic deformation process of platelet formation and crater formation due to forging and extrusion. Platelets are initially extruded from shallow craters made by the impacting particle. Once formed, the platelets are forged into a strained condition, in which they are vulnerable to being knocked off the surface in one or several pieces. Owing to the high strain rates, adiabatic shear heating occurs in the surface region immediate to the impact site. Beneath the immediate surface region, a work hardened zone forms, as the kinetic energy of the impacting particles is enough to result in a considerably greater force being

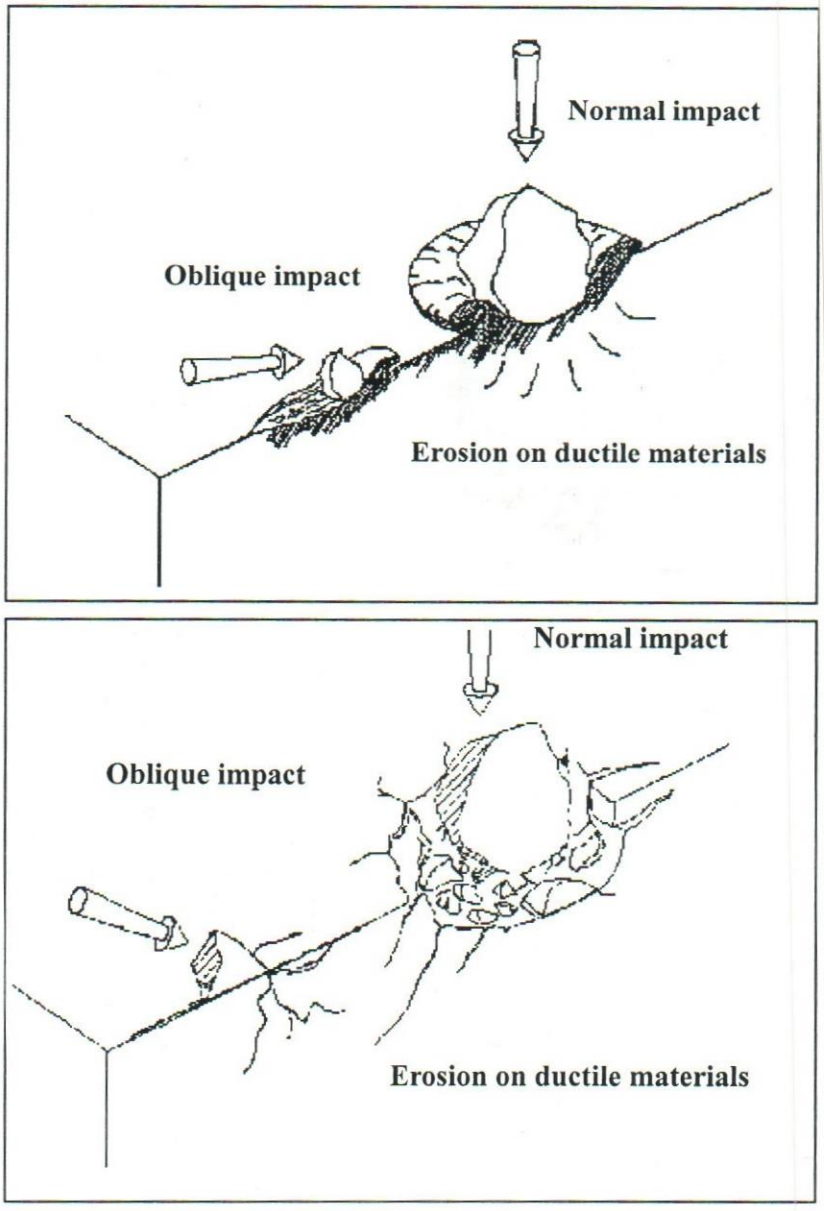

Figure 1: Erosion Mechanisms in Ductile and Brittle Material

imparted to the metal than it is required to generate platelets at the surface. When the surface is completely converted to platelets and craters and the work-hardened zone reaches its stable hardness and thickness, steady state erosion begins. The reason why the steady state erosion rate is the highest is because the subsurface cold-worked zone acts as an anvil, thereby increasing the efficiency of the impacting particles to extrude-forge platelets in the highly strained and most deformable surface region. This cross-section of material moves down through the metal as erosion loss occurs. In the platelet mechanism of erosion, there is a localised sequential extrusion and forging of metal in a ductile manner, leading to removal of the micro segments thus formed. During plastic deformation, the normal component of the particle's kinetic energy is used to extrude-forge the material.

Experimental Set-Up

The experimental set-up used for the present study is an air jet erosion test rig. The schematic diagram and the photographic view of air jet erosion test rig are shown in Figure 2 respectively. It is owned by research and development lab of M/s. BHEL, Tiruchirappalli, India. The test rig is manufactured as per ASTM G76 standard.

Experimental Procedure

In this study, tube samples of carbon steel tube material of SA-192 specification, currently in use for bank tubes in

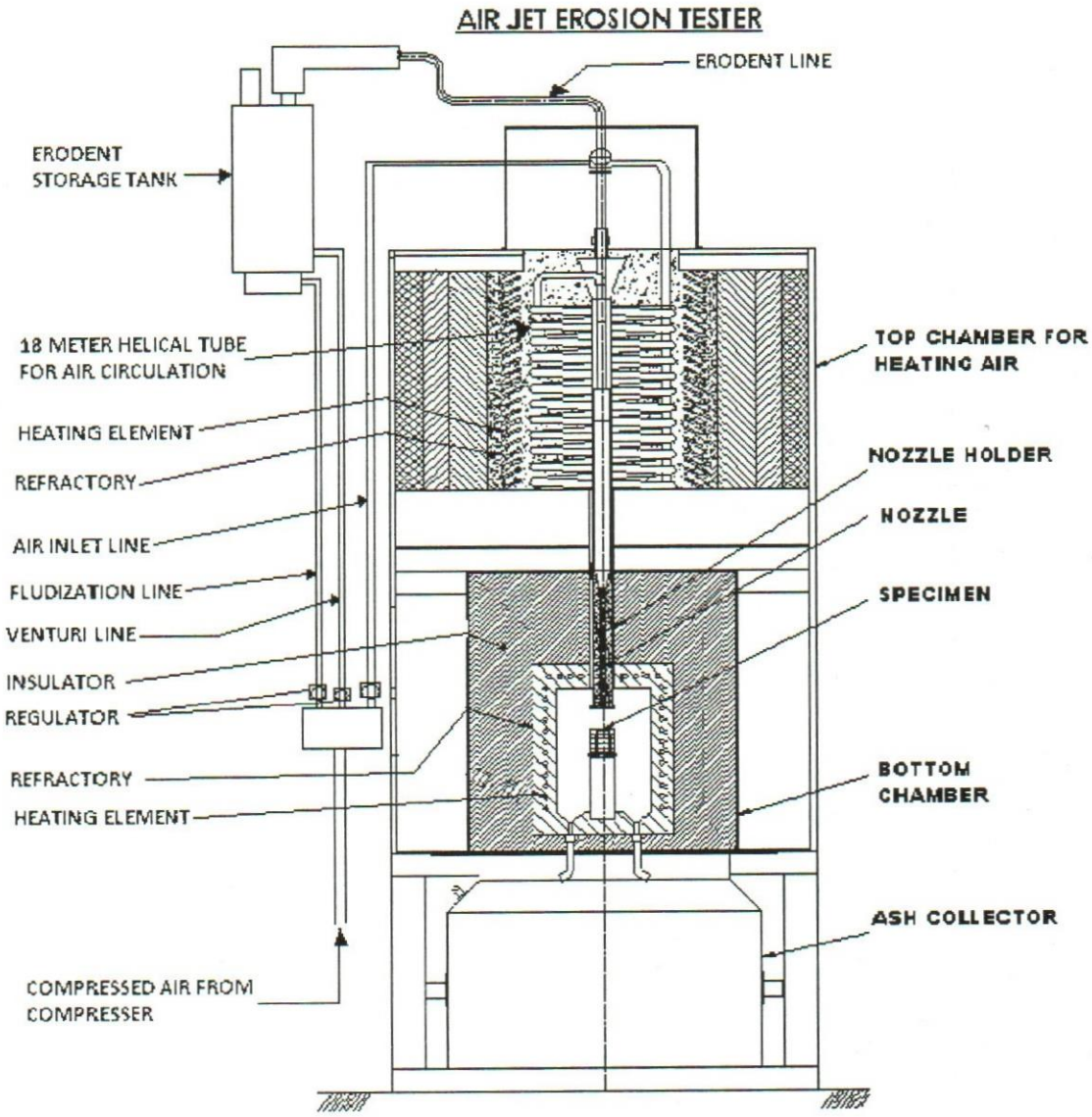

Figure 2: Schematic Diagram of Air Jet Erosion Test Rig

almost all power boilers are tested in required conditions at M/s. BHEL's laboratory (recognized by National Accreditation Board for testing and calibration of Laboratories). The tested mechanical properties of tubes of SA-192 materials are given in Tables 1, 2, and 3.

The test specimen was weighed initially and then it was fitted in the jet erosion test rig at a desired angle

Table 1: Shoulder Tensile Test (Test Method: A 370)

S. N.	Reference	Yield Strength (N/mm2)	Tensile Strength (N/mm2)	% Elongation on gauge length of 4d
1	Annealed Condition	242	345	37
2	Normalized Condition	291	400	34

Table 2: Micro Examination: Test Method ASTM E 407-2 Nos.

S.N.	Details
I	Microstructure shows polygonal grains of ferrite & pearlite typical of Annealed Condition
I	Microstructure shows polygonal grains of ferrite & pearlite typical of Normalized Condition

Table 3: Hardness Test: Test Method—ASTM E384

Reference	Hardness in BHN at different locations at test piece		
	Location	Location	Location
	(1)	(2)	(3)
Annealed Condition	116	119	116
Normalized Condition	128	125	125

using specimen holders. The fly ash is taken in the chamber provided. The velocity and the concentration of fly ash particles are adjusted by controlling the flow of air quantity through the fluidization chamber. A jet of air with the fly ash particles pass through a nozzle and hit the surface of the sample at an angle chosen to place the sample. After doing the experiment for a scheduled time, the sample is removed and it is cleaned and weighed to get the weight loss taken place. The amount of ash used is also measured. The erosion rate is computed as the ratio of loss of weight in grams of test specimen to kilogram of ash particles impinging on the test specimen surface. The erosive rate was evaluated at different impingement angles ranging from 15° to 90°, and at four different velocities of 32.5, 35, 37.5 and 40 m/s.

Results and Discussion

Erosion Study on Annealed and Normalized Tube

ASME (American Society of Mechanical Engineers) has permitted the use of the tube having specification SA-192 in boilers. The SA-192 is a low carbon steel tube. The tube having this specification is currently in use for bank tubes in almost all process boilers. For this erosion study tube with annealed heat treatment SA-192 (A) and tube with normalized heat treatment SA-192(N) are selected. The specimen cut from the tubes is the target material and impinging particles are fly ash.

Effect of Velocity, Impingement Angle, Feed Rate, Particles Size, Different Fly ash sample and Temperature of Fly Ash Particles on Tube Erosion

Figure 3 shows erosion rate at room temperature for annealed and normalized tubes at different impingement

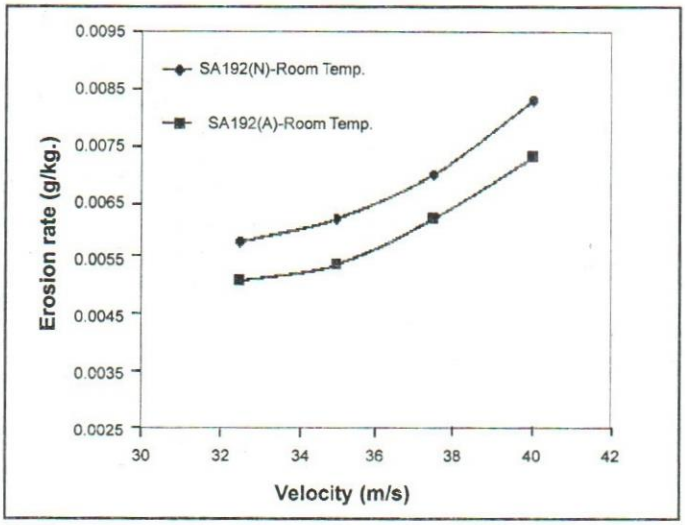

Figure 3: Effect of the velocity of fly ash particles on tube erosion –SA-192(N&A)

velocities ranging from 32.5 m/sec to 40 m/sec and at impingement angle of 30°. The data for graphs are obtained after the steady state of the erosion rate is reached. Erosion rate for normalized tube SA-192(N) is higher than that of annealed SA-192 (A) for a given velocity attributing to ductility and percentage elongation of the materials.

In ductile materials, when fly ash particles impinge with a velocity, at the impact point the particle loses a fraction of its kinetic energy to the target material for deformation of the surface and shear strains are induced in the target material. When the shear strain exceeds the elastic limit of the target material, the fly ash particles penetrate the surface of the target material and form platelets, which are removed in the subsequent impingement of the particles. It is the kinetic energy of the fly ash particle that has the greatest effect on the erosion of tubes. The kinetic energy of the fly ash particles is proportional to velocity which causes increase in erosion rate when the velocity of the fly ash particle increases. Since the ductility of the annealed tube is more, the plastic deformation is increased and hence the erosion rate is decreased. So the annealed tube is having less erosion rate.

Figure 4 shows the experimental results that are obtained by varying the impingement angles ranging from

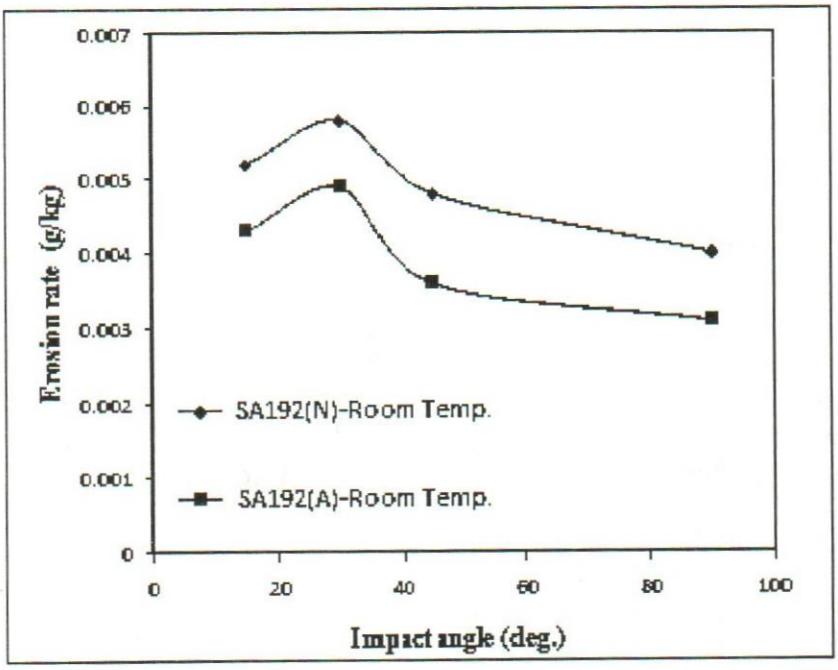

Figure 4: Effect of impingement angle on tube erosion–SA-192(N&A)

15° to 90° at a velocity of 32.5 m/sec at room temperature The erosion rate increases with the increase in impingement angle initially then decreases with the increase in angle. At about an angle of 300, the erosion rate is found to be maximum. This could be due to the increase in depth of penetration of the fly ash particle in to the target material when the impact angle is increased. When depth of penetration of the particle is increased, the plastic deformation in the target material is increased and thus the erosion rate is reduced. For the same fly ash particles and impingement angle, the erosion rate is mainly a function of target material properties. Also it is clear from Figure 4 that erosion rate of SA-192 (A) is nearly 20 per cent less than that of SA-192 (N). Figure 5 shows the erosion rate of the specimen for different particle size at room temperature at a velocity of 32.5 m/s and at impingement angle of 30°. The erosion rate increases with the increase in particle size from 50 μm to 125 μm and beyond this size there is no significant increase in erosion rate. More or less constant erosion rate with particle diameter above 125 μm is possible due to the combination of relation between the particle size, the number of particles striking the surface, its kinetic energy and the interference between incoming and rebounding particles. For particle sizes below 125 μm, the kinetic energy of the particles are low to be as effective in removing material as 125 μm size particles or more. When size of the particles are increased the number of the particles actually striking

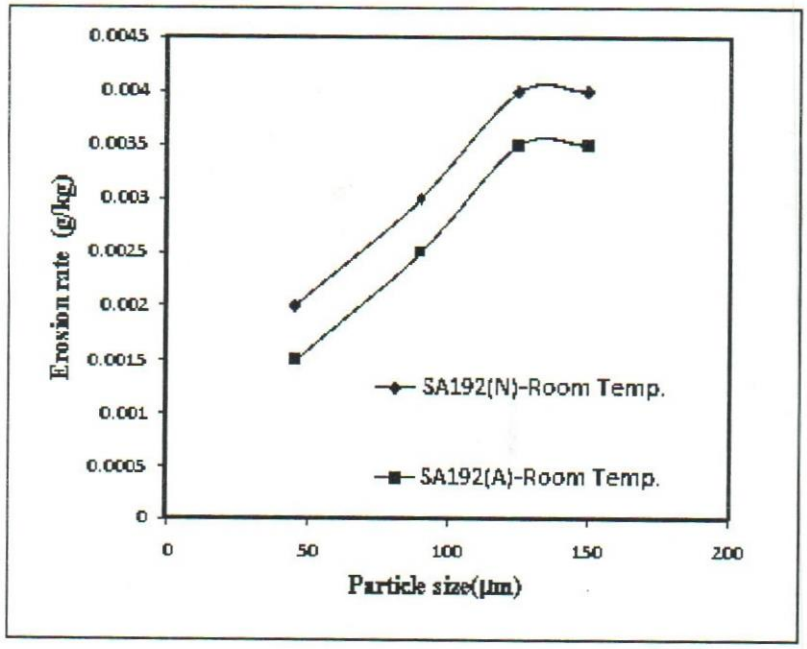

Figure 5: Effect of the size of fly ash particles on tube erosion–SA-192(N&A)

the surface do not proportionally increase due to the shielding effect provided by the rebounding particles.

Experiments are also conducted with four different feed rates of fly ash particles (2, 4, 6, and 8 g/min) with the constant velocity of 32.5 m/sec and impingement angle of 30°. The results are shown in Figure 6. In this experiment the erosion rate of specimen is not calculated for per kg weight of fly ash particles as in previous experiments (Figures 3, 4, and 5). There is no increase in erosion rate for the increase in feed rate of the fly ash particles. At higher feed rate of fly ash particles, there is particle-to-particle interference which reduces the effectiveness of the particle to erode the surface. Due to the particle-to-particle interference, the kinetic energy of the incoming particles gets reduced and there is a chance for some of the fly ash particles to get deflected by the rebounding particles from the target surface. Figures 3, 4, 5, and 6 show that erosion rate of annealed tube is less than the erosion rate of normalized tube.

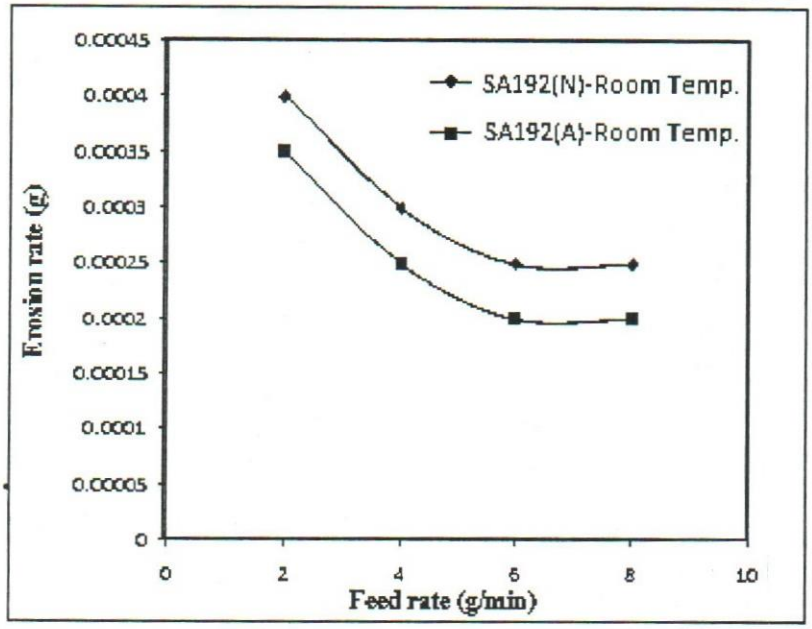

Figure 6: Effect of the feed rate of fly ash particles on tube erosion at room temperature-SA-192(N&A)

Effect of Heat Treatment of the Tubes on Erosion

The erosion is greater in case of normalized material sample. As the normalized material has been cooled in air, it affects the transformation of austenite and affects the microstructure in many ways. There will be less proeutectoid ferrite in normalized hypo eutectoid steels as compared with annealed ones. The faster cooling rate in normalizing will also affect the temperature of the austenite transformation and the fineness of pearlite. In general, faster the cooling rate, the lower the temperature of austenite transformation and finer the pearlite. In normalized tube there is fine lamellar pearlite whereas in annealed tube it is coarse lamellar pearlite which gives normalized steel more strength than annealed one. The microstructures of annealed and normalized tubes of SA-192 are shown in the figures which confirm the same.

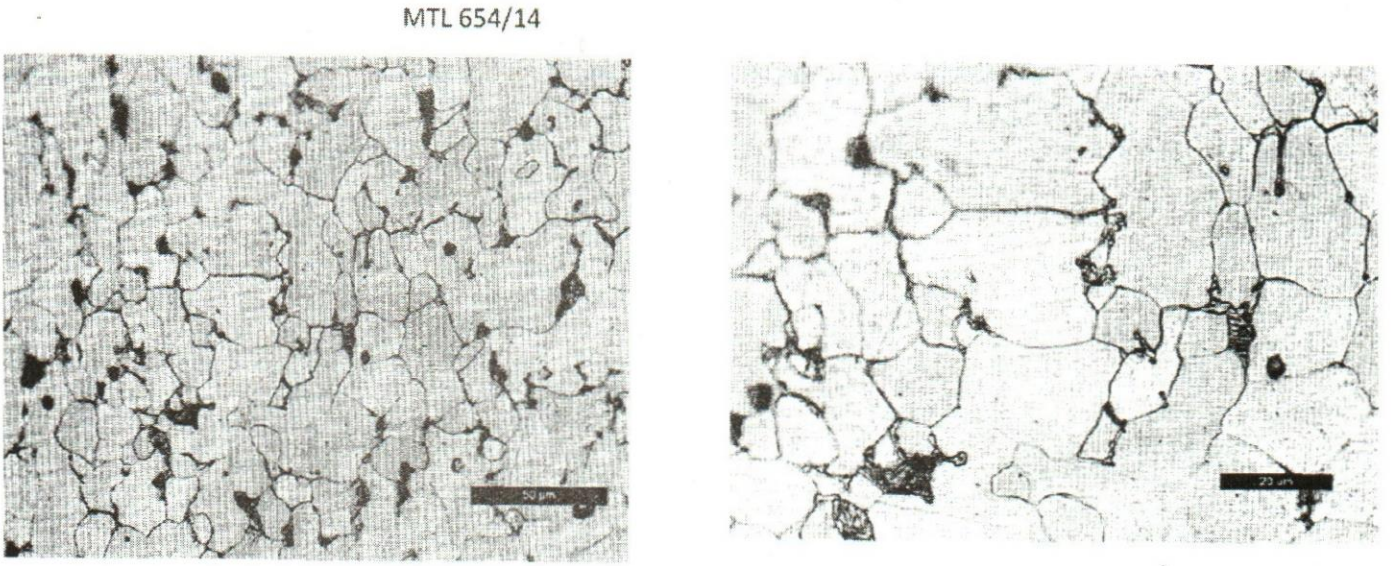

Figure 7: Photo Micro graphs of SA 192 (tube) in Annealed Condition

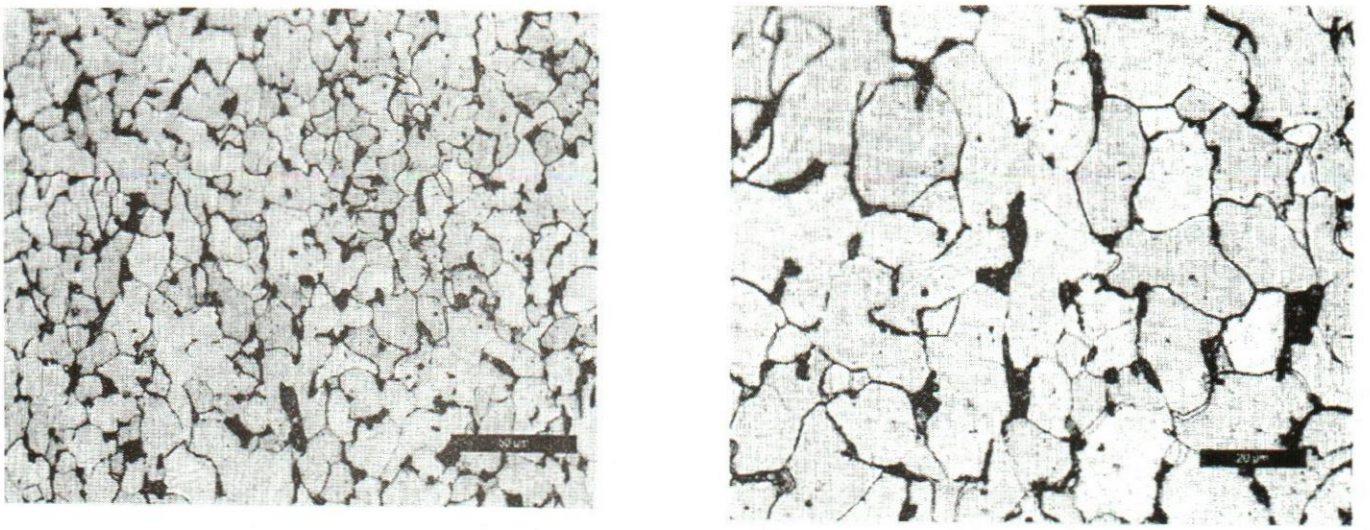

Figure 8: Photo Micro graphs of SA 192 (tube) in Normalized Condition

Conclusion

The experimental investigations confirm that erosion rate of normalized carbon steel tube is more than that of the annealed carbon steel tube. The study also confirms that when the velocity of fly ash particle is increased the erosion rate also increases. If the impingement angle of fly ash particles on the target is increased from 15° to 90°, erosion rate reaches at maximum at 30° and then it decreases. It has been observed that erosion rate increases with an increase in the fly ash particle size up to 125μm and beyond that size there is no increase in it. From the experimental results, it is concluded that by using annealed SA-192 tube instead of the normalized SA-192 tube the erosion rate of bank tubes of process boilers can be reduced.

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Sometimes if you have financial restraints, it's a benefit. It forces you to come up with a more creative way.

— Robert De Niro

Feature

Textile Industry in Organised Manufacturing Sector of Punjab: Growth Behaviour and Elasticity Patterns

DR. MANJEET SHARMA

The present study is confined to textile industry and organised manufacturing sector of Punjab for the period from 1980–81 to 2002–03. The analysis of organised manufacturing sector reveals that the industrial situation in the state was promising during pre-reform period but there was a dismal scenario in post-reform period. The organised manufacturing sector and textile industry recorded higher trend growth rate of fixed capital in post reform period as compared to pre-reform period, But the growth of fixed capital failed to generate higher growth rate of output and employment for the above industries during post-reform period, i.e. period of "jobless growth". Percentage share of output and employment of textile sector almost remained same level, i.e. 20 percent each during the study period. In textile industry one unit of output generation leads to decrease in employment implying: either employment of labour reaches to its maximum position or these industries require more capital for production of one unit of output. Labour and capital are complimentary to each other for textile industry and organised manufacturing sector in the post-reform period. This is a good sign for Punjab industry because both sector use labour and capital in such a proportion that more use of capital generates more labour.

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Introduction

Economic theory states that the development pattern of any economic set-up is dominated by agricultural sector in the initial stages of its development and gradually when the process of growth starts rising, the manufacturing and service sector attain the greater share (Kuznet, 1973).

Textile industry occupies a unique position in India being one of the earliest to come into existence in the country. It is country's second-largest industry after agriculture. This industry is making significant contribution to state's economy and to national foreign exchange earnings. Textile is the only industry which is self- reliant and complete in value addition, i.e. from raw material to the highest value added product-garment/made-ups. Therefore, growth and development of this industry has a significant bearing on the overall development of the economy.

Punjab's textile industry mainly consists of small and medium units with total output of Rs10,500 crores including Rs 3,250 crores export of knitwear, shawls, made-ups and yarns. The direct and indirect employment of textile activity in the state is estimated at two million people. The state produces approximately 12 percent of country's output of cotton. The easy availability of raw material facilitates the localization of this industry in Punjab. Cotton mills at Abohar, Phagwara, Amritsar, Kharar, Ludhiana, Malerkotla, and Bathinda, are important for cotton ginning and pressing. Punjab has a natural competitive advantage in terms of strong and large multi-fibre base. Abundant cheap skilled labour and presence across the entire value chain of the industry from spinning, weaving and made-ups to manufacturing of garments. It comprises mostly small-scale, non-integrate spinning, weaving, finishing and apparel-making enterprises.

With the dismantling of the quota regime, the top textile importing countries like the USA and European Union are looking towards India for meeting their import requirement. Indian manufacturers and exporters now have to compete with global player and also face emerging tariff and non-tariff barriers. Yet with its speed of operation, skill, quality and low-cost labour, the industry is growing up to reap rich rewards in the new period.

Review of Literature

Analysis of different studies available for manufacturing sector of Punjab reveals that Gill (1988,1994), Dhesi and Ghuman (1982), Singh (1992, 2005), Singh (2001), Raikhy and Sethi (2001), Singh and Singh (2002), Kumar (2005, 2006) and Singh and Jain (2007) discussed organized manufacturing sector of Punjab in detail.

Kuznet (1966) concluded that the share of metal product had risen substantially and those of food and textile groups had declined in many developed countries. One is tempted to interpret the changes as shift in structure of manufacturing sector from consumer to producer goods.

Gill (1981) observed that unregistered manufacturing sector played an important role in the economy of Punjab. The industrial sector of Punjab was dominated by consumer good industries. Even in these industries agro-based industries accounted for the major share. Kaur (1982) examined that cotton textile sector remained the single most important industry from the point of view of employment industry in Haryana.

Kumar (2005) revealed that Punjab's manufacturing sector was dominated by industrial group of food and beverages, textile and wearing apparels, basic metal, machinery and equipment, motor vehicles and chemicals and overtime this product mix pattern didn't experience much change.

Need and Significance

The textile industry is also one of the largest providers of employment and accounts of almost 20 percent of industrial employment in the state of Punjab throughout the period of study. It has been noted that even with the high level of mechanization, the chances of machine replacing human are minimum in the sector due to essential skill requirements. It provides employment opportunity to semi-literates and lower sections of the society where the incidents of unemployment are most glaring. Most importantly, the textile sector is one of the biggest employment-providing sectors to women, highly neglected section of society. Hence, any boost to textile industry will definitely provide and offer opportunity of large number of employment to the masses in the state of Punjab.

The elimination of quota restriction under multi-fibre agreement (MFA) and implementation of World Trade Organization (WTO) agreement on textile and clothing has increased the potential for global trade in textile, thus providing greater export opportunity and at the same time exposing the domestic industry to higher import penetration. The industry has to improve its efficiency and productivity to meet emerging global competition.

The textile industry in Punjab is being looked as a very high-quality conscious industry. Our textile industry is one of the few in the world that passes from the raw material to finished product stage. The state has decided to go hi-tech to tap the world market. Hence, foregoing discussion triggers our concern with such dominant industry. Can they be able to face the competitive pressure of liberalisation, privatisation and globalisation? Did they witness structural changes? Whether share of employment, output, value added has undergone a dynamic changes or not in this area? In this paper an attempt has been made to analyse the percentage share, trend growth rates of important variables and elasticity pattern of textile industry in organised manufacturing sector of Punjab.

Objectives

To calculate percentage share, trend growth rate of important variables, employment and output elasticities of textile industry and organised manufacturing sector of Punjab and to do comparative analysis for pre- and post-reform period.

Scope, Data Sources, and Prices

The scope of study is confined to textile industry and organised manufacturing sectors of Punjab. Major source of data for the study is Annual Survey of Industries (ASI). Various issues of annual survey of industries, www.circonindia.com and statistical abstract of Punjab are used to get the detailed information on industrial characteristics such as value of output, value added, employment, capital assets, emoluments, etc. For making price corrections in the reported data on value of output, gross value added, wholesale price index of corresponding industry for manufactured commodities has been used. Wholesale price index for transport and machinery has been used to adjust the data on fixed capital. Consumer

price index has been used to deflate the emoluments. Every deflator has 1993–94 as a base year.

Period of Study

This study covers the period from 1980–81 to 2002–03; it has also been divided into two phases, pre-reform period (1980–81 to 1990–91) and post-reform period (1991–92 to 2002–03) to capture the impact of change in policy regimes.

Methodology

Trend growth rate of important variables is calculated with the help of semi Log linear relationship.

Employment and output elasticity are calculated by regression method.

Employment Elasticity will be calculated by using the following equation:

$$\text{Log } L_t = a_0 + a_1 \log Y_t - a_2 \log K_t$$

Where:

L_t is level of employment in period 't'

K_t is level of capital in period 't'

Y_t is level of output in period 't'

a_1 and a_2 are elasticity of employment with respect to output and capital respectively, $a_2>0$ implies labour and capital are compliments and $a_2<0$ implies labour and capital are substitutes.

Output elasticity with respect to labour and capital measure the change in output due to one unit change in labour and one unit change in capital. For estimating output elasticity the following equation is used:

$$\text{Log } Y_t = a_0 + a_1 \text{ Log } L_t - a_2 \log K_t$$

Here a_1 a measure elasticity of output with respect to labour and a_2 measure elasticity of output with respect to capital.

Present study has been divided into four sections. In the first section, percentage share has calculated. In the second section, trend growth rate of important variables are calculated and comparative analysis has been done for pre- and post-reform period. In the third section, pattern of employment and output elasticity have been calculated. In the last section, concluding remarks are given.

Percentage Share of Important Variables of Textile Industry

It is clear from Table 1 that in textile industry the percentage share of number of units decreased significantly from 27.20 percent to 16.01 percent where as percentage share of employment level remained approximately same, i.e. 20 percent during the study period. As demand for labour is a derived demand, increase in employment level must have contributed in generation of more output. This makes us to explore the output scenario. The table reveals that percentage share of output of textile sector almost remained at the same level, i.e. 20 percent.

The percentage share of gross value added increased in pre-reform period and it followed no clear-cut trend in post-reform period. A clear-cut scenario emerges that percentage share of gross value added remained more than that of output throughout study period except 1980–81 and 1995–96. Now value added is market determined variable, it must have fetched higher prices in the market. It is evident from the table that the percentage share of gross value added is the highest in 1990–91 during the study period. It implies that due to onslaught of multinational corporation and global competition higher

Table 1: Percentage Share of Important Variables of Textile Industry (Percentage share)

Year	Employment	Output	Gross Value Added	Number of Units	Fixed Capital	Emoluments
1980–81	20.23	18.72	13.70	27.20	2.82	16.45
1985–86	21.46	21.45	21.56	21.29	6.52	17.24
1990–91	20.75	21.35	24.24	18.36	7.23	16.39
1995–96	19.42	15.98	13.95	18.39	7.14	13.57
2000–01	20.12	16.12	16.76	12.98	5.98	13.12
2001–02	19.22	14.23	16.58	13.21	4.34	16.14
2002–03	19.95	17.34	18.02	16.01	4.30	16.12

Source: Calculated from various issues of *ASI*.

prices cannot be charged in post-reform period. It is evident from the table that percentage share of output in textile sector remained same, yet percentage share of gross value added by textile sector (13.70 percent in 1980–81 to 18.02 percent in 2002–03) witnessed a remarkable jump.

It is clear from the table that the percentage share of emoluments has followed declining trend (just like employment variable) in pre-reform period. As it is expected that declining percentage share of employment will lead to declining percentage share of emoluments, exactly the same has happened here. However, in post-reform period (except 1995–96), percentage share of emoluments has followed increasing trend on the pattern of employment level.

In the textile sector percentage share of emoluments (approximately 16 percent) remained same throughout the study period. When bureaucracy ruled the state and there was political turmoil, percentage share of fixed capital of textile sector have followed acceleration principle in pre-reform period. It is very interesting result and is contrary to common perception that when investment in organised manufacturing sector followed decreasing trend, textile sector gained on this front. Although percentage share of capital formation in textile sector became double, yet its percentage share in employment and output level remained the same. Traditionally, textile industry is supposed to be labor-intensive industry, has angled its status and moved toward capital-intensive industry.

Trend Growth Rate of Important Variables

It is clear from Table 2 that the organised manufacturing sector of Punjab experienced 5.69 percent per annum significant growth rate of employment in pre-reform period, but negative (–2.03 percent per annum) growth rate in post-reform period, i.e. period of "jobless growth". Growth rate of employment was more in pre-reform period vis-à-vis post-reform period for both the sectors. Growth rate (significant) of emoluments in organised manufacturing sector is higher than growth rate (significant) of employment in the study period. However, in pre-reform period, growth rate of emoluments is higher than that of employment in textile industry. It implies that existing skilled labour force has been paid higher wages and perks rather than creating new employment opportunities for these industries.

This is well-documented in literature that the output of industrial sector can either be increased by the setting up of new factories (capital formation) or by raising the productivity and efficiency. Growth rate of output in organised manufacturing sector of Punjab is higher and significant (9.50 percent per annum) in pre-reform period vis-à-vis post-reform period (5.13 percent per annum but significant). Same momentum of output was not maintained in post-reform period. Growth rate of output is significant and higher for textile industry in pre-reform period as compared to post-reform period.

Growth rate of output and value added did not maintain same pace. Their difference helps us to capture the undercurrents. Growth rate of gross value added of organised manufacturing sector and textile sector is higher than that of growth rate of output of corresponding industries in pre-reform period, which implies that these industries must have fetched the higher prices from the market. The growth rate of fixed capital of organised manufacturing sector and textile industry is higher in post-reform period than that of pre-reform period. Even in post-reform period growth rate of fixed capital is not distributed equally. It implies fixed capital has followed acceleration in capital formation in organised manufacturing sector and textile sector. Most surprisingly, high growth of fixed capital failed to achieve higher growth in employment, output and value addition. One possible reason may be low marginal productivity of factor of production or production process was going through a phase of external diseconomies.

Employment and Output Elasticity Pattern

Expansion of industrial manufacturing alone cannot be expected to solve the unemployment and underemployment problems in many less-developed countries (Morawetz, 1974). The employment elasticity with respect to output and capacity expansion should also be highly significant. Elasticity measures the rate of growth of employment in a specific sector resulting from 1percent rate of growth in output and capital stocks. Keeping in view the dismal scenario of educated employment and significant share of industrial sector in state domestic product, employment elasticity with respect to output and capital has been calculated to discern the potential of industrial sector in generating employment.

Employment elasticity with respect to output describes how far output of an industry has been able to generate employment in that industry. It is clear from Table 3 that in pre-reform period the value of employment elasticity with respect to output has turned to be low positive (less than one) but significant in the textile sector and the organised manufacturing sector. Positive employment elasticity indicating till now these industries is labour-intensive, i.e. employment is generated in these industries.

Table 2: Trend Growth Rate of Important Variables

(Percent per annum)

Variable	Industry	1980–81 to 1990–91	1991–92 to 2002–03	1980–81 to 2002–03
Employment	Textile	3.61*	–0.39	0.72**
		(4.97)	(–0.74)	(2.39)
	OMS	5.69*	–2.03**	1.87*
		(13.01)	(–2.00)	(3.69)
Output	Textile	9.20*	3.56*	4.26*
		(10.84)	(3.18)	(8.56)
	OMS	9.50*	5.13*	7.02*
		(12.22)	(7.60)	(21.11)
Gross Value Added	Textile	12.84*	2.57	5.39*
		(15.10)	(0.004)	(8.16)
	OMS	9.86*	3.4l*	6.90*
		(8.08)	(3.61)	(13.75)
Emoluments	Textile	6.41*	–1.19	2.65*
		(6.65)	(–1.21)	(5.00)
	OMS	9.62*	0.56*	4.31*
		(20.27)	(5.27)	(6.15)
Fixed Capital	Textile	5.48*	8.70**	9.20*
		(2.82)	(2.37)	(8.49)
	OMS	0.78	13.00*	5.49*
		(1.38)	(8.89)	(7.00)

Source: Calculated from various issues of ASI.
Note: Figure within bracket is t values.
* 1% level of significance.

However, this value is turned to negative insignificant for textile sector in post-reform period. Negative employment elasticities implying decline in employment with increase in output, meaning thereby they are relatively capital intensive. So, unit of output generation leads to decrease in employment implying: either employment of labour reaches to its maximum position or these industries require more capital for production of one unit of output.

The employment elasticity with respect to capital indicates whether an extra unit of capital leads to decrease in employment of labour or increase it. In the former case, capital acts as substitute for labour and the latter implies complementary between two. Employment elasticity with respect to capital for organised manufacturing sector is 0.36 and significant, in the post-reform period, which indicates that labour and capital are complimentary to each other. This is a good sign for Punjab industry because organised manufacturing sector uses labour and capital in such a proportion that more use of capital generates more labour. In pre-reform period this variable is negative and statistically insignificant value, which depicts that labour and capital are substitutes for each other. In textile industry, the negative and significant value (in pre-reform period) of employment elasticity with respect to capital puts a question mark on the absorption of labour with increase in capital. Textile sector has shown complimentary nature of labour and capital in post-reform period and substitute nature of labour and capital in the pre-reform period.

Output elasticity with respect to capital and labour provides a measure for relative importance of the factor of production. The results depict (Table 3) that in the organised manufacturing sector of Punjab, capital variable is turned to be low and negative (–0.44) but significant in the post-reform period, However, the output elasticity with respect to labour is positive (1.62) and significant in pre-reform period. Labour has remained the important factor of production during pre-reform period and capital variable has played secondary role, i.e. its value is low positive but statistically insignificant.

Table 3: Employment and Output Elasticity of Textile and Organised Manufacturing Sector

Manufacturing Group	Employment Elasticity				Output Elasticity			
	Output		Capital		Capital		Labour	
	T_1	T_2	T_1	T_2	T_1	T_2	T_1	T_2
Textiles	0.29*	–0.06	–0.2**	0.07**	0.16	–0.02	2.23*	–0.76
	(3.88)	(–0.67)	(2.28)	(2.07)	(–0.51)	(0.14)	(3.88)	(–0.67)
Organised	0.58*	0.52	–0.14	0.36*	0.14	–0.44*	1.62*	0.53
Manufacturing Sector	(11.84)	(1.87)	(0.57)	(3.12)	(0.34)	(5.21)	(11.84)	(1.87)

Source: Calculated from various issues of *ASI*
Note: T_1: 1980–81 to 1990–91, T_2: 1991–92 to 2002–03.
* 1% level of significance,** 5% level of significance
Figure with in bracket are 't' ratios.

In the textile sector, labour has significant value (2.23) in pre-reform period, but capital variable has witnessed statistically insignificant value in pre-reform as well as post-reform period. Positive output elasticity with respect to capital for textile and organised manufacturing sector (during pre-reform period) implies marginal productivity of capital is positive for this industry. This clearly suggests that use of capital will raise the production level. Negative output elasticities with respect to labour for textile (during pre-reform period) implying that extra unit of labour will reduce the output level. Marginal productivity of labour is negative for the textile industry.

Findings

The organised manufacturing sector and textile industry observed "jobless growth" during post-reform period. Percentage share of output and employment of textile sector almost remained same level, i.e. 20 percent each during the study period. Employment elasticity with respect to output is positive but significant in the textile sector and the organised manufacturing sector in pre-reform period. This positive employment elasticity indicates its labour-intensive nature. But, employment elasticity with respect to output is negative insignificant for textile sector in post-reform period. This negative employment elasticity indicates its relatively capital intensive nature. The organised manufacturing sector and textile industry recorded complementary nature of labour and capital in post-reform period but substitute nature of labour and capital in pre-reform period.

Conclusion and Policy Implications

The analysis of organised manufacturing sector reveals that the industrial situation in the state was promising during pre-reform period but there was a dismal scenario in post-reform period. The organised manufacturing sector and textile industry recorded higher trend growth rate of fixed capital in post reform period as compared to pre-reform period, But the growth of fixed capital failed to generate higher growth rate of outputand employment for the above industries during post-reform period i.e. period of 'jobless growth'. The economic reforms have no doubt ushered in an economic boom but this has not created any jobs. The so-called talk of job boom after looking into statistics turns out to be a myth. No doubt, jobs being generated in software, information technology and service sector but traditional sector has not created enough jobs, worse is agriculture and manufacturing sector.

In textile sector, percentage share of output and employment almost remained same , i.e. 20 percent each during the study period. Capital stock growth got better in the post-reform period, it may reflect in the high growth rate in output in the coming years. Restrictions of multi-fibre agreement under world trade organisation are done away with; hence, international market may provide huge opportunities to export textile products. In textile industry one unit of output generation leads to decrease in employment implying: either employment of labour reaches to its maximum position or these industries require more capital for production of one unit of output. Labour and capital are complimentary to each other for textile industry and organised manufacturing sector in the post-reform period. This is a good sign for Punjab industry because both sector use labour and capital in such a proportion that more use of capital generates more labour.

Although industrial sector of state is dominated by small sized factories, yet a tendency towards the establishment of large-sized units has set in. It is a well-known fact that Punjab's industry was and continues to be export based. The situation demands for the restructuring of industrial pattern and process, which can

help to resolve the structural problems of the existing model of growth. In rural areas of Punjab, large-sized labour-intensive units of textile industry should be established so that production and expenditure linkages may be generated.

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The reform of state industry, and most directly related to that, the banking sector, is enormously daunting.

—William Kirby

Feature

India's Poverty and Slavery: Trends, Issues, and Challenges

BADAR ALAM IQBAL, W.C.J. GROBLER AND SIBGHATULLAH FAROOQI

Since the independence of India, one of the biggest challenges that the country has been facing is reduction in poverty. More than six decades have been passed out; poverty has been persisting in the country especially in rural India (the real India) popularly known as "Bharat." India contributes a third of the global poor. China contributes 13 percent of the global poor. In respect of poverty, China is better off than India. From time to time, different studies have been carried out to measure the magnitude of Indian poverty, but the correct picture has not yet emerged. The present article tries to analyze emerging trends in Indian poverty on the one hand and on the other hand to discuss different issues which are coming up in regard to taking measures in reducing poverty The article further examines a comparison of India with China's poverty scenario.

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Introduction

Poverty can be defined as economic poverty, measured in terms of the average per capita consumption or as capability poverty, defined more in terms of outcomes (functioning and capabilities), and including other dimensions, other than economic poverty particularly health and education status (Srivastava, 2012).

The IBRD (World Bank) also defines extreme poverty as those living on less than USD 1.25 per day and moderate poverty as less than USD 2 per day. This is based on the purchasing power parity (PPP Theory) that compared the amount of currency needed to buy the same item in different nations (World Bank 2013).

Harsh Facts

It is pertinent to point out here that one-third of global deaths or nearly 18 million persons a year or nearly 50,000 a day are because of poverty-related causes. Every year 11 million children die before they turn five. Over 800 million people go to bed hungry every year (*Sunday Express*, 2013). Today, there are still 1.2 billion people living in extreme poverty in African, South Asian, and Latin American continents. Proportion of the developing world's population living in extreme poverty has gone down from 28 percent in 1990 to 21 percent in 2011. Sub-Saharan Africa still accounted for more than one-third of the global extreme poor. There are more than twice as many as extremely poor people in Sub-Saharan Africa (SSA); i.e., 414 million than there were 30 years ago with a figure of 205 million. China accounts for 13 percent of the global poverty s compared to 22 percent of India. From 1981 to 2010, China has taken out 680 million out of poverty, more than the entire population of Latin American region.

How to Measure Poverty?

There are two well-defined concepts in respect of measuring poverty; i.e., absolute poverty and relative poverty.

Absolute poverty means to set standard across economies, which is consistent over a period of time. In the United States of America, absolute poverty measurement is based on Agriculture Department's economy food plan multiplied by factor of three, adjusted for inflation. The multiplier is always based on research indicating that food costs accounted for nearly one-third of money income.

Relative poverty means poverty based on social context. For example, relative poverty can be measured in terms of income inequality (Gini). The main poverty line used in the OECD and European Union (EU) countries is based on economic distance; i.e., a level of income usually set at 60 percent of median household income. Income inequality for world as whole is diminishing, driven by the income growth rate in China.

Poverty Indicators

Incidence of poverty means (headcount index) the share of the population whose income or consumption is below the poverty line, i.e. the share of the population that can not afford to buy basic goods for their survival.

Depth of poverty (poverty gap) provides data and information in respect to how far off households are from the poverty line. This measure captures the mean aggregate income or consumption shortfall relative to the poverty line across the whole population.

Poverty severity (squared poverty) indicates accounts for the distance separating the poor from the poverty line, as well as inequality among poor.

Tracking the Line

Usually, developed countries set their poverty lines in relative terms rather than absolute terms. This indicates that a rise in the income of the top rich results into more poverty if everything else remain the same. Also, a poverty line that is relative to the national average provides an idea of the inequality in society.

The United States of America unlike other Western economies uses an absolute poverty measure. The poverty line there was created in 1963–64. Every year this calculation is adjusted for inflation.

India versus China in Terms of Poverty

India's poverty scenario is much better than China's and the level of poverty between the two economies is not very different. It is an undisputed fact that Chinese economy has witnessed substantially faster growth than Indian economy which is being considered as "sliver lining." Accordingly, the welfare and quality of life of the poor people in china improved at a much faster rate than India. This has been due to the fact that Chinese GDP level and GDP growth are considerably high. Today Chinese forex reserves amounted at USD 3.5 trillion. It is pertinent to mention here that there is an important non-government household survey conducted in 2011–12.*[9] According to the Survey, the Gini index of income inequality in China is 0.61, much larger than Chinese Government reported result of a Gini of 0.48 (Bhalla, 2013).

Indian data are borrowed from NSS consumer and expenditure survey for the years 1999–2000 and 2011–12 and in case of China 1999–2000 and 2010–11 from the World Bank website. According to the analysis made out head count ratio of poverty for the World Bank's poverty line for developing countries including India and China in terms of PPP stood at USD 1.25, which also just happens to be India's official poverty line. The poverty levels from India in 1999–2000 and 2011–12 are 42.9 percent and 21.9 percent respectively. On the other side, China's poverty has declined from 35.6 percent in 1999–2000 to 11.6 percent in 2010–11. In case of India the pace of decrease is stood at 1.8 percentage points per annum, while China's pace of decline stood at 2.2 percentage points a year.

It is also pertinent to mention here that low level of household consumption growth observed in case of India is just 2.8 percent per annum. This means efficiency—inclusive index at 0.6, which twice of level witnessed in China. It is further noted that survey consumption growth in India, i.e. 2.8 percent per year is considerably below national accounts growth at 4.8 percent.

If nothing else is changed but just the mode of collection of data on household on consumption, the result is that India indicates a pace of poverty fall almost identical of China, i.e. 2.1 ppt for Type 2 recall data compared to 2.2 ppt for China. This means an efficiency index for India is one and half times higher than China. i.e. 10 percent growth in average consumption reduced poverty in China by 0.3 percentage points, in India by 0.74 percentage points.

Indian Scenario

One of the chronic issues which the country has been facing since its dependence is poverty especially rural poverty wherein poverty line is Rs 27 while it is Rs 33 for urban areas at 2011–12 prices which unbelievable as no one can meet the expense and survive on such income

Table 1: Trends in Per Person Daily Expenditure on Selected Items in 2011–12 (Consumption in Percentile and Daily Expenditure in Rs)

Items	Rural 20–25	Rural 45–55	Rural > 91	Urban 20–25	Urban 45–55	Urban > 91
Cereals & Pulses	5.6	6.5	8.6	6.4	7.6	10.1
Milk, Oil & Spices	3.6	5.7	13.6	6.1	9.1	17.9
Vegetables & Fruits	2.0	2.5	5.0	2.6	3.8	8.0
Eggs, fish & meat	0.9	1.3	3.3	1.5	2.2	4.0
Basic Food (Sum)	12.1	16.0	30.5	16.6	22.6	40.1
Discretionary food (beverages, packaged, Served food)	1.6	2.1	5.9	2.2	3.7	20.0
Expenditure on all food	13.7	18.1	36.5	18.8	26.4	60.2
Expenditure (Food and Non-food)	26.0	35.6	10.5.0	39.4	61.7	249.8

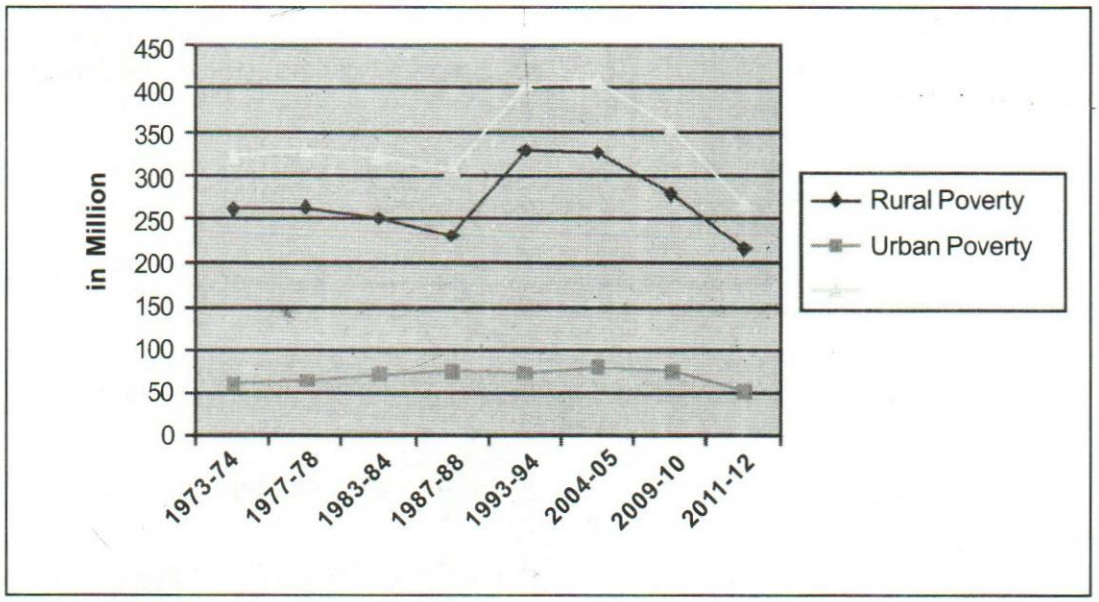
Source: National Sample Survey Data, Kolkata, 2011–12.

per day per person. Even the rural rich spend just Rs 105 per day (Bhalla, 2013a).

Can a person survive on Rs 30 a day? Table 1 indicates that top 10 percent of rural people spend on an average Rs 30.50 a day on main food whereas the marginal poor spend only Rs 12 a day. Similarly, middle rural people spend only Rs 4 a day more on basic food than poor India. Even the richest urbanities spend only Rs 40 per person per day on basic food or in terms of rural prices Rs 33. These above figures are nearly the same with regard to the richest ruralites. The poor serving and necessary food expenditure does not separate the poor from the urban elite.

Poverty Trends in India

There is no doubt that poverty in India has declined between 1973–74 and 2011–12 by a margin of 19.2 percent Table 2. Rural poverty went down by 0.17 percent, whereas urban poverty has decreased by a margin of 0.12 percent. This indicates that rural poverty declined by higher margin as compared to urban poverty (Figure 1).



Source: Prepared by the author from the data given in Table 2.

Figure 1: Emerging Trends in Number of People below Poverty Line (Rural, Urban and Total) between 1973–74 and 2011–12

Table 2: Trends in Number of People (Rural and Urban) below Poverty Line between 1973–74 and 2011–12 (in Million)

Year	Rural Poverty	Urban Poverty	Total Poverty
1973–74	261.3	60.0	321.3
1977–78	264.3	64.6	328.9
1983–84	252.0	70.9	322.9
1987–88	231.9	75.2	307.0
1993–94	328.6	74.5	403.7
2004–05	326.3	80.8	407.1
2009–10	278.2	76.5	354.7
2011–12	216.5	52.8	269.3

Source: The Indian Express, New Delhi, August 7, 2013, p. 13.

In relative terms, total poverty (poverty ratio) in India went down from 54.9 percent to 21.9 percent between 1973–74 and 2011–12. Rural poverty ration declined from 56.4 percent to 25.7 percent and urban poverty decreased from 56.4 percent 13.7 percent (Figure 2).

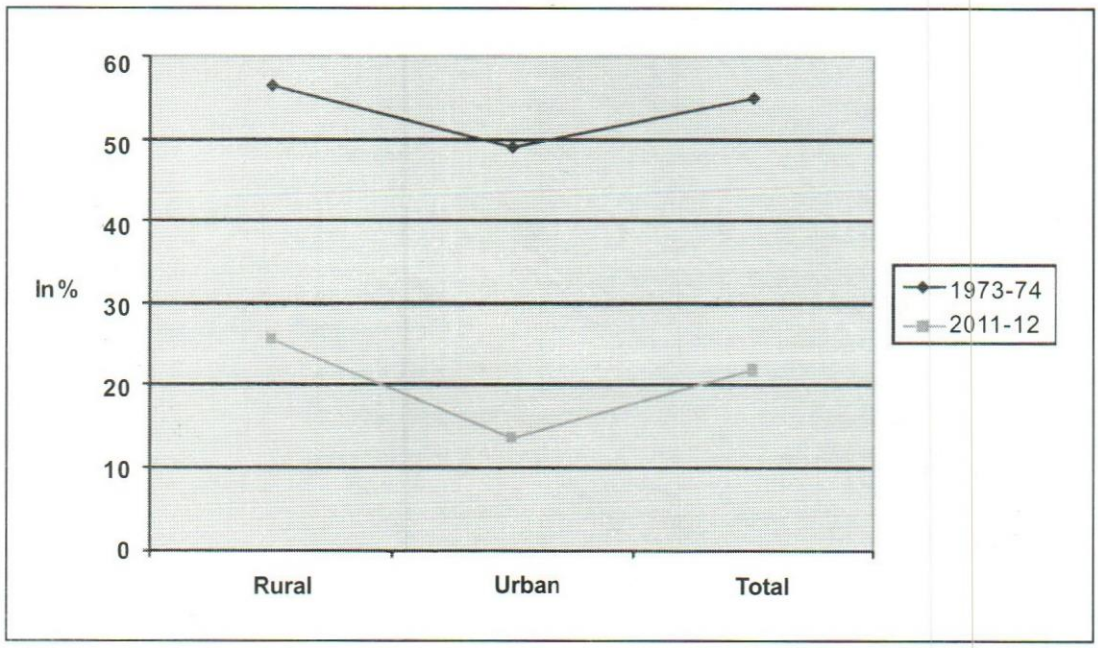
The National Sample Survey Office (NSSO) has released the latest large sample survey for household consumer expenditure for the year 2011–12, which reveals that poverty rate drops by over three times since the year 2003–04. Annual average decline in poverty from 1993–94 to 2004–05 stood at 0.74 percentage points for total poverty and the figures for rural and urban poverty were 0.75 and 0.55 percentage points, respectively. While total poverty, rural poverty, and urban poverty figures between 2004–05 and 2011–12 stood at 2.18, 2.32, and 1.69 percentages point respectively.

Although poverty rate in the country declined since 2004–05, the new poverty line in rural areas in 2011–12 stood at Rs 27.20 per day and for urban areas the poverty line comes to Rs 33.33 per day. India's Planning Commission has chosen to use a family of five people for calculating the all India poverty line in terms of consumption expenditure. This works out to Rs 4,080 per month in rural areas and Rs 5,000 per month in urban areas.

The national poverty line for rural areas is estimated at Rs 816 per capita per month and Rs 100 per capita per month in urban areas based on the Tendulkar methodology. This means that a person subsisting over this level would not be counted as poor or living below the poverty line, though this marks a marginal improvement than the earlier poverty line of Rs 22.42 per day for rural and Rs 28.35 per day for urban people.

State-wise Trends

However, wide disparities are being persisting across states on the latest poverty projections. NSS data reveals that that the highest poverty is recorded in case of Chhattisgarh as high as 39.93 percent followed by Jharkhand with a figure of 36.96 percent, Manipur with a figure of 36.89



Source: Prepared by the author from the data given in *The Indian Express*, New Delhi, August 7, 2013, p. 13.

Figure 2. Trends in Poverty Ratio between 1973–74 and 2011–12

Table 3: State-wise Population below Poverty Line in 2011–12

States	Rural People in Lakh	Rural people in %	Urban People in Lakh	Urban people in %	Total people in Lakh	Total people in %
Rajasthan	84.19	16.05	18.73	10.69	102.92	14.71
Bihar	320.0	34.06	37.75	31.23	358.15	33.74
Chhattisgarh	88.9	44.61	15.22	24.75	104.11	39.33
Delhi	0.50	12.92	16.46	9.84	16.96	9.91
Gujarat	75.35	21.54	26.88	10.14	102.33	16.63
Jharkhand	104.09	40.84	20.34	24.83	124.33	36.96
Karnataka	92.80	24.53	36.96	12.25	129.76	20.91
Kerala	15.48	9.14	8.46	4.97	23.95	7.05
Madhya Pradesh	190.95	35.74	43.10	21.00	234.06	31.46
Maharashtra	150.56	24.22	47.36	9.12	197.92	17.35
Orissa	126.14	35.09	12.39	17.25	138.53	32.59
Goa	0.37	6.81	0.38	4.09	0.75	5.09
Uttar Pradesh	479.35	30.40	118.84	26.06	598.19	29.43
West Bengal	141.14	22.52	43.83	14.66	184.98	19.98
All India	**2,166.58**	**25.70**	**531.25**	**13.70**	**2,697.83**	**21.92**

Source: Planning Commission, Government of India, 2013.

percent, Arunachal Pradesh's figure stood at 34.67 percent and Bihar with a figure of 33.47 percent (Table 3). This indicates that country's North-East region has the largest people who are poor and below the poverty line.

Goa has the lowest percentage of people living below the poverty line at 5.09 percent. Next comes Kerala with a percentage of 7.05. Himachal Pradesh comes after Kerala with a figure of 8.06 percent, followed by Sikkim with a percentage of 8.19 and Punjab has 8.26 percent people below poverty line. The most surprising trend is that the *poverty line for rural Orissa is much lower than national average at Rs 695 per capita per month of Rs 23.1 per person per day.* Chhattisgarh's poverty line for urban people was the lowest at Rs 849 per person per month or Rs 28.3 per day per person (Tendulkar, 2012).

Puducherry's poverty line was the highest above the national average at Rs 1,301 per person per month in rural areas and Rs 1,309 per person per month in urban areas. Similarly, Goa, Delhi, Punjab, and Haryana too have poverty lines well above the national average.

The Kerala state's poverty line for rural people is above the national average amounted to Rs 1,018 per person per month. For urban people it is lower than the national average at Rs 987. This all indicates that poverty ratio is the least in Goa and the highest in Chhattisgarh.

Education and Health as a Means of Reducing Poverty

Growth is (typically) good for the poor people but it is no less true that inequality is (typically) bad for poor persons. It is undisputed fact that poverty reduction does tend to come with aggregate growth, although not always, and not to same degree. The same rate of growth (positive) can bring anything from rapid poverty reduction to little or no progress, depending upon initial inequality. The more unequality the pie is shared less the poor people gain from inequality in the size of pie (Ravallion, 2013).

It is true that it is just income inequality that matters. India's inequalities in Human Development are currently doing more harm. Equitable, broad-based education is the main contributory factor to assuring the gain from technical progress and economic growth is widely shared.

Inequalities in education attainments interact strongly with country's growth process in determining the impact of that growth on poverty. The more educated and better fed poor persons are, the better their choice of participation in the potential and opportunities created by an expanding non-farm market economy, and contributing to that expansion. In this regard, China's poor people had a huge initial advantage in education at the time its market-oriented reforms began in the later part of 1970s.

Spending Less on Education

It is an undisputed fact that growth of country could not be materialized if sufficient expenditure is not spends on education. The present trends indicate that Indian households are earmarking less of their expenditure to education. These are spending more on eating and travel. Expenditure on education, in fact, has been on the decline since 2008–09 (Table 4).

Educational expenditure has remained stagnant in 2011–12 and 2010–11 at 1.3 percent down from 1.4 percent in 2009–10. In 2004–05, expenditure on education was 1.7 percent of the total consumption expenditure.

For most of the analysts, expenditure on education tends to go up, although not as fast as in sectors like

Table 4: Pattern of Indian Spending between 2004–05 and 2011–12

Item	2004--05	2008–09	2010–11	2011–12
Food, beverages	40.0	37.2	36.4	35.7
Food	33.8	30.4	30.1	29.0
Hotels & estaur	2.0	2.3	2.3	2.6
Medical Care	5.0	4.3	3.9	3.7
Education	**1.7**	**1.5**	**1.3**	**1.3**
Cloth & footwear	6.6	6.8	8.3	7.5

Source: *Times of India*, New Delhi; March 10, 2013, p. 6.

Note: Percentage distribution of Private Final consumption expenditure at (current prices).

durables. Whereas there has been a significant rise in public expenditure on public sector education, i.e. from 3.3 percent of the GDP to 4.0 percent of the GDP for 2013–14, this should have been a reason for a decline in expenditure on private education (*Sunday Times,* 2013). There has been an overall increase in consumer expenditure, the rise in expenditure on education has not been parallel. Expenditure on education as a percentage of the total consumption expenditure would only continue to decline. Spending on education too is unlikely to grow faster than overall expenditure. Despite an increase in cost of education, only a small section of the people are shifting from moderate level to high level of education.

India Better but Behind in Healthcare

Another significant challenge is that Indians live longer but not as long as other developing countries in South Asia. It is true that Indians live longer lives, but illness, disability and relatively early death remain as severe healthcare challenges. It is also astonishing that India seems to be lagging behind many of its neighbors including China on both life expectancy and death rates (Table 5).

Table 5: India Better but Behind in Healthcare of Its Neighbors 2010–11

Country	Life Expectancy		Death Rate (Ranking)	
	1990	2010	1990	2010
India	58.3	65.2	155	139
Nepal	58.8	69.2	142	108
Bhutan	58.8	69.4	141	107
Bangladesh	58.9	69.0	143	113
Pakistan	62.3	65.7	123	127
China	69.3	75.7	92	63
Sri Lanka	72.3	75.5	45	68

Source: GBD, 2010 (appeared in *The Indian Express*, New Delhi, March 5, 2013).

Note: Higher ranking (among 187 countries) signifies higher death rate; India's rate dropped from 1,447.43 per lakh (1990) to 1,096.92 (2010).

Indians' life expectancy at birth improved from 58.3 in 1990 to 65.2 in 2010, but most of the Indian neighbors remained ahead in both years. India has also improved its death rate during the same period, whereas its neighbors had a mixed record but remained ahead of India. These facts are the outcome of research completed at IHME in the US (*Indian Express,* 2013).

Researchers examined more than 300 diseases, injuries, and risk factors and have come to an inference that a limited number of distinct reasons are responsible for the major chunk of the Indian health burden. The most alarming cause is ischemic heart disease, followed by chronic obstructive pulmonary disease, stroke, diarrhea diseases lower respiratory infections, tuberculosis, and preterm birth complications, self-harm, road injury and diabetes. What is needed is to bring awareness about health policies and investments by the Government. The information must be up-to-date, comprehensive and accurate. With these new ways of making the data available, understandable, people everywhere for the first time could see the incredible performance being witnessed in health and the daunting challenges that remain.

Suicide rates from women aged from 15 to 49 increased from 5 percent of deaths in 1990 to nearly 10 percent by 2010. Sixty percent fewer young children have died of communicable diseases. Non-communicable

diseases and injuries are creating more strains on health; communicable diseases and maternal health problems are less threatening. Strokes have increased as a cause of death, as have suicides (IHME, 2010).

During the last two decades, risk factors leading to major disease conditions in India have changed significantly, which have crucial implications for how the country should plan to improve population health in India.

A Case of Uttar Pradesh

A survey of 3,500 farm households in Uttar Pradesh paints out a grime scene or scenario in regard to expenditure on education (5.9 percent) and healthcare (4.4 percent) during 2011–12 (*Indian Express*, 2013 a). The survey also reveals that in UP the household are hands to mouth and they are struggling for basic amentias. Food items accounted for more than 48 percent of the total expenditure (Table 6).

Table 6: Annual and Monthly Household Expenditure in Uttar Pradesh in 2011–12

Item	Annual (in Rs)	Per Month (in Rs)	Per Day (in Rs)	% Share
Total Food Items	**33,600**	**2,800**	**93.3**	**48.48**
Electricity and fuel	8,940	745	24.8	12.79
Education	4,116	343	11.4	5.89
Health care	3,048	254	8.5	4.36
Total of other than food items	**27,348**	**2,279**	**76.0**	**39.13**
Grand Total	**69,888**	**5,824**	**194.1**	**100**

Source: A.K. Singh, Giri Institute of Development Studies, Lucknow, 2012.

Annual household expenditure, including the value of home produced items, of an average farm household is Rs 69,888. This comes to just Rs 194 per day for a seven-member household. Out of this amount, Rs 96 is spent on food, and Rs 25 on fuel, electricity and gas.

Breaking the figures mentioned above, further into per capita expenditure terms, the same comes to a meager Rs 27.73 per day, of which a person spends Rs 13.33 per day on food, including Rs 6.83 on cereals and pulses and Rs 6.50 on fruits, vegetables, milk and meat. The most pertinent thing to point out here that these figures are close to the NSSO's estimates of per capita daily expenditure of Rs 30 in rural areas of UP in 2010–11.

Even out of this Rs 13 expenditure on food, 55 percent of the same spend on home produced products and remaining 45 percent is monetary expenditure on market purchases. Nearly three-fourth of cereals and pulse requirement, and one-third of milk, fruits and vegetables consumption is met from home produce. Meat, fish and eggs are generally purchased (Singh, 2012).

The average monthly household expenditure in the non-food category is Rs 745. Nearly of half this, is spent on power and fuel, that is electricity, gas and fuel. Shockingly, 20 percent of the non-food expenditure is on beedi, cigarettes and intoxicants and only 4.4 percent on education, and health accounts for 6 percent.

Even if one considered some downward bias due to response errors, the survey still pointed out "stark poverty" in rural areas of Uttar Pradesh. The survey also pointed out that the Planning Commission estimates are not far from reality. Landholdings of farmers in UP have become so small that they can hardly provide sustenance to the family (Planning Commission, 2013). No wonder 40 lakh farmers have moved out of cultivation from 2004 to 2012. All claims of the State and Central Governments with regard to poverty alleviation fall flat in the face of these findings. Clearly, the benefits of government programmes are not reaching the intended beneficiaries.

Another Case of Gujarat

Gujarat's growth under Midi Chief Ministership has been neither equitable nor inclusive (Bhalla, 2013b). Poverty at national has declined by 7.7 percentage points, whereas in case of Gujarat the same has gone done by 6.3 percent between 2009–10 and 2011–12.

In Gujarat, the non-disadvantageous have poverty decline of 15 percentage points between 1999–2000 and

Table 7: Trends in Performance Ranks of Change in Poverty from 1999–2000 to 2011–12

Item	Gujarat	Delhi	MP	Rajasthan	UP	West Bengal
SC/ST	4	11	13	12	10	5
Muslims	2	13	14	6	12	1
Disadvantaged	2	14	13	9	11	3
Average for Above	2	13	14	10	11	3

Source: NSSO Data, Government of India.

2011–12. For Schedule Castes and Schedule Tribes, the poverty declined by 28 percentage points during the period under review. Hence, the excess poverty decline fro SC/STs is 13 percentage points, and this the third largest excess decrease in the country fro SC/STs. In regard to Muslims, Gujarat is the second-best performing state after West Bengal, as the state wherein Muslim has the biggest relative decline (Table 7).

Slums Are on the Rise

The most astonishing fact is that 50.6 percent of the global population now lives in the urban areas and most alarming thing is that two-thirds of the global sum dwellers in African continent (Table 8). There are 827.6 million slum dwellers in 2010–11 who have been added to the urban population since 2000; 889 million have to live in slums by the end of 2020 (*Sunday Express*, 2013a).

Table 8: Region-wise Slums in the World 2011–12

Region	Total number of Slums	% of the total Slums
Sub-Saharan Africa	199.7	61.7
Southern Asia	190.7	37.0
Eastern Asia	189.6	28.2
West Asia	35	24.6
Latin America & Caribbean	110.7	23.0
Southeast Asia	88.9	31.0
North America	11.8	13.4

Source: UN Habitat's State of the World Cities, 2012.

According to 2011 Census, there are 68 million Indians or one in six residents in urban India lives in a slum. There are 10 all-slum towns in the country. There are 21,359 slums in Maharasthra; it being the largest one. The main concentration is in five states, namely Maharasthra, Uttar Pradesh, Jammu Kashmir, Sikkim and West Bengal. Nearly half the population of Visakhapatnam, i.e. 44.1 percent lives in slums, highest percentage-wise in India. Most slum households are electrified, i.e. 90.5 percent only marginally less than all urban households 92.7 percent; 72.7 households have phones, of which 63.5 percent have only mobile phones and 10.4 percent slum households have computers. Nearly 70 percent of households own a television.

Literacy helps ensure that poor people can effectively access the public services that help them escape poverty. The significance of mass education has long been acknowledged in India. Indeed, free compulsory education to the age of 14 years is a "directive principle of the Constitution." However, implementation has been lagged considerably, with large geographic differences and often-poor quality schooling across the states.

Addressing India's inequalities in education and healthcare are crucial for faster long-term progress against poverty, but it is not only thing that matters. Rural economic growth has long been crucial to more rapid poverty education, both from the agriculture and unskilled labor intensive services sectors. For many decades, there has been very low growth coming from rural sector, while the urban economic growth process has been disappointed in its impact on poverty.

There has been encouraging signs of noticeable change since the beginning of early years of the decade 90s, with urban growth processes starting to have more impact on overall poverty. While that is good trend, India still has a long way to go to assure that its poor people can participate in, and contribute to, the country's growth which the sine-quo-non.

The education and health care of poor persons must have greatest preference if a country wants to witness the accelerated poverty reduction, as well as for human development more broadly. That is not there as has been seen historically. History reveals that in the past the major emphasis has gone to more on education and health of non-poor persons. What is required today is that fixing the public delivery systems to assure better education and health for country's poor persons must be put centerstage so that equitable distribution could be possible which the need of hour.

Direct intervention in terms of transfer of cash or kind could play an effective role in the reduction of poverty in the country. There must be balance between promotion and protection in respect of poverty reduction.

Slavery

The globe has 29.8 million people in slavery and India tops the list for nation-wise figures having nearly 14 million slaves who are trapped in different types of slavery (Table 9). This practice has been a crime for nearly years, but the laws against slavery are poorly enforced.

Mauritania comes out worst, with an estimated 4 percent of the total population enslaved. Most are born into slavery—a deeply rooted practice. Children are owned by the same people who own their parents, to be used or sold (*Indian Express*, 2013b).

European slavery rate is the lowest in the world. However, the most surprising thing is that the UK is one of the lowest ranked countries in GSI. Survey reckons up to 4,600 people are still slaved. They include trafficked women and people, who are coerced into working in construction gangs (*The Economist*, 2013).

Table 9: Major Countries Having Largest Slaves in the World in 2013

Name of the Country	Number of Slaves
India	13,956,010
China	2,949,243
Pakistan	2,127,132
Nigeria	701,032
Ethiopia	651,110
Russia	530,121

Source: Global Slavery Index, 2013.

The shocking figures given in Table 9 are released in a recent Global Slavery Index (GSI). The index has taken into account variables/indicators; namely, debt bondage, forced marriage, sale or exploitation of children, human trafficking and forced labor across the globe.

The GSI puts India fourth in regard to prevalence of slavery (as a proportion of country's population) (Grono 2013). Mauritania, Hatti and Pakistan are placed above India as first-, second-, and third-ranking respectively. The most shocking as well as alarming issue is the exploitation of people within the country itself from severe forms of inter-generational bonded labour to child labour to commercial sexual exploitation and forced marriage.

There are 10 nations which are the home of more than 3 quarters trapped in modern slavery. These countries must be focus of global efforts. Many of the India's enslaved have not been moved from one place to another as they are enslaved in their own place, either city or village. According to *Trafficking in Persons Report* (TIP), in the early part of 2013, the number of persons in some sort of forced labor are estimated between 20 and 65 million; men, women and children mainly in debt bondage to a local land owner, forced to work in industries (*TIP*, 2013).

Pakistan has the highest 1,187 person per 100,000 and India comes next to Pakistan, with 1,129 persons per 100,000 people which largest number among 10 top enslaved nations (Table 10). China has the lowest figure with just 218 persons per 100,000 people.

It is pointed out by the Walk Free Foundation that in coming year 2014, another survey is being undertaken which aims at sharpen the existing data on slavery. But without more concerted and committed efforts from countries governments and lawmen, it is unlikely to paint a better and happier picture about the slavery in the world.

Table 10: Trends in Number of Slavery People per 1 Lakh Persons in Major Economies in 2013

Country	Number of Slaves per 100,000 people
Pakistan	1,187
India	1,129
Myanmar	727
Ethiopia	710
Thailand	708
Congo	704
Nigeria	415
Russia	360
China	218

Source: Walk Free Foundation; Australia 2013.

The major industries wherein forced labor is very common in India and other nations are brick kilns, rice mills, embroidery factories and agriculture. The *TIP* Report has further opined many instances wherein women and girls from the northeastern states and Orissa have been sold or coerced into forced marriage in states with low female-to-make gender ratios including Haryana and Punjab, forced them in prostitution.

For instance, in Meghalaya extraction of coal in private coal mines in the Jaintiya hills region is exclusively undertaken by bonded manual laborers who have come to work in the mines from neighboring states to beat acute poverty (NHRC 2012).

The major and vital reasons for large number of persons caught in slavery in the country are the difficulty in accessing protections and government entailments, like the food ration card, corruption or non-performance of safety nets and practices of land grabbing and asset domination by high-caste groups.

Conclusion

It is clearly evident from the above analysis; poverty has been declined over the years, but the same has been still persisting despite efforts made out by the Indian Government. India contributes a third of the global poor.

China contributes 13 percent of the global poor. In respect of poverty, China is better off than India. What is immediately required is that Indian Government must spend on Education and health care. In case of Muslims Gujarat is the second-best forming state after West Bengal.

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Management productivity is a more appropriate term than labor productivity. Improved productivity means less human sweat, not more.

—Henry Ford II

Database

Financial Sector : India vis-à-vis Other Countries

RAJESH SUND

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Introduction

The global financial crisis and the ensuing developments have heightened the role of emerging economies in the global context. The Global Competitiveness Report 2013–2014 released by World Economic Forum (WEF) assesses the competitiveness landscape of 148 economies, providing insight into the drivers of their productivity and prosperity. Similarly the Financial Development Report 2012 released by World Economic Forum (WEF) ranks 62 of the world's leading financial systems and capital markets, analysing the drivers of financial system development in advanced and emerging economies to serve as a tool for countries to benchmark themselves and establish priorities for reform. The rankings are based on over 120 variables spanning institutional and business environments, financial stability, and size and depth of capital markets, among other factors.

Business investment is also critical to productivity. Therefore, economies require sophisticated financial markets that can make capital available for private-sector investment from such sources as loans from a sound banking sector, well-regulated securities exchanges, venture capital, and other financial products. In order to fulfill all those functions, the banking sector needs to be trustworthy and transparent, and—as has been made so clear recently—financial markets need appropriate regulation to protect investors and other actors in the economy at large.

The financial and economic crisis has highlighted the central role of a sound and well-functioning financial sector for economic activities. An efficient financial sector allocates the resources saved by a nation's citizens, as well as those entering the economy from abroad, to their most productive uses. It channels resources to those entrepreneurial or investment projects with the highest expected rates of return rather than to the politically connected. A thorough and proper assessment of risk is therefore a key ingredient of a sound financial market.

According to the *Financial Development* Report 2012, India ranks 40th in the 2012 Index, a four-spot decline from last year. Weak results in the institutional (56th) and business environment (55th) pillars continue to be driven by an inability to enforce contracts (60th), a low degree of financial sector liberalization (58th), inadequate infrastructure (58th), and a high cost of doing business (56th). Although its factors, policies, and institutions are quite weak, India did experience a slight improvement in the financial stability pillar (46th). The change was due to score improvements across the currency stability (16th) and risk of sovereign debt crisis (47th) subpillars. India's financial intermediation results are mixed. While India ranks quite high in non-banking financial services (9th), banking financial services (45th) are an area for improvement. Financial access (45th) results are also inconsistent, with India having a development advantage in the commercial access (25th) subpillar but a development disadvantage in the retail access (51st) subpillar.

As per the *Global Competitiveness* Report 2013–2014, down one position, India now ranks 60th, continuing its downward trend that began in 2009. India continues to be penalized for its very disappointing performance in the basic drivers underpinning competitiveness, the very ones that matter the most for India given its stage of development. The inflation rate and public deficit-to-GDP ratio were dangerously close to double digits in 2012, and the debt to-GDP ratio is the second highest among the BRICS. Indeed, a March 2013 survey of sovereign debt analysts reveals an increased risk of sovereign debt default over the previous year. India's ranking vis-à-vis some of the important countries for financial market development during last three years have been shown in the following tables:

A. Availability of Financial Services

Sr. No	Countries	Rank		
		2011–12	2012–13	2013–14
1	Brazil	25	26	30
2	China	60	68	70
3	France	15	25	34
4	Germany	18	18	17
5	**India**	**45**	**44**	**45**
6	Japan	37	36	31
7	Malaysia	20	24	22
8	Philippines	50	50	40
9	Singapore	14	9	5
10	Switzerland	1	1	1
11	Sweden	6	10	13
12	Thailand	46	40	26
13	United Kingdom	4	3	6
14	United States	13	12	7

B. Affordability of Financial Services

Sr. No	Countries	Rank		
		2011–12	2012–13	2013–14
1	Brazil	52	62	48
2	China	41	46	51
3	France	13	28	35
4	Germany	23	26	.20
5	**India**	**32**	**33**	**38**
6	Japan	29	29	25
7	Malaysia	11	11	15
8	Philippines	42	34	31
9	Singapore	5	5	4
10	Switzerland	2	8	5
11	Sweden	10	24	22
12	Thailand	36	35	32
13	United Kingdom	12	15	18
14	United States	18	13	10

C. Financing through Local Equity Market

Sr. No	Countries	Rank		
		2011–12	2012–13	2013–14
1	Brazil	33	40	48
2	China	46	46	38
3	France	11	12	28
4	Germany	41	33	34
5	**India**	**15**	**19**	**18**
6	Japan	13	17	16
7	Malaysia	10	9	9
8	Philippines	44	36	27
9	Singapore	8	6	7
10	Switzerland	17	15	20
11	Sweden	12	11	11
12	Thailand	29	27	14
13	United Kingdom	19	8	12
14	United States	28	18	5

D. Ease of Access to Loans

Sr. No	Countries	Rank		
		2011–12	2012–13	2013–14
1	Brazil	47	51	64
2	China	45	50	32
3	France	44	61	41
4	Germany	54	44	46
5	**India**	**35**	**38**	**38**
6	Japan	46	56	33
7	Malaysia	8	8	5
8	Philippines	52	46	37
9	Singapore	3	3	4
10	Switzerland	21	24	20
11	Sweden	6	4	10
12	Thailand	31	28	23
13	United Kingdom	50	48	82
14	United States	24	20	17

E. Venture Capital Availability

Sr. No	Countries	Rank		
		2011–12	2012–13	2013–14
1	Brazil	52	51	61
2	China	22	22	16
3	France	36	57	49
4	Germany	37	34	33
5	**India**	**27**	**26**	**27**
6	Japan	47	42	39
7	Malaysia	10	11	7
8	Philippines	71	62	40
9	Singapore	4	4	6
10	Switzerland	18	19	22
11	Sweden	6	5	5
12	Thailand	50	49	41
13	United Kingdom	23	16	20
14	United States	12	10	3

F. Soundness of Banks

Sr. No	Countries	Rank		
		2011–12	2012–13	2013–14
1	Brazil	16	14	12
2	China	64	71	72
3	France	27	54	62
4	Germany	87	75	64
5	**India**	**32**	**38**	**49**
6	Japan	72	63	43
7	Malaysia	28	37	40
8	Philippines	46	41	36
9	Singapore	5	8	5
10	Switzerland	26	26	25
11	Sweden	17	19	19
12	Thailand	43	45	39
13	United Kingdom	111	97	105
14	United States	90	80	58

G. Regulation of Securities Exchanges

Sr. No	Countries	Rank		
		2011–12	2012–13	2013–14
1	Brazil	9	8	7
2	China	53	58	63
3	France	18	30	33
4	Germany	52	35	37
5	**India**	**26**	**28**	**27**
6	Japan	36	41	29
7	Malaysia	17	20	18
8	Philippines	64	46	38
9	Singapore	2	3	5
10	Switzerland	12	10	5
11	Sweden	3	11	13
12	Thailand	43	43	31
13	United Kingdom	28	27	24
14	United States	48	39	30

Source : The Global Competitiveness Report 2013–14 and Financial Development Report 2012 by World Economic Forum.

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