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The Journal of Institute of Public Enterprise is a peer-reviewed journal devoted to publication of professional and academic research on the policy and functional facets public sector enterprises, public policy and public systems. The aim of the journal is to provide a platform for researchers, academicians, practitioners and policy-makers from diverse sectors to stimulate scholarly debate in the contemporary issues and emerging trends of public policy and public enterprises both in India and abroad.

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Productivity, Employment and Wages in Organized Manufacturing : A Comparative Study of Telangana, Andhra Pradesh and India

G.Alivelu* & Priyadarshi Joshi**

The paper intends to make a comparative study of productivity, employment and wages in the organized manufacturing of Telangana, Andhra Pradesh and India. Using the ASI data, the TFP growth is found to be higher in Telangana while in India and in Andhra Pradesh, it is negative in the post reform period. The capital-using bias is found in both the states while the inefficient use of capital can be traced to the divergence in the trend of labour productivity and capital intensity. The share of labour in the gross surplus has been declining and also there is no positive sign of increase in employment at the same rate. Thus, the manufacturing growth has been more or less jobless and the quality of employment generated is substandard.

Keywords : Employment, Labour Productivity, Total Factor Productivity, Wage.

Introduction

Studies in productivity and growth have a long tradition starting from Adam Smith to the recent developments using econometric tools. In India, the very research topic gained popularity during late eighties and nineties. Studies used the growth accounting and production function approach to understand the sources of growth. It was found that Total Factor Productivity (TFP) growth in the manufacturing sector accelerated in the post-reform period while some studies contradicted the conclusion using different methodology. The region specific characteristics, availability of the inputs, state specific legislations in India put weights for the region specific study of productivity growth. Telangana and Andhra Pradesh being the newly formed states after the bifurcation of united Andhra Pradesh in 2014, it is very important to know the state of manufacturing sector for new policy formulation. This paper estimates the

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productivity growth in these states and relates it with the employment and wages. Thus, this paper not only considers growth in the manufacturing but also the distributive characteristics of the sector in the states.

The specific objectives of the paper are to study, first, the trend and growth of productivity in Telangana, Andhra Pradesh and India; second, the trend and composition of employment and labour cost in both the states; third, the relation between productivity growth and increase in wages and non-wage benefits.

Review of Select Literature

Most of the productivity studies concentrate on TFP growth in the post-liberalisation era and to a large extent in the organised manufacturing sector. The studies are designed to look into influence of reforms and determinants of productivity growth. Studies found industrial growth in India as well as in developing nations had no connection with productivity growth (Brahmananda, 1982; Krishna, 1987; Ahluwalia, 1985 and 1991; Goldar, 1986). Ahluwalia (1991) concluded negative TFP growth in the pre-eighties period but growing at a higher rate since the eighties. Another set of literature examined the effect of liberalisation on TFP growth (Goldar, 2002 and 2004; Goldar and Kumari, 2003; Mitra, 1999). The studies attributed higher level of TFP growth to reforms. Balakrishnan and Pushpangadan (1994, 1998, and 2002) have contradicted the conclusion after using double deflation method and found no TFP growth in the post-reform period. The studies are involved in the estimation of TFP growth through growth accounting method or econometric estimation of the production function. Also, the exercise of fitting the production function for the Indian economy has been carried on by some researchers (Mehta, 1980; Bashin, V. & Seth, V. 1977, and 1980; Bhandari, P. 2013). These studies, except for Bhandari, have concluded that the specifications of Cobb-Douglas production function for the Indian economy and different sectors misrepresent the growth process.

Goldar (2004) analysed the wage and productivity relationship in organized manufacturing in India. The author had taken into account the factors expected to influence the wage. The growth rate of labour productivity and that of wage went hand in hand during the period 1975-76 to mid eighties. But, since then wage growth has been lagging behind. Weakening bargaining power, decline of the public sector are stated to be the causes for this divergence. The author tried to look into other economic variables that might influence wage setting. The number of contract labour, women workers,

unionization of labour, size of the firm, labour market flexibility and investment climate were the factors those contributed significantly to the wage productivity gap. Mathur and Mishra (2007) identified the different paradigms of wage-employment theory in the economic literature and then moved on to empirically examine the relationship for the organized as well as the unorganized manufacturing in India. They found that the ratio between wage per worker and productivity has been declining continuously since the 80s'. They also found bias towards non-wage payment for the same period. They concluded it was the weak bargaining power of the trade union that resulted in such divergence between productivity and wage per worker. Chakraborty (2007) found in her study that after liberalization there was a considerable increase in the informal labour in the organized manufacturing. The increase left a larger segment of the workforce out of the scope of labour laws.

Against this background, the paper analyses the productivity trends, distributional aspects and employment conditions in organized manufacturing sector of Telangana and Andhra Pradesh (AP); and compares it with the situations in India.

Data, Variables and Methodology

Data Source and Variables

Annual Survey of Industries (ASI) is the main data source for the study. The study covers the time-period from 1980-81 to 2016-17. The variables used in this study are Net Value Added (NVA), total persons engaged, fixed capital stock (estimated through Perpetual Inventory Accumulation Method), total emoluments and profits.

Output : In this study, Net Value Added (NVA) has been taken as the proxy for output variables.

Employment : In this study 'Total Person Engaged' is used to represent the employment variable.

Capital : In ASI, the Fixed Capital (FC) is given in book value and does not really represent the value of fixed capital used in the production process at present. To avoid undervaluation of capital, capital stock by applying the Perpetual Inventory Accumulation Method (PIAM) is calculated as follows :

1. The average age of a machine is 25 years and of transport equipment is 20 years for the manufacturing industry (NAS-Sources & Methods, 2007). For the present study, the average life for fixed capital stock is taken to be 25 years as the weight of transport

equipment is negligible. Based on this, the benchmark year for the estimation should be 1955-56. But due to lack of availability of data, 1980-81 is taken as the benchmark year. The fixed capital for 1980-81 at book value from ASI is adjusted for price changes by using Wholesale Price Index (WPI) deflator for machinery at 2004-05 prices. This provides the benchmark capital stock (K_0).

2. Gross investment in fixed capital is computed for each year by subtracting the book value of the fixed assets in the previous year and adding to that figure the reported depreciation in fixed assets in the current year. To obtain real gross investment series, the gross fixed investment series is deflated by the WPI deflator for machinery at 2004-05 prices.

   Fixed capital at book value in year t is FC_t and D_t is the reported depreciation in that year. Then, gross investment in year t, denoted by I_t, is obtained as below :

   $$I_t = FC_t - FC_{t-1} + D_t \quad ...(1)$$

   Real gross investment is calculated as :

   $$\text{Real } I_t = \frac{I_t}{R_t} \quad ...(2)$$

   Where R_t = deflator at period 't'

3. Real net investment in fixed assets is derived by subtracting economic depreciation (a proportion of fixed capital stock in the previous period) from real gross investment in fixed assets. The rate of depreciation (assumed to be in equal rate throughout the life of the machinery) is taken as 4 per cent, based on the estimated life of the machinery as 25 years.

4. Starting from the benchmark fixed capital stock and adding the real net investment in fixed assets for successive years, the net fixed capital stock series is constructed.

5. Capital Stock at period

   $$K_t = K_{t-1} - (0.04 * K_{t-1}) + \text{Real } I_t \quad ...(3)$$

The calculated series on the capital stock is used to represent capital in this study.

Labour Compensation : ASI provides data on factor payment to labour on three different concepts such as wages to worker, total emoluments, provident funds and other expenses and above all labour compensation. In this paper, Total Labour Emoluments and Wages to workers data are used.

Deflators : WPI deflator for manufactured products with base year 2004-05 is used to deflate variables like value added, output; and the WPI deflator for machineries at 2004-05 prices are

used to adjust inflation in the calculation of capital stock.

Labour productivity, TFP, capital-labour ratio/capital intensity and employment are estimated for the period 1980-81 through 2016-17 for Telangana, Andhra Pradesh, United Andhra Pradesh and India while the composition of employment and labour cost is presented only for United AP and India. Telangana and AP estimates in this regard are not presented as they are newly formed states and data on employment and labour cost is available only for a few years.

Methodology

The study uses the transcendental logarithmic (Translog) production function to measure the TFP growth.

The Translog production functions are quadratic in logarithms of the inputs. It is a flexible functional form not much restricted by the *a priori* assumptions about technology. It does not assume Hicks Neutrality and constant rate of technological change, and it also allows for variable elasticity of substitution of the inputs.

$$\text{Log}(V) = \beta_0 + B_1(\text{LogL}) + \beta_k(\text{LogK}) + \beta_t T + {}^1/_2 B_{ll}(\text{LogL})^2 + {}^1/_2\beta_{kk}(\text{LogK})^2 + \beta_{lk}(\text{LogL})(\text{LogK}) + \beta_{lt}(\text{LogL})T + \beta_{kt}(\text{LogK})T + 1/2\,\beta_{tt}T^2 \quad \ldots(4)$$

Taking the derivative of equation (4) on 't.'

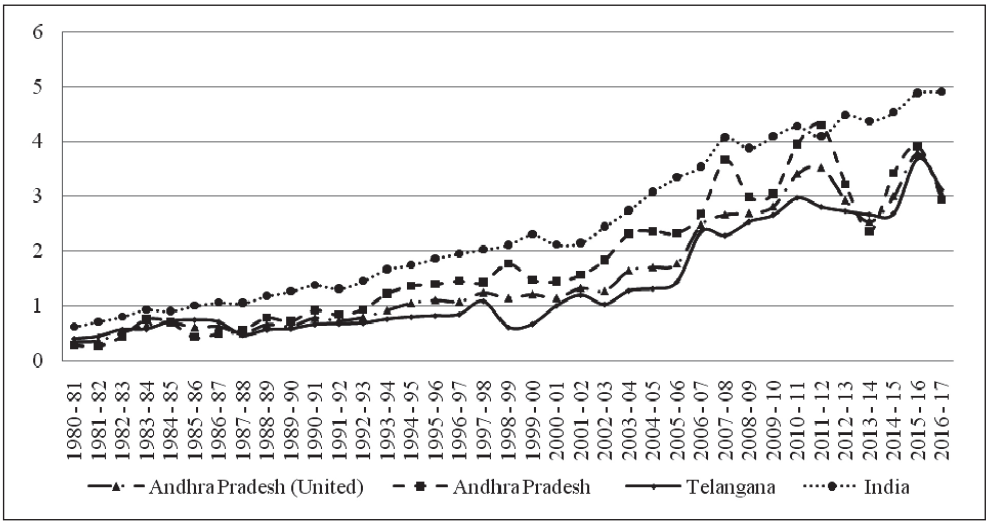
$$\frac{\partial \log V}{\partial t} = \beta_t + \beta_{lt}(\log L) + \beta_{kt}(\log K) + \beta_{tt}(T) \quad \ldots(5)$$

Where V, L, K and T represent value added, labour, capital and time. $(\beta_l + \beta_k)$ gives the degree of homogeneity and thus returns to scale. The parameters of the equation (4) give different depiction of the technical change. β_t is the rate of autonomous TFP growth; β_{tt} is the rate of change in TFP growth, and β_{lt} and β_{kt} define the bias in TFP growth. If β_{lt} is positive, then the share of labour increases and thus is a labour using bias. If both are zero, then TFP growth is Hicks Neutrality type. The quadratic terms i.e. β_{ll}, β_{kk} and β_{lk}, give the curvature of the production curve. Equation (5) depicts the rate of technological change.

Trends in Labour Productivity, Capital Labour Ratio Employment and TFP

Figure-1 presents the trends of Labour Productivity (LP) in organised manufacturing in Telangana,Andhra Pradesh and India during 1980-81 through 2016-17. In India, labour productivity increased from 0.61 lakh per person engaged to 4.90 lakh per person engaged. The trends suggest that the labour productivity in both AP and Telangana

Figure-1 : Trends in Labour Productivity (₹ Lakh per Person Engaged)



Source : Estimated from ASI.

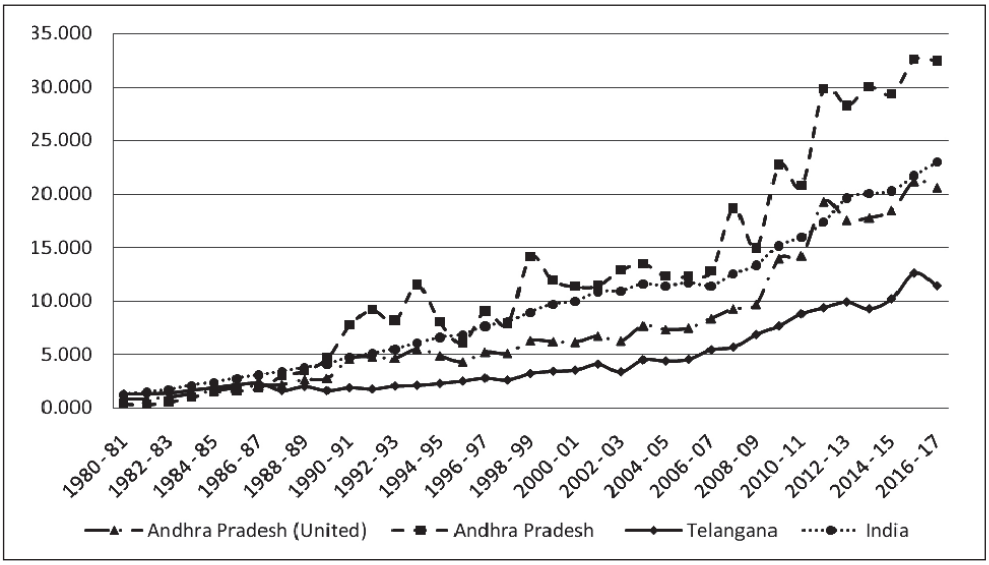
Deflator used : WPI deflator for manufacturing at 2004-05 prices.

are less than the national average for the period of study. Though there is an increase in the LP of both Andhra Pradesh and Telangana, in the recent period, the rise in LP in Telangana had been more or less constant, while in the case of Andhra Pradesh it is more volatile. The trends suggest that at the beginning of the study period, labour productivity of Telangana is higher than that of AP but in the latter period, it is Andhra Pradesh which left Telangana behind.

There exists a positive relation between growth in labour productivity and growth in capital-labour ratio, popularly known as Kaldor's technological progress function. The relation stands to be true in case of India (Joshi & Sethy, 2017: 45).

Figure-2 gives the trends of capital-labour ratios of the concerned states. It is found that capital-labour ratio in AP is higher while that of Telangana's is lower *vis-à-vis* the national average. The low capital-labour ratio in Telangana pulled down capital labour ratio in United Andhra Pradesh. One can also observe the divergence between the trends of capital-labour ratio of Andhra Pradesh and Telangana. The recent increase in labour productivity of AP (Figure-1) can be attributed to the increase in the capital intensity (Figure-2). In addition, the rise in capital intensity is higher than that of the labour productivity in AP thus hinting at inefficient use of capital in the organized manufacturing in this State.

Figure-2 : Trends in Capital-Labour Ratio (₹ Lakh Per Person Engaged)



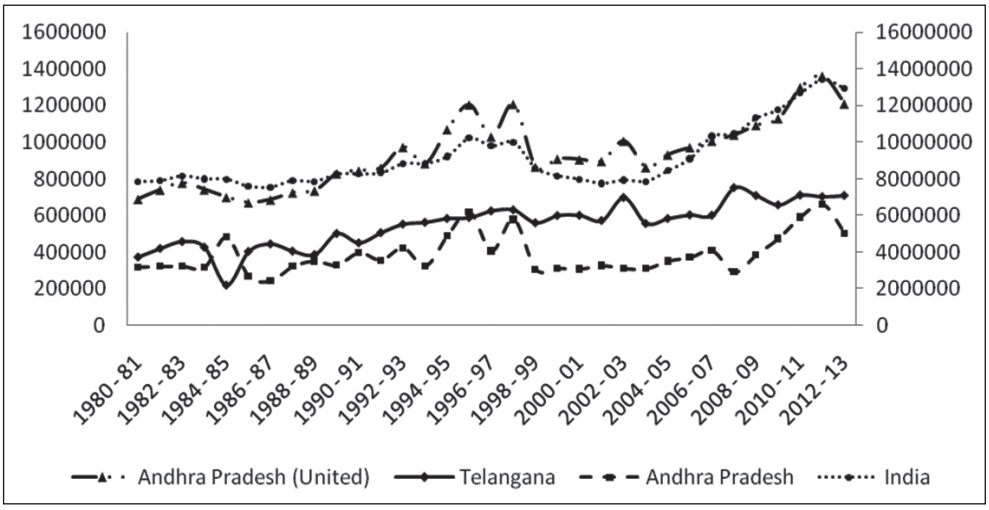
Source : Estimated from ASI and capital-stock is estimated through PIAM.

Deflator used : WPI deflator for machineries at 2004-05 prices for capital stock.

Figure-3 represents the other aspect of growth i.e. the employment. It gives a comparative trend of employment in organized manufacturing in Telangana, Andhra Pradesh and India. One can easily capture the slow but steadily increasing employment trend in Telangana state while employment in AP remains almost the same during the study period 1980-81 through 2016-17. In the year 1998-99, one can observe a decline in the employment in the organized manufacturing in Telangana and then it remains almost stagnant for the next decade. In the case of India, there is a very slow rise in organized manufacturing employment up to the year 1997-98 and then there is a decline in the employment for the next five years. There is a steady recovery in the employment from the year 2004-05 up to the end of the study period. The main reasons for such trend in employment are limited reforms in capacity utilization, poor performance of six industries accounting for 50 per cent of the total manufacturing and especially the job losses in the food and beverages and textile manufacturing (Kannan & Raveendran, 2009: 84).

After the study of the trends in labour productivity and capital intensity, the patterns of total factor productivity growth in the manufacturing sector is presented in Table-1. TFP growth is

Figure-3 : Trends in Total Person Engaged (in numbers)



Source : Estimated from ASI.

Note : Secondary vertical axis represents India and the rest are represented in primary vertical axis.

Table-1 : TFP Growth in Organized Manufacturing

	1980-81 to 2016-17	1990-91 to 2016-17
Andhra Pradesh (United)	0.031	-0.372
Andhra Pradesh	0.104	-0.139
Telangana	-0.184	1.256
India	**0.124**	**0.050**

Source : Estimated from ASI.

Deflator used : WPI for manufacturing at 2004-05 prices to deflate NVA and WPI for machineries at 2004-05 prices to get real capital stock.

calculated from the estimated translog production function using the average of the log values of capital and labour. TFP growth in Indian organized manufacturing is estimated to be 0.12 per cent per annum at the mean values of the independent variables for the period 1980-81 to 2016-17. For a shorter period from 1990-91 to 2016-17, the estimate is 0.05 per cent per annum. In Telangana, the TFP growth in the organized manufacturing is estimated to be -0.18 per cent per annum for the period 1980-81 to 2016-17. In the period 1990-91 to 2016-17, the TFP growth for the state was 1.26 per cent per annum. Thus TFP growth in the post-reform period has been high in

Telangana in comparison to India. Also it can be seen that TFP growth is positive in the post-reform period. The industrial composition tilted towards high-technology industries in Telangana in the post-reform period and thus it achieved high TFP growth in these years. Added to this, the capital-using bias in Telangana manufacturing in the post-reform period fetched higher TFP growth.

The estimates of TFP growth for Andhra Pradesh behave opposite to that of Telangana. Andhra Pradesh maintained a positive TFP growth for the period in study but in the post-reform period the growth turned negative. In AP, the technology tilted towards capital saving coupled with low employment elasticity resulted in negative TFP growth during 1990-91 to 2016-17. Thus the unproductive use of capital is pulling the TFP growth down in Andhra Pradesh.

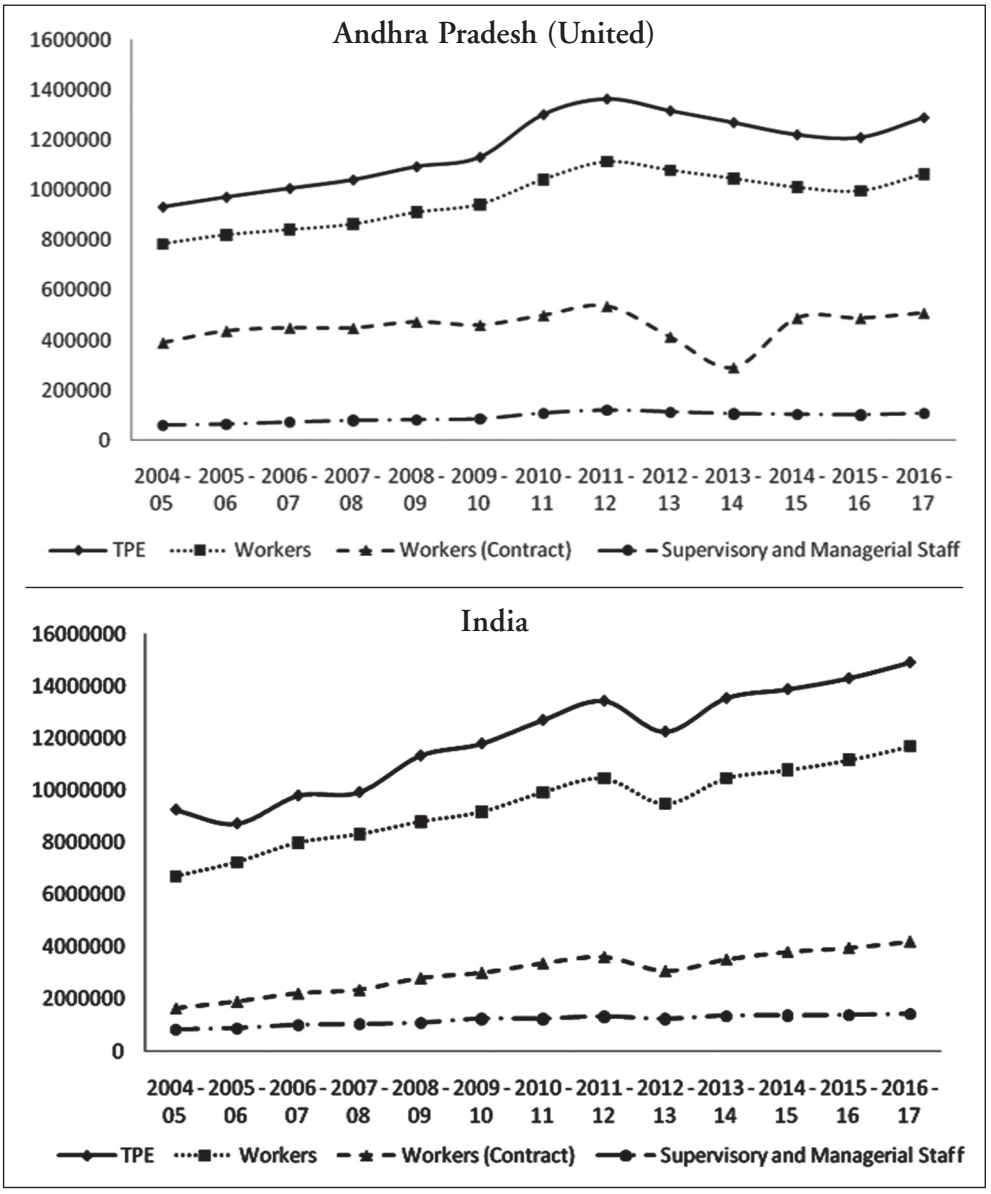
Composition of Employment and Labour Cost

The labourers employed in the manufacturing are either wage workers or managerial workers. The difference in the skill of the wage workers and the managerial employees gets reflected in the difference of productivity and also in the compensation paid to the labour for the work they have produced. The composition of employment also gives a view of the quality of labour used. As mentioned earlier, this section presents results only for United AP and all India because of lack of data on the newly formed states of Telangana and AP.

From Figure-4, it can be observed that the share of workers in the total persons engaged is almost constant and the contract labour in the total labour force is increasing both in Andhra Pradesh and India. So it is pointing towards an increasing employment of contract labour. The manufacturing industries are using more and more contract labourers to take advantage of small labour cost.

The distributive aspects also promise conclusions on the quality of labour employed. As the contract workers are not paid the non-wage benefits, the total labour cost can be squeezed by employing more of the contract labour. Figure-5 shows the share of wages to workers in the total emoluments. The share shows a declining tendency both in Andhra Pradesh and India. The fall in the share means the share of bonus and the wages and salaries to the managerial staff had increased in organized manufacturing in India. Thus, the declining share of wages is pointing out at worsening condition of workers. The increase in the share of contract workers both in Andhra Pradesh (united) and all India accommodates such inappropriate distributional aspects and hints at falling quality of employment.

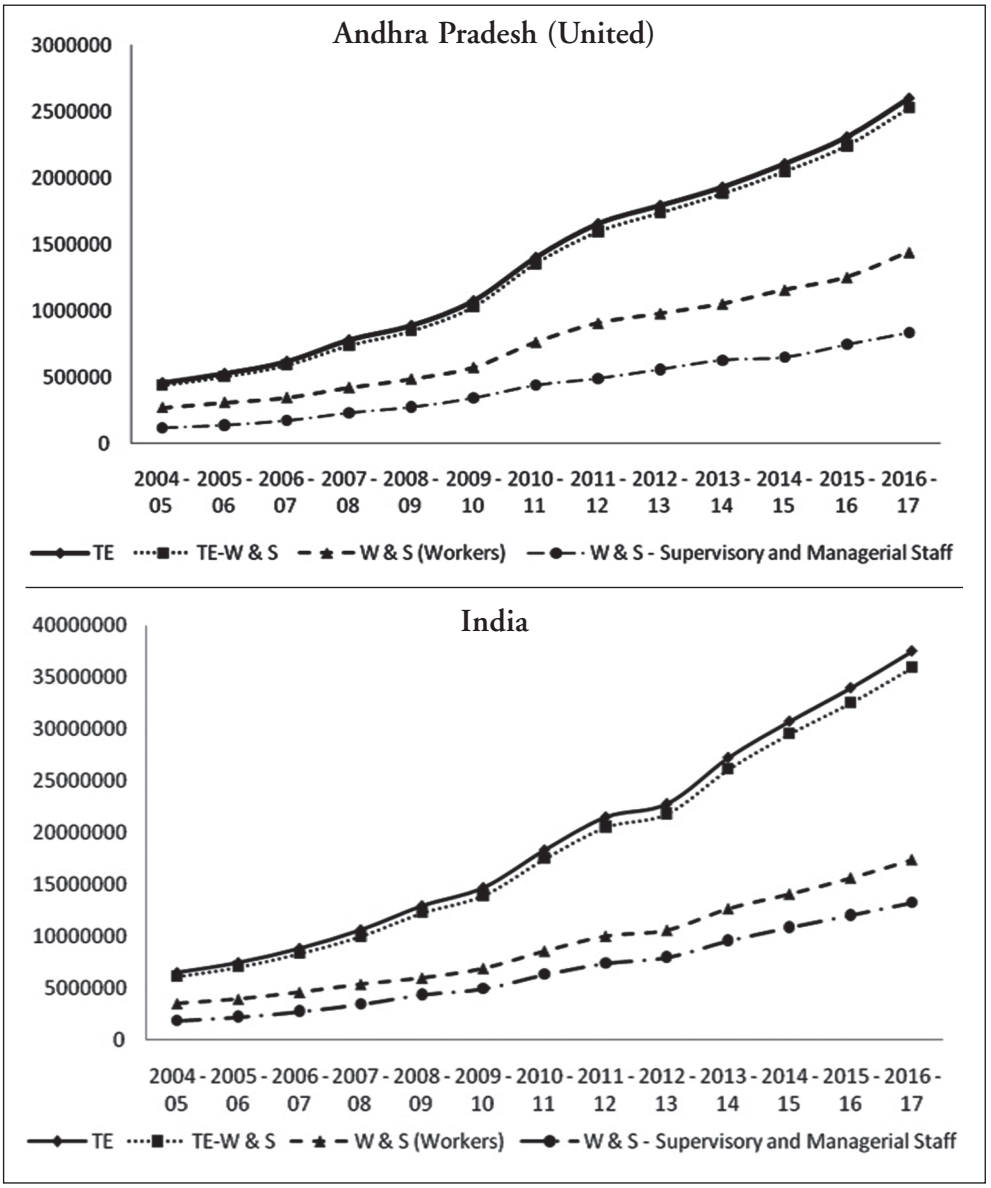
Figure-4 : Composition of Employment in Andhra Pradesh (United) and India



Source : Estimated from ASI.

Note : 1. Time period taken is due to data constraints and availability. Telangana and Andhra Pradesh are not considered as they are new and only one year data is available for the variables. 2. Here comparisons being drawn for Total Person Engaged (TPE), Number of Workers, Number of Workers employed through contractors and Supervisory and Managerial Staff.

Figure-5 : Composition of Total Emoluments in Andhra Pradesh (United) and India



Source : Estimated from ASI.

Note : 1. Time period taken is due to data constraints and availability. Telangana and Andhra Pradesh are not considered as they are new and only few years data is available for the variables. 2. Here comparisons being drawn for Total Labour Emoluments (TE), Wages & Salaries to employees, Wages & Salaries to Workers, Wages & Salaries to Supervisory and Managerial Staff.

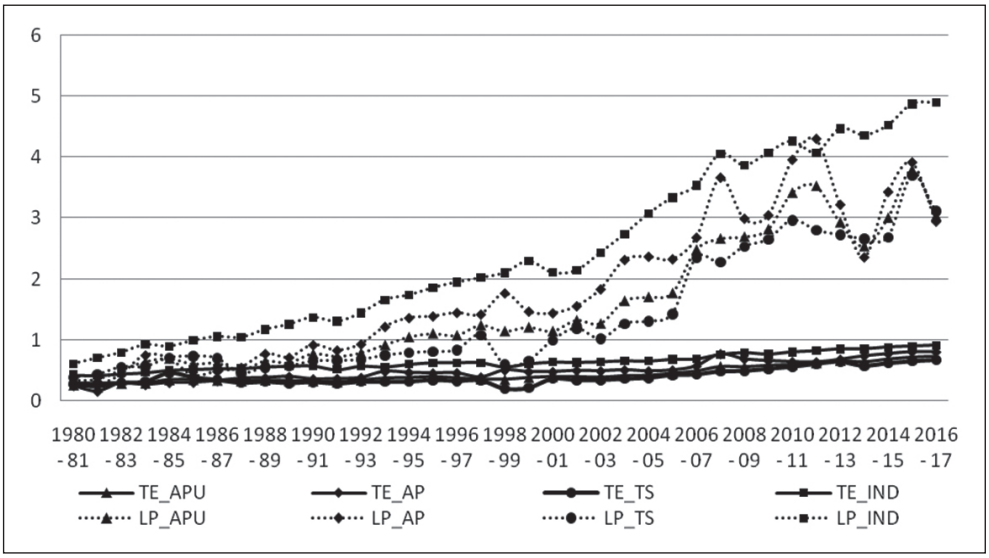
Is Productivity Growth Really Causing Increase in Wages?

Wages are the produce of the labourers and are dependent upon the competition between the two parties, workmen and owners. Adam Smith tried to theorise the concept of unionization and its effect on wages. The workmen try to increase wages, whereas the owners try the opposite. So in this competition of power to influence wage, the owners and the workers depend heavily upon their numbers. As the owners are fewer in number, it is very much possible for them to collude and pressurize such that the wages are kept low. This argument is carried forward till date and unionization is regarded as one of the main factors affecting wages. The bargaining power between the worker and the firm are very much different in different regions. The difference between the observed wages and the expected wages is the reflection of labour market imperfections.

The liberalisation of an economy suggested that the wealth of that economy will get impetus from Foreign Direct Investment (FDI), trade and imported technology. These three components of liberalization lead to increase in labour productivity. The general phenomenon is that higher FDI is related to higher wages whereas trade is associated with lower wages. The recent stream of arguments are that FDI has a positive effect on wages in the industries because the offer of higher wage increases the quality of job applicants, build loyalty among workers and hence improve the efforts. These are the causes which work outside the framework of labour productivity. But the entire increase in wages can be attributed to higher productivity of labour. The competing foreign firms pay higher compensation per worker because they run a high capital-labour ratio.

If the share of labour and capital in the output is fixed then the relation between wage and labour productivity will make a stable level of prices. The wages go up at a same pace with productivity without any increase in unit-cost of labour and there will be no cost-push pressure. Productivity change is the key to economic growth. The per capita income growth can be interpreted as the change in productivity. The income can be associated with productivity through the nutrition. The higher wages enables the worker to afford the luxury of more nutritional food which in turn enhances the efficiency and effectiveness of the overall productivity of the worker. So in the literature, there are two types of ideas sprouting with regard to the relationship between wages and productivity. One group argued that productivity growth causes wages to grow through distributional approach and another group argued the opposite way through efficiency approach.

Figure-6 : Trends in Labour Productivity and Emoluments Per Employee



Source : Estimated from ASI.

Deflator used : WPI for manufacturing at 2004-05 prices, CPI (IW) at 2001 prices

Note : LP stands for labour productivity; TE stands for Total emoluments per employees; TS, AP, APU and IND stand for Telangana state, Andhra Pradesh, Andhra Pradesh (United) and India respectively.

If the wages are below productivity, firms would find it profitable to hire more workers. This would put upward pressure on wages and, because of diminishing returns, downward pressure on productivity. Conversely, if the wage is above productivity, firms would find it profitable to shed labour, putting downward pressure on wages and upward pressure on productivity. The equilibrium requires the wage of a worker equaling what that worker can produce.

Figure-6 depicts the trends of labour productivity and total emoluments per employees for the concerned states during the period 1980-81 to 2016-17. It is clearly found that there is an increasing divergence between the two variables for both the states and for India. At the beginning of the study period i.e. during the eighties, the gap is almost parallel while after reforms, the gap started to increase for the rest of the study period. The per head labour cost in the organized manufacturing falls below the productivity level thus raising the profitability of the manufacturing sector. So the share of labour compensation in NVA is steadily declining during the period of study. The trend does not suggest higher productivity is pulling the wage rate up (Balakrishnan & Babu,2003:4001).

Weak bargaining power of the trade unions in the organised manufacturing sector of the states concerned is the cause behind wages not increasing in line with rise in productivity (Mathur & Mishra, 2007:107).

Jobless Growth in Manufacturing Sector

Manufacturing sector is very important in the field of employment generation and absorption of abundant non-skilled work force. The changes in the occupational structure i.e. shift of employment from primary to secondary than to the tertiary sector explains the process and characteristics of growth.

Job security regulation, sharp hike in real wages, capital deepening strategy, and less labour-intensive industries have contributed to slow employment growth in the organized manufacturing in India while less labour market rigidity and introduction of Industrial Dispute Act helps employment to grow (Goldar, 2011). Inadequate or low employment growth occurs due to the following four reasons. First, the nature of transition from inward looking regulating economy to an open competitive economy has resulted in job losses in inefficient enterprises : second, there is a sharp shift to capital intensive technique : third, presence of inappropriate labour market regulation affecting labour cause and labour movement : and finally, the wage elasticity of registered sector labour market (Alessandrini, 2009; ILO, 2005 and 2009; Dasgupta & Singh, 2005).

Table-2 : Growth Rates of Variables and Employment Elasticity

	Andhra Pradesh (Undivided)	Telangana	Andhra Pradesh	India
Net Value Added	8.19	8.49	8.15	7.56
Employment	1.68	1.31	2.02	1.63
Capital Stock	10.22	12.56	8.55	9.31
TFP	0.03	0.10	-0.18	0.12
Employment Elasticity	0.22	0.20	0.26	0.24

Source : Estimated from ASI

Deflator used : WPI for manufacturing at 2004-05 prices to deflate NVA and WPI for machineries at 2004-05 prices to get real capital stock.

Note : 1. The values are the antilogarithm of the relavant regression coefficient minus one when the equations estimated are of the form logY = a + bT and T refers to time. (Except for TFP growth)

2. Employment elasticity is the regression coefficient (β) of the regression of the form log (EMP) = $\alpha + \beta$ log (NVA).

Table-2 presents the growth rates of select variables in the concerned states. It is clear that the growth in net value added has been high during the period of study. The reason attributed to high growth of NVA is rise in capital stock. However, the employment growth during the period has been very low in both Telangana and AP as well as in India. The employment growth in organized manufacturing in Telangana is slightly better than that of Andhra Pradesh and India. The results are reflected in the employment elasticity of employment. Employment elasticity is better in Telangana and is far ahead than the national average while Andhra Pradesh lags behind in employment generation with respect to NVA growth. The employment elasticity being so low hints at acceleration in capital intensity at the cost of employment creation. All the individual industry groups may not resort to the capital intensive production process but the net effect of employment generating growth has been very little. The jobless growth has its implication on the distribution of the gross value added among the labour and capital (Kannan & Raveendran, 2009:85). Low increase in the employment is not resulting in the transfer of the surplus to the labour and as discussed in the previous section, wage rate is not increasing in the same pace as the increase in labour productivity. Investigation of data also shows Telangana manufacturing contributes to around 75 to 80 per cent of the total contract worker generated.

Conclusions

The paper make an in-depth analysis into the productivity growth, employment and the distribution aspects of organized manufacturing sector in Telangana and Andhra Pradesh. It is found that the increase in labour productivity is due to the increase in the capital intensity. The share of labour in the gross surplus has been declining and also there is no positive sign of increase in employment at the same rate. Thus, the manufacturing growth has been more or less jobless and the quality of employment generated is substandard. The increasing divergence of real emoluments per employee and labour productivity hints at a falling capital intensive nature of production both in Telangana and Andhra Pradesh.

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Nature and Extent of Employment among Persons with Disabilities and Factors Associated with their Employment in India

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The paper carried out a systematic analysis of employment experiences of different types of persons with disabilities (PWDs) in diverse age cohorts and across gender, regions and social groups. A comparative study is also undertaken between the two time periods using 2001 and 2011 Census data. In the last section of the study, the factors affecting work participation rates (WPR) for persons with disabilities is estimated, separately for rural and urban regions. The findings of the study suggest that there are lower employment outcomes for the PWDs. The WPR has significantly increased in 2011 but it is attributed to an increase in the number of marginal workers. Thus, it can be inferred that there is growing informalisation in the disability sector as well. The Scheduled Castes (SCs) have the lowest employment rates and Scheduled Tribes (STs) recorded the highest values of WPR. The female work force participation rates are far lower, however female WPR has slightly increased in 2011. Further, the regression analysis of factors affecting the WPR for people with disabilities suggests that the rural and urban areas have different factors contributing to their employment. The findings reveal that individuals with disabilities have different employment outcomes depending on their disability types, gender and social compositions, levels of literacy, and whether they live in rural or urban regions. Understanding the economic experiences of PWDs is critical for designing specific public policies and leverage welfare measures in the disability sector. The state and society should be sensitive to the rights and needs of the PWDs to amalgamate them in mainstream society. The problems faced by persons with disabilities are multifaceted and require coordinated efforts to tackle them.

Keywords : Disability, Employment Determinants, Social Groups, WPR, Regions, Genders, Human Development.

1. Introduction

Disability is no longer seen as the biological condition of an individual body, it is being perceived as a complex product of political, social, environmental and biological discourses. According to Mehrotra (2013), this categorization lies within the ambit of social, cultural,

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economic and historical. Of late, there is a shift taking place from medical model[1] to the social model of disability. In the social model, people are being disabled by society and not just due to particular medical conditions. In this context, Kulkarni et al. (2019) pointed out that disability is neither a purely medical nor a purely social phenomenon. Rather, it is an outcome of their interplay. Therefore, disability is increasingly regarded as a major development issue by many development agencies (DFID, 2000).

In India, there is a lack of clear and reliable estimates of the number of persons with disabilities. It raises serious concerns that given the deep-seated stigma surrounding disability, many persons with severe impairments, mainly rural disabled and women, are excluded from Census and Surveys (Jeffery & Singal 2008). Estimating the prevalence of disability in the country has been marred by complex and multitudinous factors. Deep-seated social stigma results in the exclusion and invisibility of persons with disabilities. In addition, incomprehensive definitions of disability and robust methods of data collection further exacerbate the task of accurately estimating the prevalence of disability. Therefore, in the context of a developing economy like India, reliability and quality of data has been a stumbling block for any substantive research in this area. Official estimates of disability prevalence in India are low at 2.1 per cent according to the Census 2001, roughly 22 million. As per Census 2011, there are 2.68 crore individuals with disabilities in India, which is about 2.21 per cent of India's population.

Being disabled and unemployed is like bearing a double burden. There are several barriers which inhibit the individuals with impairments to participate in gainful employment, for instance, environmental barriers and social and attitudinal barriers. The Social Development Report (2016) noted that "the disproportionate disadvantage, stigmatization and exclusion suffered by people with disabilities are caused by social, cultural and physical barriers which obstruct their effective participation in social and political life". Employment discrimination can occur due to prejudice, differential information about the average productivity of persons with and without disabilities, or the exploitation of workers by employers, noted Baldwin and Johnson (1994). Thus, for persons with disabilities, work is all the more important as self-esteem and financial gains generated out of it would offset to a great extent, the negative impact of a disdainful attitude of the society (Pandey & Advani 1995).

Employment prospects of persons with disabilities are dependent on a host of factors; their functional capacity is one

of the most important factors. Due to functional limitations, a person with a disability is more likely to remain out of labour force and hence seeks work, in majority cases. However, there are other factors which also affect their employment potential like levels of education (general, special and vocational). Providing them ample employment opportunities and proper identification of suitable jobs for them, training and skill acquisition, availability of suitable assistive devices, barrier-free access to workplace etc., can certainly improve the employment outcomes. However, it is often recognised that even when the degrees of disability and education levels are the same, their scope and employment prospects differ depending upon socio-economic settings of the household, sex and sector. Many times, the onset of disability may result in change or loss of work of an already employed person. In addition, the early onset of disability likely affects the acquisition of education and job skills i.e. human capital. Loprest and Maag (2003) found that early onset of disabilities affects employment opportunities both directly and as a result of reduced investment in human capital (education) for a younger cohort.

Elwan (1999) reviewed vast literature on the subject and summarized that there is a higher incidence of disability rates in developing countries which is associated with a higher burden of unemployment. World Bank (2009) suggested that disabled people in India have considerably lower employment rates than the average population. Besides this gap is growing over a period of time. In the context of gender analysis, Randolph and Andresen (2004) observed that women with disabilities face simultaneous oppression in employment due to discrimination with regard to disability and gender. ILO (2019) showed that exclusion of disabled persons from the labour market leads to an annual loss of approximately 3-7 per cent of the GDP, based on an exploratory study of ten low- and middle-income developing countries in Africa and Asia.

Understanding the nature and extent of PWD employment vis-à-vis general population is extremely relevant to frame employment policies accordingly. The Government of India has adopted disability-inclusive policies and has legislated many progressive laws in the disability sector. Therefore, it is important to understand whether such initiatives have led to socio-economic empowerment of the disabled communities.

The enactment of the Persons with Disabilities Act of 1995 is considered as the most significant and landmark legislation regarding the employment of individuals with disabilities. The Act

gave statutory recognition to the policy of 3 per cent reservation in the "identified posts" towards government jobs, government educational institutions and poverty alleviation programs. However, it is well recognised that the employment of persons with disabilities in government jobs have been far less than the prescribed reservation. Public sector reservations in jobs for the PWDs reveal modest outcomes due to poor design and implementation problems in India. Although, there are large numbers of government programmes to invigorate the employment status of the PWDs, however, the impact of these policies have been meagre, and they are mostly urban-centric. Besides, the private sector has not responded enthusiastically in supporting employment for the disabled.

Further, to comply with international standards and to overcome the inherent flaws of the PWD Act of 1995, the Government of India ratified United Nations Convention on the Rights of Person with Disabilities (UNCRPD 2006). Thus, the PWD Act of 1995 was repealed by the Rights of Persons with Disabilities (RPWD) Act of 2016.The Act of 2016 has increased the number of recognized disabilities from seven to twenty-one. However, reservation in jobs once proposed to be enhanced from 3 per cent (1995 Act) to 5 per cent (2014, draft bill), has now been restricted to 4 per cent. Now after the RPWD Act, 2016 has been legislated, it is expected that the number of persons with disabilities will increase. Further, it does not specify the time frame within which the "disability certificate" needs to be issued which is important to secure gainful employment. The government set a two-year deadline to ensure "barrier-free" access for them in all kinds of physical infrastructure and transport systems, however, it remains a distant goal and still elusive to the PWDs. Barrier-free access is important enablers to secure gainful employment among the PWDs. Moreover, the Act has also "penal provisions" unlike the PWD Act of 1995. However, experts and disability rights activists argue that there are also many things which are still missing in this Act. It talks about mandatory non-discrimination in employment for the PWDs only in government establishments.

Despite considerable welfare and policy implications of the rights-based disability-inclusive legislations, the labour market experiences of the people with disability are not widely known and discussed. Therefore, it is pertinent to explore such issues of importance. Available data and independent surveys provide that persons with disabilities in India have lower employment outcomes relative to the overall population. World Bank (2009) in its report using the same NSS data examined that

the employment rate of disabled people have actually fallen from 42.7 per cent in 1991 down to 37.6 per cent in 2002. In Population Census (2001) more than a third (36%) of disabled males and more than two-third (68%) of disabled females of age 15 to 59 years were found to be non-workers (not economically active) *vis-à-vis* only 19 per cent of males and 60 per cent of females as non-workers among the general population. Mitra and Sambamoorthi (2008) examined in great detail the employment and wages differences between males with and without disabilities using data from the Village Disability Survey in Tamil Nadu, conducted by the World Bank in 2005. A significant wage gap was observed in the study. Besides, the paper shows negative attitudes and low expectations are important factors that may explain employment disparities across disability status.

The last part of the present study examines correlates of employment for persons with disabilities in India. A brief review of the literature suggests that different factors contribute to the employment of persons with disability in rural and urban areas. In this context, Mitra and Sambamoorthi (2006) examined employment status and determinants of employment for PWDs. The study has used the 58th round of the NSS data. Being a male and living in the rural sector are associated with higher employment probabilities; a married man has a higher chance of getting employed than married women, PWDs from lower social castes are more employed, vocational training is positively associated with the probability of employment, types of disability (hearing, speech or locomotor disability) are associated with a higher probability of employment, persons with a mental disability (mental retardation or mental illness) are less likely to be employed and this is more the case in the urban sector than in the rural sector for both males and females. As far as factors associated with disability employment in India is concerned, Narharisetti and Castro (2016) estimated district-level employment outcomes using 2001 Census data and found that different factors contribute to the employment of persons with disability. Magnitude and direction of the association were different for rural and urban areas. Being a female and being illiterate results in less PWDs employment in urban areas, whereas having mental disability results in lower PWDs employment in rural areas. Having movement and sight disability is positively associated with PWDs employment in both urban and rural areas, this may be because of most public programs of the government target movement and sight disability.

In the light of these discussions, it is pertinent to empirically investigate the employment scenario of people with disabilities. Besides, persons with certain types of disabilities such as intellectual and mental health disabilities face greater difficulties in getting a decent job and retaining employment, therefore, it is also crucial to explore these aspects as well. The present study carries out a systematic analysis of employment experiences for the PWDs in different age cohorts and across gender, regions and social groups and further, a comparative study is made between the two time periods using 2001 and 2011 Census data. In the last section of our study, the factors affecting work force participation rates for persons with disabilities is estimated, separately for rural and urban regions. Thus, the main contribution of the present study is to examine the employment experience of PWDs, compare them to employment rates of the overall population and finally identify and estimate the correlates of PWD employment. A micro-study on employment scenario for each type of disability at the regional level across genders and social groups is largely missing.

1.1 Objectives

To examine the nature and extent of employment for PWDs vis-à-vis overall population at all India and State level using Census 2001 and 2011 data.

To explore factors associated with the employment status of persons with disability across states of India using Census data of 2011.

1.2. Hypotheses

Compared to the non-disabled population, disabled persons have lower employment outcomes and face greater barriers to gainful employment.

Different factors contribute to the employment of persons with disability by type in rural and urban areas differently.

Some people with disabilities face greater disadvantage than others when it comes to getting and keeping a decent job.

People with certain types of disabilities, such as intellectual and mental health disabilities face greater difficulties in finding and retaining employment.

Disabled women are less likely to have a decent job than either non-disabled women or men with disabilities.

1.3. Materials and Methods

The paper carried out a systematic analysis of employment experiences of PWDs in different age cohorts and across gender, regions and social groups using 2001 and 2011 census data of India. A comparative study is also undertaken between the two time periods using 2001 and 2011 Census data. In

the last section of our study, the factors affecting work force participation rates for persons with disabilities is estimated, separately for rural and urban regions.

Nature and extent of employment for persons with disabilities will be shown with the help of descriptive statistics. Further, a comparative study is carried out between the total employment of India and total disabled population employment of the country.

To examine the factors associated with persons with disability employment, a cross-sectional study is undertaken at the state level using the 2011 census. Step-wise regression analysis is carried out to understand the possible association, in the equation, dependent variables being PWDs employment (rural and urban) and independent variables being the proportion of female PWDs, the proportion of illiterate PWDs in a State, proportion of PWDs for different types of disabilities across states of India and proportion of persons with disabilities among SC and ST communities. The justification for inclusion of these variables are self-explanatory, however, possible explanations are provided wherever necessary. Factors affecting work participation rates among persons with disabilities are specified and identified separately for rural and urban areas in the following equation :

1.3.1. Important Factors Affecting Employment for Individuals with Disabilities

Rural PWDs Emp = β_0 + β_1 SC + β_0 ST + β_3 Female + β_4 Illiterate + β_5 Seeing + β_6 Ln Hearing + β_6 Speech + β_7 + β_8 Movement + β_9 Mental + β_{10} Any-Other + β_{11} Multiple + Ei

Where,

Rural PWDs Emp = Proportion of rural employment among the PWDs across states of India

SC = Proportion of SC PWDs

ST = Proportion of ST PWDs

Female = Proportion of Female PWDs

Illiterate = Proportion of Illiterate PWDs

Seeing = Proportion of Seeing PWDs

Hearing = Proportion of Hearing PWDs

Speech = Proportion of Speech PWDs

Movement = Proportion of Movement PWDs

Mental = Proportion of Mental PWDs

Any-Other = Proportion of Any-other PWDs

Multiple = Proportion of Multiple PWDs

Similarly, the alternative regression equation is specified and estimated to understand the factors affecting employment among the PWDs in the urban areas.

2. Nature and Extent of Employment among PWDs of India

Table-1 examines the nature and extent of PWD employment across gender and regions in 2001. As per 2001 Census, Work-Participation Rate (WPR) for persons with disabilities was 34.49 per cent, it was almost 45 per cent for males and around 21 per cent for females. The proportion of main workers was 26.73 per cent. In rural areas, WPR slightly increased to 36.15 per cent and also the proportion of main workers increased. On the other hand, in urban areas, WPR was around 30 per cent, however, the proportion of females who are disabled and working, is very less (11.31%). Therefore, the analysis indicates lower employment outcomes for persons with disabilities in urban areas.

Table-2 provides the employment scenario for the overall population of India. If we compare it to Table-1, it can be seen that the work participation rate in India is much higher than WPR for persons with disabilities. In simple words, the unemployment rate among PWDs is much higher than compared to that of the total population. Further, WPR of SCs and STs is also much above PWD employment rates. It means that persons with disabilities are the most disadvantaged communities in terms of employment opportunities. A similar trend can be observed in both rural and urban areas. Further, the female workforce participation rate for the PWDs is much lower than the total female WPR.

Table-3 and 4 present employment scenarios for persons with disabilities across gender, region and social groups. Further, absolute numbers for main and marginal workers are also given. There was 36.34 per cent work participation rate for PWDs in India in 2011 against 34.49 per cent in 2001. WPR for males

Table-1 : Proportion of PWD Employment across Gender and Regions in 2001 (%)

	Persons	Males	Females	Non Worker	Main Worker	Marginal Worker
India	34.49	44.81	20.51	65.51	26.73	7.76
Rural	36.15	45.49	23.57	63.85	26.83	9.33
Urban	29.55	42.81	11.31	70.45	26.43	3.12

Source : Calculated from Census of India 2001.

Table-2 : Proportion of Employment across Gender, Regions and Social Groups in 2001 (%)

		Persons	Males	Females	Non Worker	Main Worker	Marginal Worker
India	Total	39.10	51.68	25.63	60.90	30.43	8.67
	SC	40.41	50.71	29.39	59.59	29.48	10.92
	ST	49.06	53.20	44.83	50.94	33.82	15.24
Rural	Total	41.75	52.11	30.79	58.25	30.87	10.88
	SC	42.50	51.55	32.86	57.50	30.00	12.50
	ST	50.37	53.78	46.88	49.63	34.27	16.09
Urban	Total	32.25	50.60	11.88	67.75	29.29	2.96
	SC	32.14	47.43	15.56	67.86	27.44	4.70
	ST	34.56	46.82	21.58	65.44	28.75	5.82

Source : Calculated from Census of India 2001.

Table-3 : Proportion of PWD Employment across Gender, Regions and Social Groups in 2011 (%)

		Persons	Male	Female	Non-WKR
India	Total	36.34	47.19	22.59	63.66
	SC	38.25	48.35	25.29	61.75
	ST	42.11	48.50	34.76	57.89
Rural	Total	37.58	47.18	25.43	62.42
	SC	39.26	48.61	27.24	60.74
	ST	42.94	48.88	36.15	57.06
Urban	Total	33.51	47.20	16.09	66.49
	SC	34.86	47.45	18.74	65.14
	ST	34.56	45.15	21.81	65.44

Source : Calculated from Census of India 2011.

and females are 47.19 per cent and 22.59 per cent respectively. The proportion of marginal workers has also increased. The proportion of main workers in urban areas is a bit higher than those of rural areas. WPR is the highest for STs followed by SCs. Further, it is higher in rural areas than in urban areas. It is important to note that India's overall female workforce participation rate has slightly declined from (25.63%) in 2001 to (25.52%) in 2011. On the other hand, Female WPR among PWDs observed increase in 2011 (22.59%) compared to (20.51%) in 2001 census figures. It may be attributed to affirmative policies initiated by India.

There is an increase in the overall work-participation rate among PWD communities in 2011 as compared to 2001 figures. However, this increase is observed under the category of marginal workers and not the main workers, in fact, the proportion of main workers has slightly gone down in 2011.

Table-5 provides employment conditions for the overall population. WPR in 2011 has only slightly increased as compared to 2001 data. However, if we compare Table-5.5 to Tables (5.3 & 5.4), we find that the total employment of India is much higher compared to the total employment for persons with disabilities in 2011. The proportion of main workers is around 30 per cent for the total population as compared to 26 per cent for that of PWDs. However, the WPR gap for SCs is very narrow compared to the WPR of SCs who are disabled. For PWDs, the work participation rates are 38.25 per cent and 42.11 per cent respectively for SCs and STs. On the other hand, total WPR of India is 40.87 per cent and 48.74 per cent respectively for SCs and STs.

Table-6 throws lights on various aspects of individuals with disability of their participation in economic activities. All five types of disabilities and their work status across genders are analysed as per Census 2001 data. In 2001, around one-third of the total PWDs were working. If we compare employment status of different types

Table-4 : Main and Marginal Workers Under PWD Category in 2011

	Main WKR	Marginal WKR
India	6982009 (26.04%)	2762377 (10.30%)
Rural	4709176 (25.27%)	2294944 (12.31%)
Urban	2272833 (27.79%)	467433 (5.72%)

Source : Calculated from Census of India 2011.

Table-5 : Proportion of Employment across Gender, Regions and Social Groups in 2011 (%)

		Persons	Male	Female	Non-WKR	Main WKR	Marg WKR
India	Total	39.80	53.26	25.52	60.20	29.94	9.85
	SC	40.87	52.75	28.30	59.13	28.89	11.98
	ST	48.74	53.91	43.52	51.08	31.60	17.10
Rural	Total	41.83	53.03	30.03	58.17	29.49	12.34
	SC	42.40	52.87	31.31	57.60	28.49	13.91
	ST	50.02	54.36	45.65	49.78	31.72	18.26
Urban	Total	35.31	53.76	15.44	64.69	30.95	4.36
	SC	35.93	52.39	18.54	64.07	30.20	5.73
	ST	37.20	49.86	24.28	62.78	30.51	6.67

Source : Calculated from Census of India 2011

Table-6 : Proportion of Disabled Workers by Gender and by Types of Disability in 2001 (%)

Types of Disability	Total Disabled Workers (%)					
	Persons	Males	Females	Main Workers	Marginal Workers	Non Workers
Total PWDs	34.49	44.81	20.51	26.73	7.76	65.51
In Hearing	38.92	51.85	24.10	28.63	10.29	61.08
In Movement	29.51	37.44	15.46	22.75	6.77	70.49
In Seeing	39.94	53.78	23.75	31.58	8.36	60.06
In Speech	32.27	40.66	20.96	23.84	8.43	67.73
Mental	21.49	27.48	12.58	15.71	5.78	78.51

Source : Calculated from Census of India 2001.

of PWDs to total PWD employment and we found that the highest proportion of work participation rate was observed for persons with visual disability, around 40 per cent. It was followed by work participation rates for hearing

disability (38.92%), speech disability (32.27%), movement disability (29.51%) and mental disability (21.49%). Finally, the percentage share of main workers was also maximum among the persons with seeing disability. As far as gender characteristics is concerned, the highest proportion of employment is observed for females with visual disabilities and the lowest under the category of mental disability.

Table-7 provides the proportion of disabled workers across different gender groups and eight types of disabilities as calculated by Census 2011. The total work participation rate for PWDs has slightly increased to almost 36 per cent from around 34 per cent in 2001. The highest WPR was observed among persons with a speech disability (42%), however, it was hearing PWDs employment in 2001. Further, as per Census 2011, second highest employment status was achieved among disabled persons under 'any other' category, which was followed by employment among hearing disabled (40.65%), seeing disability (37.59%), movement disability (37.43%), mental retardation (21.40%), mental illness (21.38%) and multiple disabilities (18.54%). There is an increase in female workforce participation rates in 2011 as compared to the 2001 figure but it is much lower than WPR of PWD men and the general population. The highest female WPR value is recorded for females with a speech disability, followed by "any other" disability and the lowest being female workers with multiple disabilities.

Table-7 : Proportion of Disabled Workers by Gender and Type of Disability in 2011 (%)

Types of Disability	Total Disabled Workers (%)					
	Persons	Males	Females	Main Workers	Marginal Workers	Non Workers
Total PWDs	36.34	47.19	22.59	26.04	10.30	63.66
In-Seeing	37.59	51.00	22.80	26.76	10.83	62.41
In-Hearing	40.65	53.91	25.81	28.72	11.93	59.35
In-Speech	41.99	53.44	27.30	32.18	9.81	58.01
In-Movement	37.43	47.50	20.99	27.69	9.74	62.57
Mental-Retardation	21.40	26.67	14.17	13.96	7.44	78.60
Mental-Illness	21.38	26.91	13.89	13.15	8.23	78.62
Any-Other	41.54	53.40	26.84	29.83	11.71	58.46
Multiple-Disability	18.54	24.13	11.74	12.00	6.54	81.46

Source : Calculated from Census of India 2011.

Table-8 provides the status of work participation rates among SCs and STs across sex groups and different types of disabilities as per Census 2011. WPR was the highest among STs (42.11%), followed by SCs (38.25%) and for overall PWDs (36.34%). Among SC workers, 'any other' PWD category observed the highest proportion of employment (46.08%), followed by proportion of employment of hearing disability (42.60%), speech disability (39.81%), seeing disability (38.75%), movement disability (37.20%), mental retardation (23.55%), mental illness (22.74%), and multiple disabilities (19.19%). The work participation rate among STs reflect that the proportion of employment is close to 50% for hearing impaired persons, also, the rate is maximum among the males with hearing disability. 'Any other' PWD category is the second group securing an employment share of almost 48%, followed by seeing (44.17%), speech (44.81%), movement disability (39.62%), mental retardation (31.63%), mental illness (30.70%), and multiple disabilities (23.53%). It can be learnt that female workforce participation rates among ST communities are much higher than that of SCs and total PWD population. Among SCs, the higher female WPR is recorded under the category of "any-other" disability, followed by hearing disability and the lowest in multiple disabilities, which is obvious. On the other hand, among STs, the highest female WPR is observed in persons with hearing disabilities (41.97%), followed by "any-other" disability and the least among the multiple disabilities.

Table-8 : Proportion of SC and ST Employment by Type of Disability in 2011

Types of Disability	Disabled Scheduled Castes Workers			Disabled Scheduled Tribes Workers		
	Persons	Males	Females	Persons	Males	Females
Total	38.25	48.35	25.29	42.11	48.50	34.76
In-Seeing	38.75	51.08	25.15	44.17	52.36	35.69
In-Hearing	42.60	54.57	29.25	49.91	57.29	41.97
In-Speech	39.81	48.84	27.94	44.81	50.67	37.68
In-Movement	37.20	46.37	21.87	39.62	46.48	30.09
Mental-Retardation	23.55	28.81	16.32	31.63	34.82	27.89
Mental-Illness	22.74	27.85	15.74	30.70	33.89	27.06
Any-Other	46.08	57.78	31.12	47.98	53.56	41.72
Multiple-Disability	19.19	24.35	12.91	23.53	27.80	19.07

Source : Calculated from Census of India 2011.

Table-9 shows the employment characteristics of persons with disabilities in 2011. There were around 97.5 lakh PWD workers, out of which almost 23 lakh (23%) were cultivators. The highest proportion of PWD employment was observed for disabled agricultural labourers, around 30 lakh (31%). It was followed by PWD jobs in household industries (4.35 lakh). Finally, the highest proportion was under the 'others' category (42%).

Table-10 presents work participation status in different age cohorts, across different workers categories and gender characteristics as per 2001 Census. There were around 35 per centof disabled workers out of the total disabled population. In the working age-group that is (15-59 years), The work participation rate was around 51 per cent, out of which 64 per cent were males and 32 per cent females. It shows a huge gender gap in the disability sector. For total PWD population, the proportion of main workers was 26.73 per cent and it is 40.21 per cent in the working-age group of 15-59 years. Further, it can be observed that the female workforce participation rates in the working-age group of (15-59 years) are much lower for PWD females than the total working PWDs in the same age group.

Table-9 : Distribution of Disabled Workers in India : Census 2011

Total	Cultivators (CL)	Agriculture Labourers (AL)	In Household Industries (IHI)	Others
97,44,386	22,74,322	29,77,272	4,35,053	40,57,739
%	23	31	4	42

Source : Calculated from Census of India 2011.

Table-10 : Proportion of Workers, Main workers, Marginal Workers and Non-Workers by Respective Age Group to Total Disabled in India in Census 2001

Age Group	Persons	Males	Females	Main Workers	Marginal Workers	Non Workers
Total	34.49	44.81	20.51	26.73	7.76	65.51
0-14	3.41	3.59	3.18	1.58	1.83	96.59
15-59	51.14	63.97	32.05	40.21	10.93	48.86
60+	26.56	39.56	12.47	20.26	6.30	73.44
Age not stated	32.31	39.23	21.65	25.19	7.12	67.69

Source : Calculated from Census of India 2001.

As shown in Table-11, in the age group of 0-14 years, the WPR increased from 3.41 per cent in 2001 to 4.09 per cent in 2011. Also, in the age group of 0-14 years and 60 plus years, the proportion of employment in 2001 increased from 26.56 per cent and 32.31 per cent respectively to 28.30 per cent and 37.46 per cent in 2011, in the same age bracket. The WPR is around 50 per cent for the 15-59 years age cohort. There is an increase in work participation rates in the age group of 0-14 years and also in the age group of over 60 years. Besides there is also a rise in the proportion of employment in the 'any other' category, which largely belongs to 60 plus population group. It shows that there is a higher prevalence of child labour and higher work participation rates among the distress population group. It is also important to highlight that in the age group of 15-59 years, the work participation rate among main workers fell from 40.21 per cent in 2001 to 36.93 per cent in 2011. In the category of age-not stated, there is a very high proportion of non-workers (62.54%) among PWDs.

Table-12 presents the status of disabled non-workers for different types of disabilities, it also explains major non-economic activities for these PWDs. In 2001, there were 14.35 million total disabled who were non-workers. Out of total disabled non-workers, 52.28 per cent were dependent on others and it shows the severity of the situation. Around one-fourth were students, followed by almost 15 per cent involved in household duties, 2.25 per cent pensioners, 0.62 per cent beggars and 5.5 per cent fall into 'others' category. Among the different types of PWDs, the highest proportion of disabled involved in non-economic activities was observed among persons with 'seeing' disability (6.39%). It was followed by movement disability (4.30%), mental

Table-11 : Proportion of Workers, Main workers, Marginal Workers and Non-Workers by respective Age Group to Total Disabled in India in Census 2011

Age -Group	Workers (WPR)	Main Workers	Marginal Workers	Non-Workers
Total	36.34	26.04	10.30	63.66
0-14	4.09	1.81	2.28	95.91
15-59	50.50	36.93	13.57	49.50
60+	28.30	19.28	9.03	71.70
Age not stated	37.46	26.15	11.31	62.54

Source : Calculated from Census of India 2011.

disability (1.78%), speech disability (1.11%), and hearing disability (0.77%). Among the students, the highest proportion of non-economic activities was recorded for persons with movement disability (27.30%), it was followed by disabilities in seeing (26.91), speech (26.68%), hearing (19.18%) and mental 9.89%). As far as major non-economic activity (i.e, household duties) is concerned, persons with seeing disability experienced the highest percentage of involvement in this sector, the lowest proportion of involvement in household duties was experienced among persons with mental disability. 'Dependent' is another category of non-economic activity, the highest proportion of involvement was seen among the persons with mental disability (68.51%) and the lowest being seeing disability (46.90%). Noticeably, more than half of the disabled non-workers (overall and all types of PWDs) fall under the 'dependent category' of non-economic activity. Persons with hearing disability observed the highest proportion of pensioner, close to 5 per cent and the lowest PWD pensioners being persons with mental disability. The beggars, vagrants, etc., is also a component of non-economic activities. For different types of PWDs, it is below 1 per cent. 'Others' is another category of non-economic activity among persons with disabilities (non-workers), the proportion ranges from 5 per cent to 7 per cent.

Table-12 : Disabled Non-Workers by Type of Disability and by Major Non-Economic Activity in India in Census 2001

Types of Disability	Major Non-Economic Activity (%)						
	Total (Millions)	Student	Household Duties	Dependent	Pensioner	Beggar, Vagrants, etc.	Others
Total disabled Non-Workers	14.35	24.84	14.51	52.28	2.25	0.62	5.49
In-Seeing	6.39	26.91	18.89	46.90	2.31	0.41	4.56
In-Speech	1.11	26.68	14.09	52.42	0.94	0.47	5.39
In-Hearing	0.77	19.18	16.74	53.78	4.59	0.63	5.08
In-Movement	4.30	27.30	9.62	53.27	2.65	0.84	6.31
Mental	1.78	12.74	9.89	68.51	0.89	0.90	7.07

Source : Calculated from Census of India 2001.

Major non-economic activities of different types of persons with disabilities who are also non-workers are presented in Table-13, as per Census 2011. Total disabled non-workers constitute around 17 million as compared to 14.35 million in 2001. Out of eight types of disabilities, persons with movement disability had the largest share of non-workers (3.4%), persons with seeing disability (3.1%) followed the next. Further, it was followed by hearing disability (3%), any other disability (2.9%), speech disability and mental retardation (1.2%), The lowest proportion was observed by persons with mental illness (0.6%). Among the disabled non-workers, the proportion of 'dependent' was the highest (45.75), however, the dependency has fallen in 2011 as compared to the 2001 figure. It was followed by students (27.2%), those performing household duties (15.3%), followed by pensioners (5.5%), beggars (0.4%), rentiers (0.2%) and others (5.6%). The beggars category has observed an increase in 2011, compared to the last figures. Rentier is another category of non-economic activity which has been added in 2011Census data.

Among the disabled non-workers, having seeing disability, 42.7 per cent were dependents and 28 per cent were students, followed by those involved in household duties (17.3%), others, pensioners, beggars and rentiers. In the case of disabled non-workers, with disability in hearing, 38.7 per cent were dependent and 32.5 per cent were students, followed by 18.9 per cent in household duties, pensioners, others, rentiers and beggars. Among disabled non-workers with a speech disability, the maximum proportion of non-economic activity was recorded by students (37.2%) and dependent (33.5%), followed by those performing household duties (20%), highest among all PWDs by type. In the case of non-workers having movement disability, the proportion of dependent was almost (50%), followed by students (19.7%), household duties, pensioners etc. Among the disabled non-workers with mental retardation, there were 57.7 per cent dependents, followed by students (24.5%), those performing household duties etc. Among disabled non-workers with mental illness, the proportion of the dependent was highest (66.6%) out of all PWDs by type, household duties and students (9.3%) followed afterwards. 'Others' category of non-economic activity was the highest for disabled non-workers with mental disability out of all different types of disabilities. In the case of non-workers having any other disability, the highest proportion was of students (37.4%), followed by dependent (35.4%), household duties (17.7%), etc. Among the non-workers having multiple disabilities,

Table-13: Disabled Non-Workers by Type of Disability and by Major Non-Economic Activity in India in Census 2011

Types of Disability	Major Non-Economic Activity (%)							
	Total (Millions)	Student	Household Duties	Dependent	Pensioner	Rentier	Beggar, Vagrants, etc.	Others
Total Disabled Non-Workers	17.10	27.20	15.30	45.70	5.50	0.20	0.40	5.60
In-Seeing	3.10	28.00	17.30	42.70	6.70	0.20	0.40	4.70
In-Hearing	3.00	32.50	18.90	38.70	4.90	0.20	0.20	4.60
In-Speech	1.20	37.20	20.00	33.50	3.40	0.20	0.20	5.40
In-Movement	3.40	19.70	13.40	49.80	8.80	0.30	0.60	7.40
Mental Retardation	1.20	24.50	9.60	57.70	2.10	0.20	0.50	5.40
Mental Illness	0.60	9.30	11.90	66.60	2.80	0.20	1.00	8.20
Any-Other	2.90	37.40	17.70	35.40	3.30	0.20	0.30	5.80
Multiple Disability	1.70	15.00	7.30	65.90	6.80	0.20	0.60	4.30

Source : Calculated from Census of India 2011.

there was a very high proportion of the 'dependent' (65.9%), followed by students (15%), household duties (7.3%), pensioners (6.8%), others (4.3%), beggars (0.6%) and rentiers (0.2%).

3. Employment Status among Persons with Disabilities across the States of India

This section of the chapter examines in detail the work participation rates (WPRs) among persons with disabilities across caste groups and states in 2011. The WPR values are provided in percentage terms.

Table-14 provides employment status for PWDs across different social groups in 2011. The North-Eastern states observed the highest proportion of work-participation rates. The maximum WPR was in the state of Nagaland (51.92%), followed by Sikkim (49.04%), Arunachal Pradesh (44.69), Himachal Pradesh (44.37%), and Manipur (43.69%). Among the larger states, Madhya Pradesh observed the highest score (39.56%), Andhra Pradesh (38.61%), Karnataka (38.05%), and Tamil Nadu (37.46%). Kerala is an economically prosperous state but it has the lowest proportion of PWD workers among all the states of India. Bihar and UP were in the middle in terms of PWDs employment. Union territories experienced the lowest WPR among persons with disabilities. It is also noticeable that many North-Eastern states have a very high prevalence of disability and also high work participation rate, for example; Sikkim.

As far as the proportion of PWD workers who belong to SC communities is concerned, Mizoram (55.56%) achieved the highest percentage of WPR (55.56%), followed by Sikkim (48.87%) and among bigger states, Maharashtra (43.20%), followed by Bihar (41.67%), Madhya Pradesh (41.15%), Andhra Pradesh (38.61%), Karnataka (40.34%), and Tamil Nadu (39.73%). Uttar Pradesh, West Bengal, Rajasthan, Gujarat and Odisha are in the middle range in terms of livelihood opportunities for PWDs, around 35-36%. Most UTs and some of the North-Eastern states like Nagaland and Arunachal Pradesh are among the lowest, also many of these states do not have at all any number of SC communities. The work-participation rate for PWDs among ST communities was highest for Manipur (58.20%) and Nagaland (52.49%). Among the larger states, the maximum was in Maharashtra (45.13%), Tamil Nadu (44.48%), Madhya Pradesh (43.92%), Bihar (42.57%) and Gujarat (41.94%). Karnataka, West Bengal and Uttar Pradesh are mediocre states in terms of employment opportunities for ST PWDs, 39.67%, 38.01% and 37.71% respectively, and the lowest being Goa

(31.19%), Kerala (30.61%) and the UTs, Andaman (25.23%) and Lakshadweep (18.99%).

In a nutshell, among the bigger states, the southern most states Tamil Nadu, Karnataka and Andhra Pradesh observed the highest proportion of work participation rate among the PWDs.

However, Kerala has the least WPR for its PWD communities. Most of the North-Eastern states and some hilly states (like Himachal Pradesh) have the highest proportion of the working population who are PWDs. The lowest percentage of PWD workers was observed in the UTs and Kerala. Bihar, Odisha, West Bengal, Uttar Pradesh, Rajasthan and Gujarat, interestingly all these are adjacent states are in the middle range in terms of providing employment opportunities for their PWD communities. It is pertinent to highlight that Maharashtra is at the forefront of employing PWDs in the SC categories. In addition, Bihar also has higher work force participation rates among its Dalit communities who have a disability.

The employment outcomes among the vulnerable section of PWD communities (SCs and STs) is much less compared to the overall work participation rates. A comparative study across states show that the lowest proportion of PWD employment was observed among the SCs and was followed by STs. Therefore, PWDs who are STs have better employment rates than their SC counterparts.

Having examined the workforce-participation rates among persons with disabilities and by types of disabilities across different regions and social groups in 2011, this section makes a comparative study between 2001 and 2011 work participation rates (among main, marginal and non-workers) across genders and residents of India.

An empirical examination of the 2001 Census, as presented in Table-15, reveals that the North-Eastern states have the highest work-participation rates, it shows a similar picture like 2011 census data. Among the larger states, the highest values are observed in Tamil Nadu (41.42%), Rajasthan (38.16%), Madhya Pradesh (37.60%), Andhra Pradesh (36.37%), Gujarat (36.16%), and Karnataka (36.04%). Maharashtra, Bihar, West Bengal, Odisha, Uttar Pradesh, Kerala are among the lowest, their WPR is around 32-33 per cent. The lowest WPR values are observed by Lakshadweep (18.36%), Goa (22.41%), and Kerala (25.48%). In terms of ranking of WPR values across states, more or less, a similar pattern is observed between male and female PWD workers. Female work force

Table-14 : Proportion of Employment for Persons with Disabilities (PWDs) across Regions and Social Groups in India as Per Census 2011 (%)

States	PWD Workers	PWD SC Workers	PWD ST Workers	States	PWD Workers	PWD SC Workers	PWD ST Workers
Jammu & Kashmir	33.65	34.32	34.92	West Bengal	33.98	36.86	38.01
Himachal Pradesh	44.37	45.64	47.59	Jharkhand	37.68	39.12	43.52
Punjab	33.07	34.15	0.00	Odisha	34.32	35.57	40.41
Chandigarh	31.37	32.71	0.00	Chhattisgarh	38.54	39.20	41.19
Uttarakhand	35.02	36.01	45.93	Madhya Pradesh	39.56	41.15	43.92
Haryana	31.22	32.99	0.00	Gujarat	34.79	35.63	41.94
Delhi	27.92	29.12	0.00	Daman & Diu	35.25	25.95	33.00
Rajasthan	34.65	36.13	40.05	Dadra & Nagar Haveli	35.19	25.64	34.23
Uttar Pradesh	34.79	36.94	37.71	Maharashtra	42.13	43.20	45.13
Bihar	37.12	41.67	42.57	Andhra Pradesh	38.61	40.84	47.12
Sikkim	49.04	48.87	47.06	Karnataka	38.05	40.34	39.67
Arunachal Pradesh	44.69	0.00	43.40	Goa	28.79	28.15	31.19
Nagaland	51.92	0.00	52.49	Lakshadweep	19.88	0.00	18.99
Manipur	43.69	41.53	58.20	Kerala	23.59	27.97	30.61
Mizoram	36.27	55.56	36.58	Tamil Nadu	37.46	39.73	44.48
Tripura	33.61	32.25	37.55	Puducherry	31.00	33.37	0.00
Meghalaya	37.74	31.56	37.51	Andaman & Nicobar Islands	31.49	0.00	25.23
Assam	33.91	34.96	40.87				

Source : Calculated from Censusof India 2011.

participation rates are much lower than their male counterpart. Among the larger states, the highest female WPR value is observed by Tamil Nadu (32.96%), followed by Madhya Pradesh (25.49%), Rajasthan (24.70%), Andhra Pradesh (24.20%), Karnataka (23.25%), Maharashtra (22.61%) and Gujarat (21.67%). It is also noticeable that most of the southern states have higher female workforce participation rates. However, for the same states, male work force participation rate is much higher, even close to double in some states. Among the larger states, the highest male WPR values were observed by Tamil Nadu (50.51%), Rajasthan (47.31%), West Bengal (46.74%), Gujarat (32.16%), Madhya Pradesh (46.18%), Andhra Pradesh (45.66%) and Karnataka (36.04%).

Among the bigger states, the higher WPR values, as per Census 2011 data, were observed in the states of Maharashtra (42.13%), Madhya Pradesh (39.56%), Andhra Pradesh (38.61), Karnataka (38.05%), Tamil Nadu (37.46%) and Bihar (37.12%). The detailed description is already provided in the previous Tables. In 2011, the WPR has improved in the states of Bihar and Maharashtra but Rajasthan and Gujarat have fallen behind. More or less, there is not much variability in the ranking of states in terms of WPR values between 2001 and 2011. It can also be observed that overall work-participation rates across states have slightly increased in 2011 compared to 2001 figures, largely because of the increase in WPR values in the states of Bihar, Uttar Pradesh, Odisha, Karnataka, Andhra Pradesh and Madhya Pradesh. A significant increase was observed in the state of Maharashtra, from 33.84 per cent to 42.13 per cent. It is important to note that female WPR among PWDs observed increase across some of the states in 2011 compared to 2001 census figures. Possibly, it may be attributed to affirmative policies initiated in the disability sector. For example; Kerala is among the lowest in terms of WPR values, however, the female work participation rates have slightly gone up in 2011 as compared to 2001 data. Further, on an average, the female work participation in the descending order was observed in the North-Eastern states, Southern states, Eastern states, North-Western states and union territories.

4. Factors Affecting Employment Status among Persons with Disabilities in India

To examine the factors associated with persons with disability employment, a cross-sectional study is undertaken at the state level using the 2011 Census. Regression analysis is carried out to understand the possible association, in the equation, dependent variables being

Table-15 : Proportion of Employment for Persons with Disabilities (PWDs) in Regions across Genders as per Census 2001 and 2011 (%)

States	2001			2011		
	PWD Workers	PWD Male Workers	PWD Female Workers	PWD Workers	PWD Male Workers	PWD Female Workers
Jammu & Kashmir	34.27	45.56	19.43	33.65	45.87	17.65
Himachal Pradesh	41.64	47.49	33.56	44.37	50.66	36.50
Punjab	28.28	38.41	13.36	33.07	46.53	14.46
Chandigarh	34.04	48.01	11.83	31.37	44.44	12.49
Uttarakhand	34.44	42.27	23.56	35.02	43.65	24.27
Haryana	32.57	41.13	19.64	31.22	43.05	15.06
NCT Of Delhi	30.06	43.70	8.36	27.92	41.20	8.87
Rajasthan	38.16	47.31	24.70	34.65	43.67	23.96
Uttar Pradesh	32.01	43.62	14.50	34.79	46.71	19.07
Bihar	33.62	45.03	16.55	37.12	48.70	21.39
Sikkim	49.95	58.46	39.12	49.04	57.22	39.51
Arunachal Pradesh	61.91	72.03	41.76	44.69	51.47	36.96
Nagaland	43.87	48.88	37.78	51.92	55.87	47.19
Manipur	36.13	42.48	28.54	43.69	48.95	37.71
Mizoram	46.75	52.62	39.65	36.27	43.18	28.14
Tripura	34.16	47.53	16.59	33.61	45.72	18.72

(Contd...)

Meghalaya	40.93	48.33	32.53	37.74	43.77	31.04
Assam	32.66	45.47	16.28	33.91	46.00	19.93
West Bengal	33.26	46.74	15.15	33.98	47.54	16.81
Jharkhand	32.88	41.85	20.01	37.68	47.10	25.96
Odisha	32.40	43.90	17.95	34.32	45.16	21.47
Chhattisgarh	35.10	42.13	26.44	38.54	47.18	28.61
Madhya Pradesh	37.60	46.18	25.49	39.56	48.74	27.26
Gujarat	36.16	46.71	21.67	34.79	47.84	18.12
Daman & Diu	35.89	51.10	16.45	35.25	50.00	13.84
Dadra & Nagar Haveli	44.44	53.84	31.70	35.19	44.64	22.41
Maharashtra	33.84	41.48	22.61	42.13	52.17	28.75
Andhra Pradesh	36.37	45.66	24.20	38.61	47.50	28.17
Karnataka	36.04	45.62	23.25	38.05	48.16	25.77
Goa	22.41	29.10	13.73	28.79	39.72	17.17
Lakshadweep	18.36	30.30	4.50	19.88	30.91	7.98
Kerala	25.48	37.81	11.43	23.59	34.46	11.90
Tamil Nadu	41.42	50.51	32.96	37.46	47.00	25.46
Puducherry	32.95	46.30	15.17	31.00	44.29	15.25
Andaman & Nicobar	34.79	48.39	14.48	31.49	44.06	14.15

Source : Calculated from Census of India, 2001 and 2011.

PWDs employment (rural and urban) and independent variables being the proportion of female PWDs, the proportion of illiterate PWDs in a state, proportion of PWDs for different types of disabilities across states of India and proportion of persons with disabilities among SC and ST communities.

As presented in Table-16, in rural areas, one unit increase in the proportion of female PWDs is associated with 2.922 percentage increase PWD employment, as shown under equation-1. It also may because of the growing number of women engaged in the agricultural sector. Similarly, one unit increase in the proportion of persons with seeing and hearing disability is associated with around 1.20 per cent increase in rural PWD employment. In equation-2, we find that while there would be a 1.502 percentage decrease in PWD employed for each additional unit of the proportion of individuals with movement disability. In equation-3, it can be seen that for every additional unit of rural PWD

Table-16 : Step-Wise Regression Results on Factors Affecting Rural Persons with Disabilities Employment across States in India in 2011

Variables	Equation-1 Coefficients	Equation-2 Coefficients	Equation-3 Coefficients
Proportion of SC PWDs	0.582	0.410	0.104
Proportion of ST PWDs	-0.029	-0.099	-0.008
Proportion of Female PWDs	2.922**	2.647**	3.699**
Proportion of Illiterate PWDs	1.294***	1.511***	1.326***
Proportion of Seeing PWDs	1.205*		
Proportion of Hearing PWDs	1.399*		
Proportion of Speech PWDs	1.028		
Proportion of Movement PWDs	-1.502***		
Proportion of Mental PWDs	-1.648		
Proportion of Any-other PWDs	0.964		
Proportion of Multiple PWDs	0.305		
R-Squared	0.643	0.652	0.583
Adjusted R-Squared	0.551	0.592	0.474

Source : Estimated from Census of India, 2011.
Note : ***, ** and * denote 1, 5 and 10 per cent level of significance respectively.

employment is associated with 3.699 percentage increase in the proportion of female PWDs and 1.326 percentage increase in the proportion of illiterate PWDs. Out of all seven types of categories of PWD, no significant association was observed under the category of multiple, any-other, mental and speech disability.

Step-wise regression analysis is carried out to identify and estimate the correlates of employment for persons with disabilities in urban areas across states using 2011 Census data. As the results provided in Table-7, it can be learnt from the estimates of equation-1 that A unit increase in the proportion of female PWDs is negatively associated with 2.922 per cent decline in urban employment for PWDs. Increase in the proportion of PWD illiteracy is associated with a fall in urban employment. It means there is a higher chance that an illiterate PWD will get a job in the urban areas. In both these cases, the

Table-17 : Step-Wise Regression Results on Factors Affecting Urban Persons with Disabilities Employment across States in India in 2011

Variables	Equation-1 Coefficients	Equation-2 Coefficients	Equation-3 Coefficients
Proportion of SC PWDs	-0.582	-0.410	-0.104
Proportion of ST PWDs	0.029	0.099	0.008
Proportion of Female PWDs	-2.922**	-2.647**	-3.699**
Proportion of Illiterate PWDs	-1.294***	-1.511***	-1.326***
Proportion of Seeing PWDs	-1.205*		
Proportion of Hearing PWDs	-1.399*		
Proportion of Speech PWDs	-1.028		
Proportion of Movement PWDs	1.502***		
Proportion of Mental PWDs	1.648		
Proportion of Any-other PWDs	-0.964		
Proportion of Multiple PWDs	-0.305		
R-Squared	0.643	0.652	0.583
Adjusted R-Squared	0.551	0.592	0.474

Source : Estimated from Census of India, 2011.

Note: ***, ** and * denote 1, 5 and 10 per cent level of significance respectively.

findings are in contrast to rural areas. Further, there would be around 1.20 percentage decline in PWD employment in urban areas for every additional unit increase in the proportion of persons having seeing and hearing disabilities. Empirical estimation of equation-2 suggests that A unit increase in the proportion of persons with movement disability is associated with 1.502 percentage increase in urban employment, and it is strongly significant unlike in the rural sector. Finally, estimates of equation-3 reveals that like the first two equations, the proportion of female PWDs and illiterate PWDs are negatively associated with urban employment.

5. Concluding Remarks

Lower employment levels for people with disabilities have drawn concerns from policy makers, professionals, and persons with disabilities themselves for many years. It is evident from the literature that due to poor access to health and education services as well as vocational training, rural folk and women face a higher level of unemployment. Besides,lower participation of the disabled in the labour market is the main factor that drives them into the vicious circle of poverty. Also there is an extremely low level of employment for persons with disabilities in the organized sector. As far as economic participation of PWDs in India is concerned, understanding the employment experience of PWDs in India is particularly important also because India is one of the few developing countries which have important rights-based legislation, as well as various central and state government programmes, targeted at promoting the employment of PWDs. There are obvious welfare and policy implications, nonetheless, labour market experiences of persons with disabilities are not widely known.

The findings of the study validate the hypothesis of the study that there are lower employment outcomes for persons with disabilities. The WPR has significantly increased in 2011 but it is attributed to an increase in marginal workers. This could also possibly mean growing informalisation in the disability sector. The SCs have the lowest employment rates and STs recorded the highest values of WPR. The age-cohort analysis shows that there is an increase in the WPR in 2011 relative to 2001 among the children and elderly population, it possibly indicates an increase in distress participation. The female work WPR is far lower, however, it has slightly increased in 2011. Female WPR is the highest among STs, followed by SCs and then the general population.

Multiple disability has emerged a significant PWD category in the 2011

Census and the employment status is very poor among them, the lowest of all types of disabilities, besides, the large disparity is also perceptible across states. As far as "disability by type" is concerned, the highest share of non-workers is visible under persons with movement disability and the lowest under the category of individuals with mental illness. As expected, in the disability sector, the highest proportion of non-worker was in the category of "dependent". The analysis at the state level suggests that most of the North-Eastern states, Southern states excluding Kerala and the states of the central regions have higher WPR. On the other hand, most of the union territories and north-western states have lower employment outcomes. More or less, the states of the eastern regions scored WPR values in the middle range.

Further, the regression analysis of factors affecting workforce participation rates for persons with disabilities suggests that the rural and urban areas have different factors contributing to their employment. Therefore, individuals with disabilities have different employment outcomes depending on their disability types, gender and social compositions, levels of literacy, and whether they live in rural or urban regions.

Understanding the economic experiences of PWDs is critical for disability advocates and policy-makers. The problems faced the persons with disabilities is multifaceted and require concerted efforts. Employment of a person with a disability has multi-dimensional effects. Securing gainful employment is crucial for their holistic well-being. It brings about improvement to their quality of life socially and economically, largely absorbs them into the mainstream and also ensures dignity and recognition in the family and society.

Disability is an important development issue and poses challenges to the state to undertake welfare measures and frame disability-inclusive policies. Although, India has taken significant steps regarding progressive disability legislations at par with international standards the main problem lies in its proper execution. Therefore, it is needed that the "The Rights of Persons with Disabilities Act, 2016" is implemented in letter and spirit. Experts have consensus on the matter that framing of blanket policies without recognising heterogeneity in the disability sector will not lead to the desired outcome. Employment experiences differ geographically across states, social groups and genders. Recognising and addressing significant differences in the disability sector across urban and rural areas, type of disability and gender would prove to be potent. The results provided in the present study could be helpful in the formulation

of employment policies in the disability sector. It is also important that rights and special needs of the PWDs are adequately addressed particularly under the broader ambit of Sustainable Development Goals.

Endnote

1. To gain insights into different models of disability, refer, World Bank (2009:1), People with Disabilities in India : From Commitment to Outcomes.

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Did Old Private Sector Banks Outperform the New Private Sector Banks? Some Recent Empirical Evidence

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The introduction of economic reforms in 1991 and the implementation of the recommendations of the committee on financial sector reforms and the committee on banking sector reforms resulted in the provision of a level playing field for the private sector banks. With the decline of specialized financial institutions and non banking financial institutions (NBFCs) the role of the banking sector in financing industrial and service sector growth has also increased many folds. In this context, the evaluation of performance of private sector banks demand increased attention from the researchers, academicians and market regulators.

In this context, the present study seeks to compare the performance of old and new private sector banks in terms of a bilateral comparison model. For this, we have constructed a performance frontier of the private commercial banks on the basis of data collected for the period from 2012-13 to 2017-18. In the second stage, we have applied Mann-Whitney Rank Sum test for drawing inference about the comparative performance of the old and new private sector banks. In the third stage, the log of efficiency scores are regressed on selected contextual variables.

Keywords : Bilateral comparison, Data Envelopment Analysis, Censored Regression, Non-Parametric Approach, Private Sector Banks.

Introduction

After following a path of a public sector bank driven policy of mass banking (coupled with increased attention towards priority sector lending) for more than two decades, the Government of India and the Reserve Bank of India (RBI) introduced major policy shift in the banking sector in tune with the policy of Liberalization, Privatization and Globalization. During the 80s and 90s of the previous millennium, banking sector asset quality was gradually worsening and the public sector bank was unable to cater to the needs of the economy. As an integral part of the policy change, an increase in the number of private sector banks were contemplated

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(through the introduction of banking sector entry norms in 1993 and revision of the same in 2001) to promoting financial inclusion, foster competition and thereby reduce costs and improve the quality of services. This was quite essential since as per the Census of 2001, only 30.1 per cent of the households in rural areas and 49.5 per cent of the households in urban areas availed of banking services, and as per 2011 Census, 54.4 per cent of the rural households and 67.8 per cent of the urban households availed the services of banks. In aggregate, only 58.7 per cent households were availing banking services in the country.

The deregulation of entry of the banking sector opened up the banking market for private investment as the promoters of private banks too eyed the Indian market as a huge untapped one to explore. Therefore, India provided a substantial business potential to the new banks owing to her vast geographical spread and unaddressed customer base (Nargundkar, 2010). This has led to the establishment of quite a number of new private sector banks and the share of the private banking sector in India (in terms of asset and customer base) increased significantly during the post reform.

In the post-liberalization phase, the India banking market has two categories of private sector banks – the old private sector banks which are in existence even at the time of entry deregulation in the (1993) of the Indian banking sector and the New Private sector banks which have been set up as a consequence of entry deregulation. Unlike their old counterparts the new private sector banks did not have the legacy of poor asset quality or obsolete processing system and could offer core banking facilities from the very beginning. The use of sophisticated IT based management techniques enabled the bank authorities to monitor banking performance in a more effective and real time manner. Against this backdrop the present study seeks to make a bilateral comparison of performance using a non-parametric approach. The study includes three stages of analysis. In the first stage, we have estimated sectoral efficiency performance using a Data Envelopment Analysis (DEA) based framework for bilateral comparison. The second stage involves drawing of statistical inference on the basis of the Mann-Whitney Rank sum test. In the final stage, the log of efficiency scores are regressed on selected contextual variables. The paper accordingly has 4 sections and proceeds as follows. Section-1 reviews the extant literature. Section-2 outlines the methodology of bilateral comparison, and the procedure adopted in Rank Sum test. Section-3 describes the variable and discusses the results. Section-4 concludes.

1. Review of Extant Literature

International Studies

Aftab et al (2011) revealed the relationship between bank efficiency and share performance. According to their study a positive and significant relation exists between stock performance and bank efficiency. Aygoren et al (2015) explained the relationship between efficiency and stock performance in Turkey. As per their studies the concentration ratios and capital adequacy ratio have a positive effect on the efficiency of stocks, whereas the number of employees per unit of branches and age influences stock.

Beccalli et al (2006) described the relationship between stock price and efficiency. They had measured efficiency both in parametric and non-parametric approach. According to this study changes in cost efficiency influenced the share prices and as a result cost-efficient banks tend to outperform their inefficient counterparts.

Dinberu et al (2018) conducted the study to identify the driving factors of technical efficiency of commercial banks in Ethiopia. The result showed that profitability and management quality have a positive impact on the efficiency of the banks and capital adequacy has a negative influence.

Gramanova and Strunz (2017) examined the relationship between technical efficiency and profitability of insurance companies using the DEA model and Tobit Regression model. The result showed statistically a significant difference between average technical efficiency score in the CCR model and BCC models.

Liao (2019) examined whether the efficiency and ownership structure of banks is related to their stock performance in China and Taiwan. According to the study, ownership structure does not play an important role in stock return. Odah et al, (2017) studied the value of bank loans which is one of the main banking services provided by banks in any country. In this article, both Tobit Regression and OLS method results were calculated. According to the author's liquidity and loan repayment affects the Iraqui bank loans while the effects of interest rate and borrowers were not statistically significant.

Mousa (2015) examines the efficiency of the banking sector in Bahrain Bourse using financial ratio analysis and DEA. According to the author increasing financial efficiency of the banks have played a significant role in financial sector and emerging market.

Socol and Damuletiu (2013) had examined how banking profitability, which is expressed in terms of Return on Assets and Return on Equity, was affected by the credit risk ratio in Romanian banking system during the year 2008 to 2013.

Sharma (2018) examined an empirical relationship between market performance indicators and efficiency of Indian banks. The study revealed that a significant association exists between scale efficiency and stock market return whereas technical and pure technical efficiencies exhibited a positive and significant association with EVA and MVA respectively.

Studies on Indian Banking

There are several important research studies which made efficiency evaluation of the Indian commercial banks. Saha and Ravisankar (2000) examined the efficiency of the Indian public sector banks in two phases during the period 1992-95. The results obtained by them show that the performance of the public sector banks (except for a few) had improved over the years of study.

Sathye (2003) estimated the productive efficiency of 94 commercial banks operating in India (comprising 27 public sector banks, 33 private sector banks and 34 foreign banks) for the year 1997-98 using two models. As per both the models, public sector banks had superior performance relative to other banks.

Shanmugam and Das (2004) computed technical efficiency for the state bank group, nationalised banks, private banks and foreign banks during the period 1992-1999. They applied stochastic frontier approach for panel data. As per the study, the State Bank group and foreign banks were found to be more efficient than their counterparts. The reform period witnessed a relatively high efficiency for banks which augmented investments and this outcome is consistent with the objective of economic growth. However, the study confirmed the existence of large distance between the actual and potential performances of the in-sample banks.

Rammohan and Ray (2004) evaluated the performance of 58 public, private sector and foreign banks for the period 1992-2000 using a revenue maximization efficiency approach. The study revealed that the public sector banks exhibited superior performance relative to the private sector banks However, no difference was found between public sector banks and foreign banks. Further, the decomposition of revenue maximization efficiency scores into technical and allocative parts showed that the difference between the public and private sector banks is due to the existence of gaps in technical efficiency. This gap, however, does not exist in respect of allocative efficiency.

Das, Nag and Ray (2005) examined output-oriented technical efficiency, cost efficiency, revenue maximizing efficiency and profit efficiency of Indian

(public, private and foreign) banks for 1997-2003. The results revealed that the Indian banks were still not much differentiated relative to input or output oriented technical efficiency or cost efficiency. However, they differed considerably in respect of revenue and profit efficiencies.

Tabak and Tecles (2010) used Bayesian stochastic frontier for estimating the cost and profit efficiencies of the Indian banking sector covering the period 2000 to 2006. The study also tested for the inclusion of off balance sheet data of the banks in model specification by estimating two separate models with and without off balance sheet data. The study found that the public sector banks were most efficient, and they were followed by private and foreign banks. The performance of the in-sample banks, however, showed convergence over the period under observation. Further, the study also confirmed that the inclusion of off balance sheet data is important since it improves the efficiency estimates significantly. However, the effect of such data is more on profit function relative to the cost function.

Ray and Das (2010) used data envelopment analysis to estimate cost and profit efficiency of Indian banks during the post-reform period. The results show considerable variation in average levels of profit efficiency across various ownership categories of banks. In general, state- owned banks are found to be more efficient than their private counterparts. The analysis revealed a rightward-shift of the efficiency distribution over the years largely sponsored by the state-owned banks. Based on the conditional distribution, the study finds strong evidence of ownership explaining the efficiency differential of banks.

Fujii, Managi and Matousek (2014) estimated technical efficiency and productivity growth in the Indian banking sector for the period from 2004 to 2011. The study used a weighted Russell directional distance model to measure technical inefficiency. The model was modified to measure change in total factor productivity with non-performing loans. The study found that the levels of inefficiency are significantly different across public, private and foreign banks in India. Foreign banks with a strong market position in India pulled the production frontier in a more efficient direction. Compared to them, the domestic public and private sector banks exhibited considerably higher degrees of inefficiency. The study found that the bank restructuring exercise initiated by the government had a transient effect.

Jayaraman and Srinivasan (2014) estimated Nerlovian profit efficiency of Indian public and private sector commercial banks for the period 2005-2012

using directional distance function approach. The study decomposed profit inefficiency of the in-sample banks into technical and allocative components. The results indicated that the profit inefficiency is primarily due to technical inefficiency and not due to the allocative part.

2. Methodology

2.1 *Distance Function and Technical Efficiency*

The productive or economic efficiency of DMUs is usually measured in terms of its proximity to a theoretical production or economic frontier. The related conceptual basis was provided by Koopmans (1951), Shephard (1953, 1970), Farell (1970). A DMU is considered technically efficient provided it lies on the production frontier. Economic efficiency demands something more- allocative as well as technical efficiency. In the present context since we are considering performance comparison without price data we focus on technical efficiency only. As per Koopmans, 1951 a DMU is technically efficient if (a) an increase in the current level of outputs demand a contraction at least one other output or an increasing at least one of the inputs and (b) a contraction in any one of the inputs demands a commensurate increase in at least one of the other inputs or a contraction in at least one of the outputs.

It is now clear from the aforementioned discussion that estimation of efficiency requires comparison of observed DMUs with the performance level implied by the theoretical frontier. The necessary conceptual basis were being provided by Shephard (1953, 1970) and Farrell (1957) independently. Their contribution led to the introduction of the concept of input and output distance function which corresponds to the input-output test of a technology. The input distance function provides the maximum amount by which the input vector can be reduced radially. The Shephard output distance function provides the minimum amount by which the output vector can be divided and yet the new output level remains feasible. Technical efficiency is thus is the inverse of Shephard input distance function and equals the output distance function. Farrell's input and output distance function is just the inverse of Shephard's input and output distance function respectively.

2.2. *Estimation of Performance Using DEA*

In real life circumstances we do not have any information about the theoretical frontier which must be approximated for the estimation of the efficiency. Both the parametric and non-parametric approaches can be deployed for the approximation of the theoretical

frontier. However, the parametric approach has two distinct disadvantages. First, the parametric approach cannot handle multiple outputs unless it is coupled with mathematical programming. Second the related parametric specification may not capture the true underline input output relationship. Under these circumstances we adopt Data Envelopment Analysis (DEA) which is essentially a non-parametric mathematical programming approach. DEA is a data driven method for evaluating the performance of a set of observed DMUs with multiple inputs and multiple outputs. Using two assumptions of convexity of technology and free disposability of inputs and outputs it constructs a performance frontier against which the performance of an observed DMU is evaluated.

2.3 *Bilateral Comparison of Performance*

As mentioned earlier one of the key assumptions under DEA is that of convexity of the technology. Convexity implies that if two activities (x_a, y_a) and (x_b, y_b) belong to the feasible set then each point lying on the segment combining the two activities also lies within the feasible set. However, when the decision making units belong to two different systems , this assumption is no longer valid. For example, the activities (x_a, y_a) and (x_b, y_b) may be accomplished by using different technology. Thus, no activity formed out of combination of the two is possible. This concept is now extended in the context of old and new private commercial banks which operate under different internal environments.

In the present context, we apply the bilateral comparison methodology which facilitates in understanding the differences across the two systems. The salient feature of this method is that when decision-making units included in a particular system (say system A) are evaluated, the benchmark reference set for A excludes system A decision-making units. Similarly, when decision-making units belonging to system B are evaluated, the reference set includes only system A units.

In the present study, the efficiency frontiers of two groups of private sector commercial banks are compared. Thus, the old private sector banks are evaluated with respect to the new private sector banks and vice versa. We have used the input-oriented Slacks-Based Measure Model (input-oriented) introduced by Tone (2001) for the purpose of bilateral comparison.

For using an input-oriented slacks based measure of bilateral comparison let us divide the DMUs into two groups : A and B. For each DMU belonging to

group A, technical efficiency can be computed on the basis of the following linear program (for m inputs and n outputs) :

Min θ_A, subject to :

$$\theta_A X_A^0 \geq \lambda X_B^R, Y_A^0 \leq \lambda Y_B^R, \lambda \geq 0, \text{ e } \lambda=1,$$

Min θ_A, subject to :

$$\theta_B X_B^0 \geq \lambda X_A^R, Y_B^0 \leq \lambda Y_A^R, \lambda \geq 0, \text{ e } \lambda=1,$$

Where the vector (X_{1A}^0, X_{2A}^0, ……, X_{mA}^0) denotes the observed input bundle (m inputs) of the DMUs belonging to Group A and the vector(Y_{1A}^0, Y_{2A}^0, ……, Y_{nA}^0) denote the observed output bundle (n outputs) of the same decision-making unit. We can proceed similarly for the DMUs belonging to Group B.

2.4. *Statistical Significance of Efficiency Scores*

For comparing the efficiency of two different countries, it is often useful to test the efficiency difference between the two groups statistically. However, one cannot make use of parametric tests for this purpose because the theoretical distribution of efficiency scores estimated from DEA is not known. Under the circumstances, one needs to make use of non-parametric tests for the distribution of efficiency scores. In this context, following Brockett and Golany (1996), we use the Rank Sum Test for comparing the distribution of efficiency scores of the in-sample microfinance institutions in the groups of India and Bangladesh respectively. The test is based on the ranking of data. A brief description of the methodology follows in the next paragraph.

Let the data related to the two groups of observations (Old and new private sector banks in the present case) be represented by A = {a_1, a_2, ….., a_p} and B = {b_1, b_2, ……, b_q}. Now, we establish a new sequence of observations C by merging A and B. In the new sequence, the data are organised in the descending order. C is now ranked from 1 to R = p + q. In the event of a tie, the mid rank is used for the tied observation. Next, A's rank data are summed. Let the resultant figure be S. The statistic S follows an approximately normal distribution with mean p(p + q +1)/2 and variance pq(p = q + 1)/12 for m, n ≥ 10. By normalizing S, we have :

$$Z^* = [S–p(p+q+1)/2]/\sqrt{pq}\ (p=q+1)/12$$

Z^* has an approximately standard normal distribution. Using Z, we can test the normal hypothesis that the two groups have the same distribution against the alternative hypothesis at the significance level a. The null hypothesis is rejected if $Z^* \leq -Z_{a/2}$ or $Z^* \geq Z_{a/2}$. Here, $Z_{a/2}$ correspond to the upper a/2 percentile of the standard normal distribution.

2.5. *Linkage with Contextual Variables*

Assessment of the impact of contextual variables on the determination of efficiency is an important part of the study and this has to be done via an econometric method. However, since the efficiency scores are bounded (the lower and upper bounds being 0 and 1), ordinary least square methods cannot be applied without any kind of data transformation. The present study uses logarithmic transformation of efficiency scores for the estimation of second stage results.

Banker and Natarajan (2008) considered the following relationship between the inputs, outputs and the environmental variables :

$$Y = \varphi(X)e^{-Z\beta+V-U}$$

Where Y represents to the output vector, X represents the input vector, Z represents the vector of environmental variables. U is a one-sided inefficiency process and V is a two-sided noise. Taking log on both sides, we get :

$$LogY - Log\varphi(X) = V - U - Z\beta$$

Thus, we can write $\theta = V - U - Z\beta$ (1) where $\theta = LogY - Log\varphi(X)$

Equation (1) can be estimated by applying OLS.

3. Variables, Result and Discussion

3.1. *Description of Variables*

Estimation of efficiency requires specification of the inputs and outputs relative to the technology. There are at least three approaches used for defining the outputs of the banking industry. The production approach [due to Benston (1965) and Bell and Murphy (1968)] considers performance indicators such as the number of accounts, number of transactions etc. Researchers following this approach have mostly taken deposits and loans etc as outputs of the banking industry which are produced by inputs like labour and physical capital.The intermediation approach [advanced by Benston, Hanweck & Humphrey (1982)] focused on net interest income (difference between interest earned and interest expended) as the indicator of performance. Finally, the risk management approach [Huges & Mester (1993, 1994)] considers risk management and intermediation processing activities as the prime outputs of commercial banks. On the expense side, deposit servicing cost, labour cost and fixed capital related overheads constitute the major expenses on inputs by banks. Some have also taken branches maintained by commercial banks as one of the inputs.

In the present context, we have followed the intermediation approach and

included two inputs and two outputs. Banking activity is primarily fund base. Accordingly, we have included equity capital and bank deposits as the two inputs. On the output side, we have included advances and other income. Further, we have included six contextual variables which influences bank performance and therefore bank efficiency. The contextual variables are : bank category and time series dummy, return on asset, return on equity, net NPA ratio and capital adequacy ratio. Table-1 provides a brief overview of the inputs, outputs and contextual variables.

In the Indian banking industry, there are 22 private banks. Out of these 22 banks, we have selected only 16 banks (7 old and 9 new) for this study. The period of study is 2012-13 to 2017-18. As indicated earlier, we have applied an input-oriented BCC framework for estimating bank performance with suitable modifications for bilateral comparison. Data was collected from the annual reports of banking companies, statistics of Indian banking association and profile of banks from RBI website. We have used DEA Solver (LV3) for efficiency estimation and testing of hypotheses. Further, Gretl software has been used for Censored Regression.

3.1. *Descriptive Statistics of Efficiency Scores*

There are three tables in this part. Table-2 provides the descriptive statistics of

Table-1 : Inputs, Outputs and Contextual Variables

Variables	Inputs	Outputs	Contextual Variables
Equity capital	"	-	-
Deposit	"	-	-
Advances	-	"	-
Other income	-	"	-
Return on Equity	-	-	"
Return on Asset	-	-	"
Capital adequacy ratio	-	-	"
Net NPA ratio	-	—	"
Bank category dummy	-	-	"
Time series dummy	-	-	"

Source : Authors.

efficiency scores for the observed old and new private sector banks for the in-sample period. This Table thus provides the pooled result. Tables-3 and 4 on the other hand provide the descriptive statistics of efficiency scores for the old and new private sector banks respectively. For 2012-13 and 2013-14, Tamilnad Mercantile Bank was found to be outlier.

3.2. *Testing of Hypothesis*

We are interested to get inference about the distribution of efficiency scores

Table-2 : Descriptive Statistics of Efficiency Scores – All Private Banks

Particulars	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Mean efficiency	60.16497	59.62528	2.25569	2.157269	2.057259	2.0865
Revised mean efficiency (excluding outlier)	2.3963	2.3316	2.25569	2.157269	2.057259	2.0865
Standard Deviation	223.7441	221.9031	1.676927	1.651948	1.506905	1.5308
Maximum	926.6944	919.027	6.250469	6.242387	5.746779	5.7660
Minimum	1	1	1	1	0.897918	0.8701

Source : Calculated.

Table-3 : Descriptive Statistics of Efficiency Scores – Old Private Banks

Particulars	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Revised mean efficiency (excluding outlier)	3.5992	3.4726	-	-	-	-
Mean efficiency	106.1653	105.2008	1.022759	3.038332	2.869283	2.926993
Standard Deviation	290.106	287.7356	0.055748	1.753369	1.590262	1.597246
Maximum	926.6944	919.027	1.159313	6.242387	5.746779	5.76598
Minimum	1.423644	1.411983	1	0.891709	0.897918	0.870063

Source : Calculated.

Table-4 : Descriptive Statistics of Efficiency Scores – New Private Banks

Particulars	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Mean efficiency	1.021667	1.028141	1.022759	1.024473	1.013229	1.005883
Standard Deviation	0.053072	0.06893	0.055748	0.059946	0.032404	0.014411
Maximum	1.151667	1.196984	1.159313	1.171309	1.092601	1.041183
Minimum	1	1	1	1	1	1

Source : Calculated.

across the two categories. Using the Rank Sum test we have tested the null hypothesis that both groups of commercial banks have similar distribution of efficiency scores against the alternative hypothesis that they are not similar. The results (included in Table-5) lead us to reject the null hypothesis.

3.3. *Regression Outcome*

As indicated earlier, the present study includes six environmental variables which are expected to influence bank performance. We have used the Banker-Natarajan approach to explore the relationship between bank efficiency and the contextual variables. Thus, we have considered the log of efficiency score as the dependent variable. One bank (Tamilnad Mercantile Bank) has been dropped from our analysis because it was an outlier for 2012-13 and 2013-14. We have used a fixed effect panel model for the estimation of the relationship.

Table-5 : Outcomes of Rank Sum Test

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
New banks	91	91	87	80	83	84
Old banks	45	45	49	56	53	52
Test statistics	3.3343	3.3343	2.9109	2.1700	2.4875	2.5934
Normal distribution	0.0004	0.0004	0.0018	0.0151	0.0064	0.0048
Outcome	Old banks out-performed new banks	Old banks out-performed new banks	Old banks out-performed new banks	Old banks out-performed new banks	Old banks out-performed new banks	Old banks out-performed new banks

Source : Calculated.

Since return on asset and return on equity should not be accommodated in the same model, we have used two separate models for estimation : Model 1 includes return on asset and Model 2 includes return on equity in place of return on asset. The results are included in Tables-6 and 7 respectively.

The results (refer Table-6) indicate that in the first model (Model 1), three variables are statistically significant : Net NPA ratio, Bank category and Return on Asset. Out of these, the sign of the coefficient of net NPA ratio is contrary to the expectation. In the second case (Model 2) only the bank category is significant.

Table-6 : Regression Outcome of Model 1

Particulars	Coefficient	Std. Error	t-ratio	p-value
Constant	1.45956	0.366217	3.9855	0.00016
Category dummy	-1.00194	0.0894244	-11.2043	<0.00001
Time series dummy	-0.1046	0.106897	-0.9784	0.33124
Return on Asset	0.2224	0.104877	2.1202	0.03754
Capital_Adequacy	-0.0319	0.0225348	-1.4159	0.16124
Net NPA_Ratio	0.1282	0.0601451	2.1315	0.03656

Source : Calculated.

Figure-1 : Q-Q Plot for Model 1

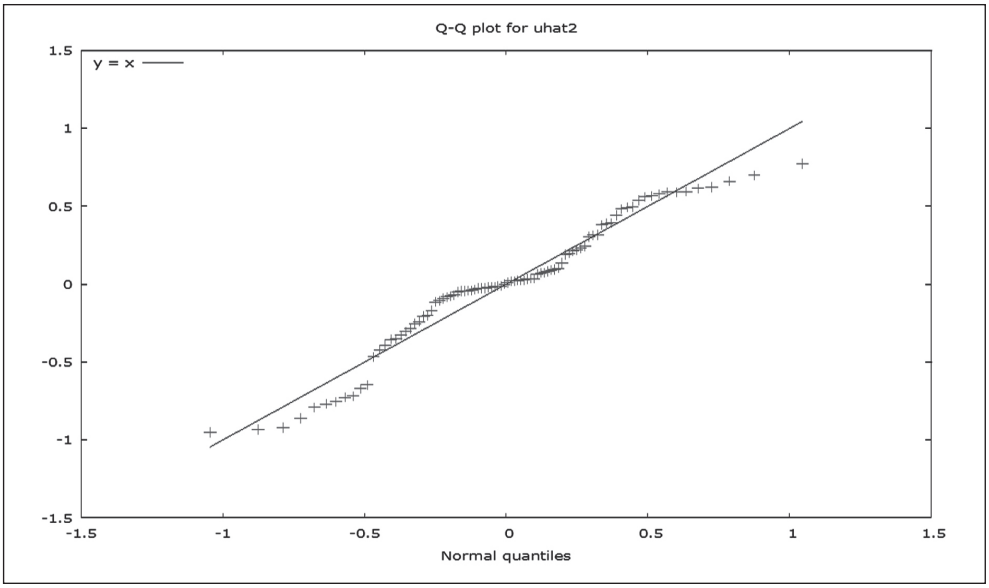
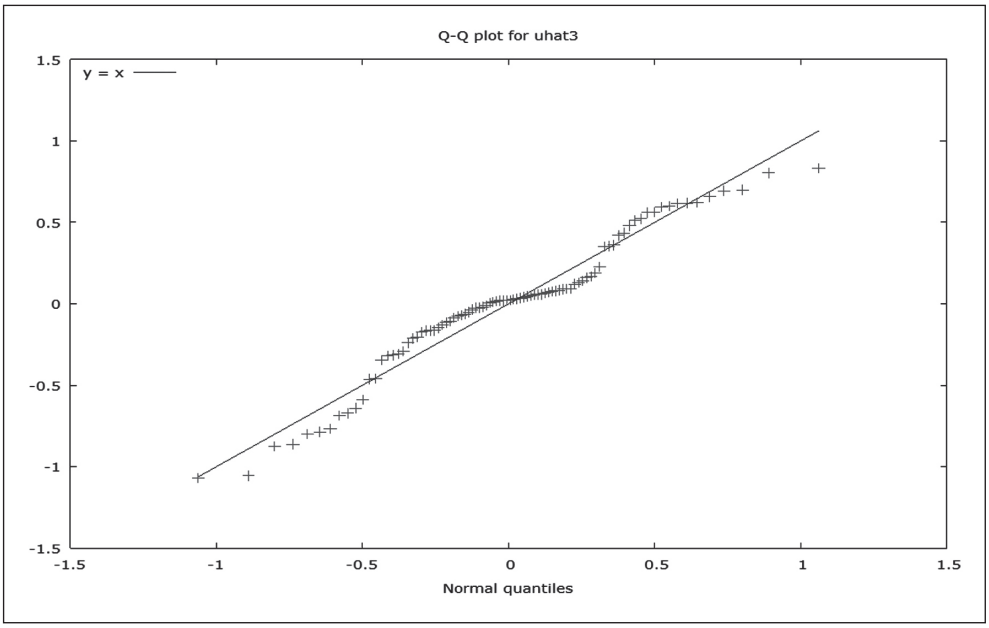


Table-7 : Regression Outcome of Model 2

Particulars	Coefficient	Std. Error	t-ratio	p-value
Intercept	1.3825	0.3803	3.6355	0.00053
Category dummy	-0.9794	0.0769	-12.7431	<0.00001
Time series dummy	-0.0911	0.1600	-0.5697	0.57073
Return on Equity	-0.5306	0.7657	-0.6929	0.49064
Capital_Adequacy	-0.0048	0.0253	-0.1882	0.85128
Net NPA_Ratio	0.0621	0.0395	1.5726	0.12033

Source : Calculated

Figure-2 : Q-Q Plot for Model 2



4. Conclusion

In spite of the existence of the vast body of literature on the efficiency of Indian commercial banking sector, one hardly finds any research output which concentrates on the Indian private banking sector in specific. Further, there is no study which makes an objective comparison of the performance of the old and new private sector banks.

The present study makes an attempt to fill this gap. The measurement of efficiency in the bilateral comparison framework and testing of hypothesis that both groups of private sector banks have similar distribution of efficiency scores leads to an interesting result: for all the observed years, the old private banks have consistently outperformed their newer counterparts. It is quite possible that the new private sector banks are facing some idiosyncratic problem. Exploration of the underlying causes for poor performance (relative to their older counterparts) could be an important and useful future research agenda.

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Appendix

Table-A1 : Bank-wise Efficiency Scores

Name of the Bank	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Catholic Syrian Bank	6.140273	5.98476	4.669813	3.963768	3.529247	3.802987
City Union Bank	5.448913	4.726602	4.813787	4.821535	4.815107	4.682066
Federal Bank	1.674475	1.623938	1.793166	0.891709	0.897918	0.870063
Jammu & Kashmir Bank	5.809322	5.776153	6.250469	6.242387	5.746779	5.76598
Karnataka bank	1.423644	1.411983	1.565922	1.563725	1.045065	1.12231
Karur Vysya Bank	2.540407	2.523238	2.448815	2.439299	2.428514	2.177274
Nainital Bank	3.705333	3.708444	4.177926	4.213926	3.682064	3.975226
South Indian Bank	2.05112	2.025316	2.211833	2.208643	1.654369	1.765791
Tamilnad Mercantile Bank	926.6944	919.027	1	1	2.024487	2.181244
Axis Bank	1	1	1	1	1	1
ICICI Bank	1	1	1	1	1	1
HDFC Bank	1	1	1	1	1	1
DCB Bank	1.151667	1.196984	1.159313	1.171309	1.092601	1.041183
Indusind Bank	1	1	1	1	1	1
Kotak Mahindra Bank	1	1	1	1	1	1
Yes Bank	1	1	1	1	1	1

Source : Calculated.

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Three Vital Questions for a Public Enterprise Manager

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Powerful forces are transforming society and are acting as challenges for governments around the world. Citizens today expect transparent, accessible, and responsive services from the public sector. Public entities are most effective when they are headed by leaders who can navigate complex, highly visible positions while prioritizing long-term initiatives over short-term politics. These leaders motivate people and sustain performance without the benefit of measures widely used in the private sector. There is hardly any guide for the new entrants to the civil services or to the experienced practitioners to the question of what the administrators and public managers should think and do to exploit the particular circumstances they find themselves in to create public value. The conventional wisdom most new entrants to civil services obtain in the form of anecdotes falls under this category as they receive stories on 'how to tackle a political situation by a street-smart administrative solution'. The traditional focus for the civil servants was effective implementation of policies (formulated by the political executive) rather than managing the public organization as a whole. However, with the changing external environment, the focus gradually shifted to seeing the public organizations as flexible instruments to achieve changing public purposes. Mark Moore, professor at the Harvard Kennedy School of Government, advocating the concept of "Public Value" argues that while several management concepts and practices from the private sector found their way into public management in terms of customer orientation and the increased use of performance measurement the crucial concept of corporate strategy has not been translated adequately. The paper (Moore) advocates an active, entrepreneurial, and value-creating role for public managers that go beyond the mere administrative implementation of policies produced in the (democratic) political process.

Keywords : Public Value, Strategic Triangle, Value Creation, Public Management.

1. Introduction

Most government agencies have been created to deliver services to citizens. Tasks like supplying water and electricity to our homes, or providing security to the communities or renewing driving licenses, or getting the streets cleaned, are the most visible interactions of common citizens with the Government. Efficiency and effectiveness of delivery of these public services decide how much trust the citizens develop in

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their governments. Citizens everywhere are expecting responsive, accessible and transparent services from the Government. They are now used to the one click away digital experiences of buying products from Amazon or hiring Uber taxis, expect that their local governments should also be able to deliver services in the same way.

Governments at all levels are making continuous efforts to improve the delivery mechanism of government services but find it extremely difficult commensurate to the enormous public expectations. All the citizens survey and the media keep the public servants informed that the citizens continue to feel frustrated unleashed by complex, bureaucratic, slow and confusing service delivery. Result is declining public trust and citizen satisfaction and increasing costs associated with delivering services across multiple channels.

2. Importance of Public Managers

Government organizations at all levels should be led by leaders who can navigate complex and precipitating short-term problems while prioritizing long-term initiatives. These leaders perform a challenging task of motivating people to achieve sustainable performance without the availability of the traditional performance measures available to the managers and leaders of the private sector. Public servants have the power to transform the world for the better. But it is unfortunate that the young public servants do not always get access to transformational ideas in leadership. As governments worldwide deal with the powerful forces transforming the society, it has never been more important to consider what constitutes effective public-sector leadership and how to equip leaders with the needed skills to deal with. One of the key pillar for future socio-economic development of countries for their governments should be to produce such leaders in the public sector who have a strategic vision and entrepreneurial value creating perspective.

The current millennium demands that the future is shaped by the quality of leadership. Most complaints about public administration have the theme that it's inefficient—and the prescription they provide for making public service delivery more efficient is to run it like business.

3. The Dilemma of Bright Young Indian Civil Servants

When the bright young men and women achieve the glory of passing through one of the most toughest examinations of the world, and enter the portals of the National Academy of Administration with pride, hope and optimism, the professional course content they are offered after the foundation course aims at developing

professional skills in handling a large range of multi-task administration and managerial responsibilities that an officer shoulders within the first ten years of service. Emphasis is laid on understanding public systems and their management, together with a grounding the multi-disciplinary subjects such as Public Administration, Law, Economics and Management. They are taught the history, theory and current trends of public administration, but rarely are they taught about a guide book or guiding principles for practical day-to-day decisions. There is hardly any guide to the question of what the administrators and public managers should think and do to exploit the particular circumstances they find themselves in to create public value.

I recognize that institutional structures and processes shape what managers think and influence what they do, the theory of public management is still undecided on whether "institutional reform" or "improved management" is the best way to go in for improving government performance. My focus in this article is on what public managers should think and do, as my own experience is that improving managerial performance is one of the best ways of improving public sector performance. Practically speaking, both in the academies of administration, institutes of social sciences and during lunch-room discussions of Government departments, while we do find senior civil servants eager for general knowledge about government institutions but we find them particularly hungry for ideas about how to do better in their jobs. Also, I sincerely believe that improving managerial thought and practice continues to be one of the most important ways to improve the government performance. Even in the case of institutional reforms like decentralization or total quality management, only the responsibilities and positions of public managers are redefined, and success of such reforms actually depends on what these public managers actually do with their redefined responsibilities and processes. To be very precise, one of the biggest institutional reform we need in the government is to change our conventional view about what public managers should and can do on behalf of the common man. Indeed, many existing institutions will start performing better, only if our attention is focussed on improving the managerial performance.

4. Unique Challenges of the Government Sector

In addition to dealing with many of the same problems encountered by their private sector counterparts, public sector leaders must cope with circumstances that are unique to public entities. These include :

- ***Complex Ecosystems*** **:** The public sector practically invented bureaucracy. Leaders who run public entities must provide essential services while juggling politics, projects that are often national in scope, and relationships with other agencies and the private sector. If they cannot cut through this complexity, they cannot be effective. They may lose power, see initiatives slow down or die, and have potential alliances fall apart.

- ***Long-Term Goals*** **:** In industry, companies introduce new products or services all the time. Public sector leaders oversee mandates and public projects that can take years to complete, with benefits that may not be apparent right away or even in the near term. Focusing too much on short-term issues or immediate political demands can impede progress toward long-term goals.

- ***High-Profile Public Personas*** **:** Public servants live in the spotlight, their activities scrutinized by constituents, media, and rival political parties. What they say or do reflects not just on them but on the country or agency that they represent. Any communications misstep can expose them to criticism from the public and to legal action by adversaries, to the point of having to leave their post.

- ***Ethical Responsibilities*** **:** The decisions that public sector leaders make can affect an entire country. Because the potential impacts and risks are so great, leaders must continually consider the ethical outcomes of their decisions on their constituencies. If they are tempted to cut corners or use their standing for personal gain, they risk damaging not only their own reputation and that of the entity they represent, but the reputation of the entire country.

- Public sector projects can be massive and complex. Getting things done requires teamwork and cooperation across multiple entities. In such circumstances, an individual's responsibilities can be unclear and the consequences of his or her actions diluted. If leaders feel that they lack authority, they may not be willing or able to inspire and lead their teams. And if they cannot inspire people to follow through, they will not be able to bring projects to the finish line.

Analytical methods which traditionally the economists and political scientists were using in their fields have forced their entry to the public management and government agencies are now using the same analytical methods that once were used to explain the behavior of business firms. Bureaucrats are now

accountable to be maximizing their "utility just as entrepreneurs are thought to be maximizing theirs.

Taxpayers citizens have a very distorted perception of bureaucracy. To them, bureaucrats are lethargic, incompetent people who spend their days spinning out reels of red tape and reams of paperwork, all the while going to great lengths to avoid doing the job they were hired to do. Their agencies chiefly produce waste, fraud, abuse, and mismanagement. That this view is an exaggeration is readily shown by public opinion surveys in which people are asked about their personal experiences with government agencies. The great majority of the respondents say that in their personal interaction they found the government personnel to be helpful, friendly, and competent.

5. Source of Wisdom

Most of the wisdom offered to the civil servants in these academies and institutions is from the political science literature which deals with the political and legislative setting in which the government institutions work and how this context affects the public policy making and implementation. How this political context motivates and shapes the behaviours of elected chief executives and their civil service functionaries, is dealt by this literature. The conventional wisdom most new entrants to civil services obtain in the form of anecdotes falls under this category as they receive stories on 'how to tackle a political situation by a street-smart administrative solution'. Another source of administrative wisdom is the economics literature which proposes some important methods of evaluating proposed and ongoing governmental activities. This literature has also given some important insights on structuring of incentives and how complex negotiations might be analyzed and carried out.

Another perspective to public governance has been offered by organizational theory literature which provides different images of organizations that clarify why public and private organizations behave the way they do. This literature also focussed on why government organizations face difficulties and obstacles in adopting and sustaining innovations and why managers face obstacles as they seek to improve their performance. On the other hand, achievement of consistency and effectiveness in government operations with a goal of ensuring effective democratic control was underlined by the literature on public administration. They also produced several case studies on what many successful public managers actually did to produce effectiveness and consistency in their operations. Literature on administrative law emphasized on equity and due process of the decisions

taken by the public managers. The most important, however least pervasive, influence on public managers' thinking has been from the literature of private sector management which offered context, philosophy and instruments of management and organizational leadership. This literature focused on the market dynamics rather than political mandates.

The young bright minds joining the Indian Civil Services come from a diverse academic backgrounds like engineering, social sciences, languages, pure sciences, and administration academy is the first place where most of them get exposed to the ideas on public administration, public management, administrative law and theories of private sector management. The time certainly is too little here to understand and comprehend the special analytical tools drawn from economics, operations research statistics, and behavioural sciences to analyze the substantive value of proposed and implemented public policies. While the depth of coverage of these topics at the training institute is always debatable due to the competing syllabus content, they never get a structured guidance on two important questions :

1. How should Government managers (to be read as young civil servants) cope with inconsistent and continuously changing political mandates?
2. How can they best experiment, innovate and reposition their organizations to best exploit the opportunities provided by the external environment?

In the existing scenario, most young civil servants search answers to these questions from the practicing executives they encounter in their training institutes and probation days. It is unfortunate that, we have not been able to develop a rich repository of administrative case studies clearly depicting various managerial problems and interventions, written by practicing government executives. Though the endeavour of such training academies and institutes has always been to invite distinguished practitioners whose accomplishments have demonstrated distinctive competence to create public value by identifying and exploiting opportunities, yet a comprehensive effort to compile such 'best practices' or 'managerial interventions' and the prospects of these interventions succeeding in other settings has never been attempted.

The traditional focus for the civil servants was effective implementation of policies (formulated by the political executive) rather than managing the public organization as a whole. However, with changing external environment, the focus gradually shifted to seeing the public organizations as flexible instruments to achieve changing public purposes.

6. The Lure of Easy Answers

People presume that by collecting as much data as possible they will be in the best position to predict the future for making a decision. But this approach is like driving a car, looking only at the rear-view mirror—because data is only available about the past. Indeed, while experiences and information can be good teachers, there are many times in life where we simply cannot afford to learn on the job. You do not want to have to go through multiple marriages to learn how to be a good spouse. Therefore, theory can be so valuable : it can explain what will happen, even before you experience it. Consider, for example, the history of mankind's efforts to fly. Our earliest observations were that there is a strong correlation between being able to fly and having feathers and wings. Stories of men attempting to fly by strapping on wings date back hundreds of years. They were replicating what they believed allowed birds to soar : wings and feathers. Possessing these attributes had a high correlation—a connection between two things—with the ability to fly, but when humans attempted to follow what they believed were "best practices" of the most successful fliers by strapping on wings, then jumping off cathedrals and flapping hard... they failed. The mistake was that although there was a correlation between feathers and wings and flying, the aviators who attempted flying did not understand the basic causal mechanism that enabled certain creatures to fly.

The real breakthrough in human flight did not come from crafting better wings or using more feathers. Dutch-Swiss mathematician Daniel Bernoulli in his book 'Hydrodynamics, a study of fluid mechanics' outlined what was to become known as Bernoulli's principle, a theory that, when applied to flight, explained the concept of lift. This was the real breakthrough leading the researchers and aviators to go from correlation (wings and feathers) to causality (lift). Modern flight can be traced directly back to the development and adoption of this theory.

But even the breakthrough understanding of the cause of flight still was not enough to make flight perfectly reliable. When an airplane crashed, researchers then had to ask, "What was it about the circumstances of that particular attempt to fly that led to failure? Wind? Fog? The angle of the aircraft?" Researchers could then define what rules pilots needed to follow in order to succeed in each different circumstance.

The appeal of easy answers—of strapping on wings and feathers—is incredibly alluring. But unfortunately most of what goes in the name of popular thinking is not grounded in anything

more than a series of anecdotes. Solving the challenges in one's life requires a deep understanding of what causes what to happen.

7. How to Measure Success for Civil Servants?

How will a civil servant measure his professional success?

One definition of success emphasizes the personal success of the civil servant himself : a public manger is considered successful, if he or she is able to enhance his/her personal reputation and advance their careers. It is reasonable to assume that if a manager's reputation for success is properly earned, individual success would be a good operational measure of his/her managerial success. However, one cannot be sure that the tests used to establish reputations reliably indicate real managerial performance. In the age of social media dominance, we all are too familiar with public managers who are more skilled in burnishing their reputations than in achieving the real substantial results that should be the basis of their reputation.

Another definition of success may be whether the civil servant, as public managers succeed in building strong, durable and large public organizations. This definition gives priority to managerial accomplishment rather than personal reputation and is also consistent with the notion of success in the private sector. Yet a deep reflection would remind us of examples of notorious public sector empire builders and would suggest inappropriateness of this definition. We all know that durability of public sector organizations is very easy to achieve (in fact, most public organizations not only survive but outlive long past their utility). The challenge, however, is to make them efficient, to reduce costs, make them innovate and to adapt to changing political demands or new substantive tasks. It is particularly difficult to be able to reclaim resources from these organizations even when they seem to have outlived their need. So, increased size and strength of the public organization also do not indicate towards a real accomplishment.

Another way, we measure success for public managers is their effectiveness in achieving preferred policy outcomes : if the public managers can get their preferred policy objectives adopted and implemented, they will be considered successful. On one side, this definition rewards managerial effort that goes beyond building or maintaining an organization and focuses on achievement of some substantive purpose. But this definition is flawed too, in the sense that it is not sure to what extent the public manager's preferred policy objectives incorporates what the society really wants and to what extent it is the idiosyncratic views of public interest.

The most accepted definition by public management thought leaders is that equates managerial success in the public sector with initiating and reshaping the public sector organizations in ways that increase their value to the public both in short and the long-run. Sometimes this will mean increasing efficiency, effectiveness, or fairness in currently defined missions. Other times it means initiating new programs that respond to a new political (public) aspiration or meet a new need in the organization's task environment.

8. The Public Value Paradigm

Prof.Mark Moore, the Kennedy School of Government, Harvard University has given rise to an academic movement that advocates the concept of "Public Value." The concept of public value asks public officials 'to consider the benefits and costs of public services not only in terms of dollars and cents, but also in terms of how government actions affect important civic and democratic principles such as equity, liberty, responsiveness, transparency, participation, and citizenship'. Since the public managers are lacking a measure like "Bottom line" available to the private sector managers, public value seeks to provide public officials with the ability to talk about the net benefit of government actions.

Moore argued that while many concepts from the business management literature like customer orientation and performance measurement have been adopted by the public management, the crucial concept of corporate strategy has not yet found its way to the public management literature. Thus, he advocates a strategic role of the public manager, having an entrepreneurial, value-seeking and value-creating perspective for him that goes beyond the traditional implementation of administrative policies produced by the political process. Such an approach to conceptualize public management from a strategic perspective requires public managers to identify and align three vital perspectives : Politics, Substance and Administration. The visual representation of this strategic perspective put forward by Moore and other is the "strategic triangle", which provides the public manager aa management framework facilitating him in evaluating alternative strategies for the creation of public value. The three perspectives Moore talks about are :

- **Public Value** : Any appropriate strategy must be intrinsically valuable, meaning that it aims at producing something that is considered valuable by citizens. Such public value to be created might, for example, be defined as "cleaning up streets", "providing better safety and security to the citizens" or "making applying for a passport easier for citizens".

- **Legitimacy and Support** : Any strategy must be considered legitimate and must find political support in the organization's authorizing environment. This consists primarily of those individuals and groups involved in formal decision-making structures (superiors, politicians, higher-level public administration, and the electorate) which directly control the flow of resources (authority and money) to the organization.

- **Operational Capacity** : Any strategy in public management has to be feasible in the sense that the organization has the operational and administrative means to implement it. This means that the organization is actually capable of delivering to its publicly valuable objectives.

According to Moore's public value approach, the most important task of a strategic and entrepreneurial public manager is to envision strategies that fulfill all three perspectives simultaneously. These perspectives are clearly not independent from one another : It is much easier to garner political support for some public values than for others and a high level of political support can make it easier to acquire additional resources and build operational capacity. Crafting and implementing a strategy requires the manager to seek to maximize the degree of alignment among these three elements. Thus, for example, if what is considered valuable by the citizens is out of alignment with what the authorizing environment will find acceptable, the public manager should either try to persuade the key players about the value proposition, otherwise the value-proposition so that it is more in line with their wishes, orsome combination of the two.

Similarly, there is a possibility that both the citizens and authorizing environment agree on the value of a proposition but the manager thinks that is not achievable with the currently available operational capabilities, then the manager has to tailor the purpose accordingly. This entails more than just a resigned acceptance of political or operational constraints. The manager's task, Moore urges, "is to identify and press for the most valuable purposes, drawing on a value-seeking imagination.". The public manager is both obliged and uniquely able to do so by the position s/he occupies, at the intersection of purposes, politics and operational means. S/he has knowledge and expertise about each of these three factors which s/he is duty bound to place at the disposal of the citizenry and their elected representatives.

9. The Strategic Triangle

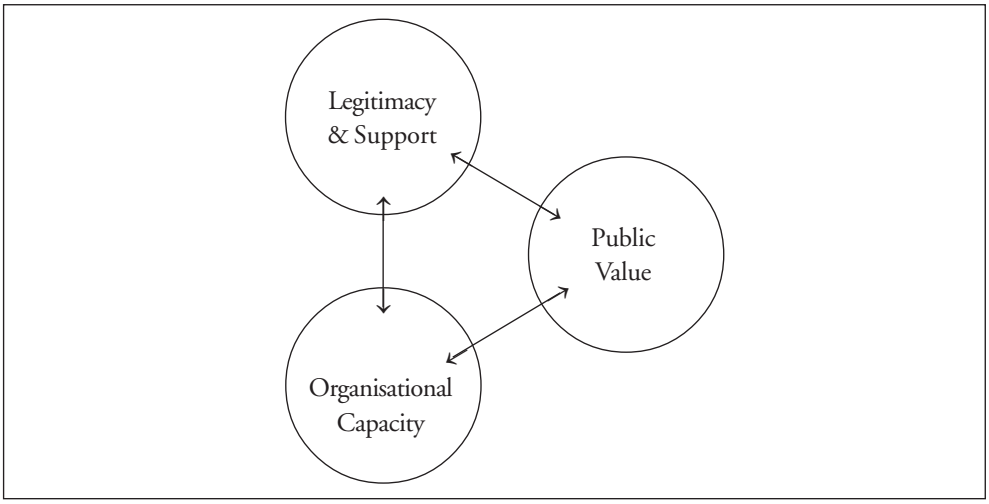
The strategic triangle is a visual management framework proposed by Moore

to see the interrelationship among these three important public value perspectives. The strategic triangle shows that public value is created when a given strategy or action has the support of the community and citizens i.e. it has democratic legitimacy and the support of the authorizing environment (e.g., people's representatives), and when the government has the operational capacity to implement the strategy or action effectively. Figure-1 also shows that there is a mutually reinforcing relationships among these three elements—when public value is created, so is greater legitimacy and support (e.g., citizens and elected officials have greater trust in the government), and operational capacity is increased e.g., financial and other Moore's strategic triangle helps the public managers to understand and evaluate their value propositions in a more insightful and holistic way : It focuses their attention on three issues that have to be resolved individually and aligned :

- What is the public value I think I can produce?
- What legitimacy and support can I leverage?
- What operational capacity can I deploy to produce the desired results?

The challenge before a public manager is to ensure that the three circles in the triangle are aligned and mutually reinforcing : we create public value when the goals we seek can be supported by empirical arguments, when the goals

Figure-1 : Strategic Value



Source : Marke H.Moore (1997) Creating Public Value : Strategic Management in Government, Cambridge, USA, Harvard University Press.

attract financial, legal and social support from the authorizing environment and support the planned action, and when we know how to deploy the available resources to achieve the desired results. In sum, the public manager proposing a new value proposition or evaluating alternative value propositions should be clear about what he is trying to achieve, whether he has support for it (legitimacy/ authorising environment) and he has the capabilities and resources to do it.

Traditionally, government managers are inclined to limit their thinking to the 'what to do' (public value circle of the triangle) and look for a perfect solution. But with the help of the strategic triangle, he now has an option to start from the other intervention points :

- He could start from legitimacy and support and 'go with a learner's mind', capturing a sense of what is garnering support and what can be leveraged (tapping into the views and needs of citizens and being proactive rather than waiting for a commission from ministers)
- He could start from operational capability looking for what we are doing now and how that capability could be used better, reused or put to new ends (continuous improvement or innovation based on evaluation of what does and does not work).

Prof.Moore in his later book 'Recognizing Public Value' (2013), explored how, once created, value can be recognised in an accounting sense. He outlined a philosophy of qualitative assessment that will help public sector managers name, observe and measure the value they produce – or rather, what they should be doing to improve performance within their public sector agency.

10. Implications for the Government Leaders

The essential argument of the Public Value paradigm is that public value can be envisioned by public managers if they integrate :

- substantive judgement of what would be valuable from the citizens' point of view;
- a diagnosis and assessment of political expectations and preferences; and
- realistic assessment of what is operationally feasible.

Specifically, the approach highlights three different aspects of public manager's job :

- **Judging the public value** of their proposed initiative – he should test out the value of the proposed new service or initiative;
- **Managing upward**, towards politics, to invest his purpose with legitimacy and support; in some cases it may

be important for him to attempt to 'manage outwards' too in order to get legitimacy and support from customers and stakeholders as well as from government; and

- **Managing downward**, toward assessing and improving the organisation's capabilities for achieving the desired purposes.

The approach sketches the operating space for the public manager. It can provide a potentially powerful tool to judge how to secure authority to act, knowing that what we are aiming to do is worthwhile; that we have political authority from above and the endorsement of our stakeholders and customers; and have the capacity within to take a course of action. The approach spells out an essentially pro-active role for the public manager – it helps us to get away from the victim mentality that sometimes characterises leaders in our sector or the sense of being constantly buffeted by new ideas and initiatives. The approach described puts a significant premium on political acumen but developed effectively it could help to define a legitimate space within which public sector managers can operate, which promotes innovation while managing risk. Greater emphasis needs to be placed on finding a fit between the organization and the external environment in which that organization operates. Hence, diagnosing the external environment and then positioning the organization accordingly is an essential part of strategic management that is often under-emphasized in public-sector organizations. Public managers often view performance management as a technical challenge rather than a political or philosophical one. The public value approach of Moore argues that "to produce value, public officials must consider the entire "value chain." The value chain starts with inputs and moves to the production processes (e.g., policies, programs, activities) used to transform the inputs into outputs, which then affect a client (e.g., citizen, beneficiary, etc.), which leads to the social outcome that was the intended aim of the activity".

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Social Security of Employees in Co-operative and Private Sugar Mills of Punjab : An Empirical Study

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The current paper examines and compares social security practices for employees of sugar mills of Indian Punjab who are not involved in production directly. The study is based upon the primary responses of employees of co-operative and private sugar mills. The dimensions included in social security are provident fund benefit, employee pension benefit, maternity/paternity benefit, gratuity benefit and employees deposit linked insurance benefit. The perception of employees regarding these benefits has been examined using statistical tests (t test, chi square test) and calculating mean scores. The study found that majority of the respondents have access to a variety of social security benefits (except maternity/paternity) and have awareness regarding contribution and maturity benefits. Overall, the respondents in both types of mills (co-operative and private) are satisfied with the utility, sufficiency of the amount and procedural issues. However, the utility for most of the parameters is found better by the employees of the co-operative sugar mills than the employees of private sugar mills. At last the study suggested that different stakeholders of the sugar mills such as management, government, employees, trade unions to take required action for educating employees especially in context of contribution and maturity benefits for various social security benefits. In this regard, the government must ensure the sound mechanism for the disbursal of these benefits to the deserving beneficiaries.

Keywords : Sugar Mills, Social Security Benefits, Employees.

Introduction

From a social security perspective, the formal employment of Indian workforce including government employees (excluding defence) is 7.5 crores (Business Today, 2018). The jobs in the Indian organised sector have increased to almost 25 per cent which previously had been expected around ten per cent (The Indian Express, 2018). In this sector, the employment conditions and social security is satisfactory (Tholkappian, 2014). However, there is no generalization

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of any such hypotheses which confirms this statement. Hence, testing of hypothesis for such statements for different industries is the need of the hour.

"Social security system ensures basic income in cases of any kind of emergency or loss of earning capacity" (ILO, 2015). Comprehensively, social security is associated with covering different risks to which its members are exposed. For providing social security, different laws have been framed in India which prescribes the menu of possible benefits which can be availed by the beneficiary as per the requirement and applicability (Nayak, 2005).

In the common parlance, it covers the risk of the workers who are directly engaged in production. Such labour is regarded as the most crucial factor of production (Wakchaure, 2017). For the workers who are directly engaged in production, there is high degree of probable injury and health risk (Phoolchund, 1991; Bohadana, Massin, & Wild, 1996). Hence, appropriate social security is required for the workers who are directly engaged in production. But it does not mean that the other employees (who are not directly involved in production) do not deserve appropriate social security. These employees are also exposed to certain types of risks. In this regard, the state policy has also recommended social security benefits for such employees.

Providing appropriate social security to the employees is the utmost important part which requires a lot of financial strength (Jutting, 1999). Both co-operative and private sugar mills in the state of Punjab have employed significant number of employees (not directly engaged in production directly) instead of suffering from financial crunch (Gupta & Randhawa, 2018). However, the co-operative sugar mills are getting the financial assistance from the government but the private sugar mills are managing its affairs on their own. But providing the social security for the organisations with financial crunch becomes a challenge as it requires huge funds. Now the question is whether the employees of mills are aware and satisfied from the various social security benefits made available to them, or these benefits are just hollowness.

Numerous studies have been conducted on the social security and welfare of workers of rice mills, textile mills, steel plants and white goods' industry, shipping corporations and collieries etc. (Gowda & Hanumanthappa, 2011, Vaid, 1965, Poonia, Garg & Parkash 2006, Das & Pandey, 2004, Rode, 2009, Swapna & Samuyelu, 2011). On the counterpart, there is a dearth of literature for studies conducted on the sugar mills especially on the employees who are not directly engaged in production.

So as per the discussion, it is a challenge for the sugar mills to maintain the social security standards at the desired level. Hence, the study examines and compares social security benefits of employees (not engaged in production directly) of co-operative and private sugar mills.

Rationale of the Study

Sugar industry is a significant agro-based industry (Venkatesh & Venkateswarlu, 2017) in which there is direct employment of five lakh employees (Department of Food and Public Distribution, 2018). The employment in these mills consists of employees engaged in direct production and the employees not engaged in production directly such as employees working in/under administrative capacity, accounting department, security and marketing etc. The social security benefits (except the workmen compensation) are also available for the employees not engaged in production directly as directed by the state policy. But whether these benefits are provided to these employees significantly is a matter of concern. The reason behind such predicament is, in common parlance social security is related to coverage of health and injury risk which is presumed to be higher in case of the mill workers who are engaged in production directly (Phoolchund, 1991; Bohadana, Massin & Wild, 1996). Moreover, the studies are mainly in the domain of social security are directed towards the workers who are engaged in production directly. But coverage of risk through appropriate social security is essential for employees not occupied in production directly.

The present study is focussed upon examining the social security benefits available to the sugar mills employees (not engaged in production). The study will further differentiate the perception of employees based upon different types of sugar mills (co-operative and private) where they are employed as ownership may persuade the sanity of social security benefits on the part of the employer and employee (Ramakrishna, 2009).

Objectives of the Study

The main objectives of this study are

- To examine and compare the availability and awareness of employees about the various social security benefits in the co-operative and private sugar mills of Punjab.
- To measure and compare satisfaction of employees from the various social security benefits in the co-operative and private sugar mills of Punjab.

Methodology

The Sample and Data Collection

The respondent size is 111 employees of sugar mills of Punjab (65 from co-operative and 46 from private sugar mills of Punjab) which have been drawn on the basis of referral sampling method. The administrative employees consisted of accountants, accounts officers, managers, labour officers, security officers and other employees not engaged in production directly. The data for the present study has been collected from, accounts offices, sugar mills premises, security offices/rooms, administrative blocks, canteens during lunch time and from residential quarters of employees.

Hypothesis

The hypothesis has been tested from the perspective of procedure, utility, satisfaction and sufficiency of the availability of amount and essentially of schemes from social security benefits. The broad hypothesis for the study is

H_0 : There is no significant difference between the social security measures available for employees of co-operative and private sugar mills.

However, the specific hypotheses have been elaborated in the analysis and discussion part.

Measuring Instrument

In the present study, social security for employees has been measured on the basis of five dimensions i.e., employee provident fund, employee family pension, gratuity, maternity/paternity and EDLI. On these dimensions, social security benefits have been measured using a well-structured scale developed by N. Kishore Babu (1995).

Statistical Techniques

Regarding statistical techniques, the complexity in the procedure and level of utility for various social security benefits has been examined and compared by applying t test and calculating mean score. The other parameters of social security benefits like satisfaction benefits, adequacy of amount and significance of social security benefits are examined by applying chi-square test. In this regard, the association of the co-operative end private sugar mills for these parameters has been examined. Statistical Package for Social Sciences (SPSS) has been used for applying such test.

Limitations of the Study

- The present study is related to sugar industry in Punjab state of India. Thus the findings may not be generalised for sugar mills of other states of the country.

- The study has been conducted on the employees of the co-operative and private sugar mills who are not directly engaged in production. So, it is probable that social security for the mill workers who are engaged in production directly is found different.
- It is felt that in the case of private sugar mills, the response of employees may be biased as they might think that factual answers might not be appreciated by the management.
- During data collection the study found that the majority of the employees were males both in the case of private and co-operative sugar mills. Hence, the respondents have not shown the eagerness for the maternity/paternity benefit.

Results and Discussion

The following Table shows availability, awareness regarding contribution and maturity of various social security benefits/schemes covered under the preview of Employees' Provident Fund & Miscellaneous Provisions Act, 1952, the Maternity Benefit Act, 1961 and the Payment of Gratuity Act, 1972.

A perusal of Table-1 shows that a majority of the employees of co-operative sugar mills (98.46 per cent) and private sugar mills (93.48 per cent) have access to the benefit of employees' provident fund. There are 95.38 per cent and 93.48 per cent employees in the co-operative and private sugar mills respectively, who possess the knowledge in terms of employees' provident fund. There are 87.69 per cent employees in the co-operative sugar mills and 91.30 per cent employees in the privately-owned sugar mills, who are attentive of maturity amount regarding employees' provident fund benefit.

Regarding family pension, there are 92.31 per cent employees in the co-operative sugar mills and 91.30 per cent employees in the private sugar mills who have access to employee family pension benefit. There are 81.54 per cent employees in the co-operative sugar mills and 86.96 per cent employees in the private sugar mills, who are quite aware of the contribution towards employee family pension benefit. As far as awareness regarding maturity is concerned, there are 78.46 per cent employees in the co-operative and 84.78 per cent employees in the private sugar mills, who are aware of this particular benefit.

The access and awareness regarding maturity/paternity benefit is very low among the employees of sugar mills of Punjab. The awareness of this benefit is only limited to 20 per cent employees in the co-operative sugar mills and 26.09 per cent employees in the private sugar mills. Further, there are 20 per cent

Table-1 : Social Security of the Administrative Employees

Social Security Measures		Types of Mill				Total	
		Co-operative		Private			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Availability	Employees' Provident Fund benefit	64	98.46	43	93.48	107	96.40
	Employee family pension benefit	60	92.31	42	91.30	102	91.89
	Maternity/paternity benefit	13	20.00	12	26.09	25	22.52
	Gratuity benefit	62	95.38	35	76.09	97	87.39
	EDLI benefit	51	78.46	28	60.87	79	71.17
Awareness regarding contribution	Employees' provident fund benefit	62	95.38	43	93.48	105	94.59
	Employee family pension benefit	53	81.54	40	86.96	93	83.78
	EDLI benefit	49	75.38	29	63.04	78	70.27
Awareness regarding maturity amount/ Actual benefit	Employees' provident fund benefit	57	87.69	42	91.30	99	89.19
	Employee family pension benefit	51	78.46	39	84.78	90	81.08
	Maternity/paternity benefit	13	20.00	12	26.09	25	22.52
	Gratuity benefit	54	83.08	34	73.91	88	79.28
	EDLI benefit	46	70.77	28	60.87	74	66.67

Source : Compiled from primary data.

employees in the co-operative sugar mills and 26.09 percent employees in the private sugar mills who are aware of the benefit available under maternity/paternity benefit.

The benefit of gratuity is assessed by 95.38 per cent employees in the co-operative sugar mills and 76.09 per cent employees in the private sugar mills. Regarding awareness of maturity

is concerned, 83.08 per cent employees (co-operative sugar mills) and 73.91 per cent employees (private sugar mills) are aware of the maturity amount of gratuity.

The Employees' Deposit Linked Insurance Scheme (EDLI) benefit is accessed by 78.46 per cent employees (co-operative sugar mills) and 60.87 per cent employees (private sugar mills). Further, there are 75.38 per cent employees in the co-operative sugar mills and 63.04 per cent employees in the private sugar mills who are aware of the contribution towards EDLI scheme. There are 70.77 per cent employees in the co-operative sugar mills and 60.87 per cent employees in the private sugar mills who have knowledge about the maturity amount of EDLI.

Table-2 represents the perception of employees regarding the procedure of various social security schemes. Mean score of the procedure "simple" to "very complex" is coded as 1 to 3 respectively on Likert scale.

The data in Table-2 shows that perceived procedure for all social security schemes is near to simple. In the case of co-operative sugar mills, the mean score of all social security i.e., employees' provident fund benefit, employee family pension benefit, maternity/paternity benefit, gratuity benefit and EDLI is near to 1. It shows the perceived simplicity of all social security benefits for co-operative sugar mills employees. Similarly, in the case of private sugar mills the mean score of all such benefits is also near to 1 which shows the

Table-2 : Perception of Administrative Employees Regarding Procedure of The Social Security Schemes/Benefits

Social Security Measure	Mean Score		t Value	p Value	Hypotheses Accepted/ Rejected
	Co-Operative Sugar Mills	Private Sugar Mills			
Employees' provident fund benefit	1.08	1.12	-.422	.674	Accepted
Employee family pension benefit	1.09	1.12	-.419	.676	Accepted
Maternity/paternity benefit	1	1	N.A	N.A	N.A
Gratuity benefit	1.09	1.12	-.559	.578	Accepted
EDLI benefit	1.04	1.11	-.864	.390	Accepted

Source : Compiled from primary data.

Note : N.A. means cannot be computed because of Nil Variance and low response rates.

perceived simplicity of social security benefits for employees of private sugar mills as well.

Regarding statistical difference, the results of the t-test showed no significant difference between the perception of employees of co-operative and private sugar mills about the procedure of various social security schemes (p>.05). Over all, the procedure of all the social security related schemes/benefits is near to be simple as perceived by the administrative employees of both private and co-operative sugar mills.

Table-3 presents the utility of different social security benefits/schemes as perceived by employees. Mean score of "extremely low utility" is regarded as 1 and mean score of the "very high utility" is regarded as 4 on Likert scale.

Table-3 clearly illustrates that the mean score of co-operative sugar mills employees' pertaining to the social security schemes (employees' provident fund benefit, employee family pension benefit, maternity/paternity benefit, gratuity benefit and EDLI) is well above 3. It shows the higher perceived utility of social security benefits. In the case of private sugar mills, the mean score is for all such benefits (except maternity/paternity benefit) are found in close proximity to 3. It shows that employees of the private sugar mills perceive the utility of the social security benefits on the higher side as well. However,

Table-3 : Perception of Administrative Employees Regarding Utility of the Social Security Schemes/Benefits

Social Security Measure	Mean Score		t Value	p Value	Hypotheses Accepted/ Rejected
	Co-Operative Sugar Mills	Private Sugar Mills			
Employees' provident fund benefit	3.55	3.05	5.936	.000*	Rejected
Employee family pension benefit	3.34	3.03	2.814	.006*	Rejected
Maternity/paternity benefit	3.45	2.89	1.707	.113	Accepted
Gratuity benefit	3.53	3.09	5.019	.000*	Rejected
EDLI benefit	3.57	3.04	5.436	.000*	Rejected

Source : Compiled from primary data.

Note : * represents significant at 1 % level of significance.

maternity benefit in private sugar mills has a score of less than 3. It shows the comparatively less utility of maternity benefit for employees of the private sugar mills. The statistical difference is observed for utility of employees' provident fund benefit (t=5.936, p=0.000), employee family pension benefit (t=2.814, p=0.006), gratuity benefit (t=5.019, p=0.000) and EDLI benefit (t=5.436, p=0.000). Overall, the utility for all the social security schemes/ benefits is perceived as high in both the types of sugar mills. Comparison-wise, the perceived utility for most of the social security benefits is found to be relatively higher for the employees of co-operative sugar mills than the employees of the private sugar mills.

Table-4 reveals the satisfaction of the employees from various social security schemes. Chi-square test has been applied to examine association between types of sugar mills (i.e., co-operative and private) and satisfaction of employees from various social security schemes/benefits.

The data presented in Table-4 reveals that a majority of the employees in the co-operative sugar mills are satisfied from the various social security benefits such as employees' provident fund benefit, employee family pension benefit, gratuity benefit and EDLI. There are very limited number of employees who are satisfied from the maternity/ paternity benefit as most of the employees have not opined for this particular benefit. Similarly, in the case of private sugar mills, most of the employees have shown their satisfaction from social security benefits such as employees' provident fund benefit, employee family pension benefit and gratuity benefit. The satisfaction for the EDLI benefit is found comparatively low for the employees of private sugar mills than the employees of co-operative sugar mills. In addition, the maternity benefit is found to be satisfactory for very few employees both in co-operative and private sugar mills. The results of the chi square test have not shown any association of type of sugar mill with the satisfaction of the employees ($p>.05$) for all the social security schemes/benefits.

Overall the study has shown the satisfaction of majority of employees derived from all the social security benefits (except maternity/paternity) both in the case of private and co-operative sugar mills employees.

Table-5 demonstrates the association between type of sugar mill and perception of employees regarding sufficiency of benefits available from different social security schemes.

Table-4 : Satisfaction of the Administrative Employees from the Social Security Schemes/Benefits

Social Security Measure	Satisfaction		Dissatisfaction		No Opinion		Hypotheses Testing	
	Co-operative Sugar Mills	Private Sugar Mills	Co-operative Sugar Mills	Private Sugar Mills	Co-operative Sugar Mills	Private Sugar Mills	Chi square Test	Hypotheses Accepted or Rejected
Employees' provident fund benefit	57 (87.7)	41 (89.1)	2 (3.1)	1 (2.2)	6 (9.2)	4 (8.7)	χ^2 =.087 d.f.= 1 p = .768	Accepted
Employee family pension benefit	48 (73.8)	37 (80.4)	8 (12.3)	2 (4.3)	9 (13.8)	7 (15.2)	χ^2 = 2.047 d.f.= 1 p = .153	Accepted
Maternity/ paternity benefit	8 (12.3)	8 (17.4)	1 (1.5)	1 (2.2)	56 (86.2)	37 (80.4)	χ^2 =.000 d.f.= 1 p = 1	Accepted
Gratuity benefit	54 (83.1)	32 (69.6)	3 (4.6)	0 (.0)	8 (12.3)	14 (30.4)	χ^2 = 1.743 d.f.= 1 p = .187	Accepted
EDLI benefit	50 (76.9)	27 (58.7)	1 (1.5)	3 (6.5)	14 (21.5)	16 (34.8)	χ^2 =2.600 d.f.= 1 p = .107	Accepted

Source : Compiled from primary data.

Note : Percentages are given in brackets.

Table-5 : Perception of Administrativeemployees Regarding Sufficiency of Amount Availability/Benefits

Social Security Measure	Sufficient		Insufficient		No Opinion		Hypotheses Testing	
	Co-operative Sugar Mills	Private Sugar Mills	Co-operative Sugar Mills	Private Sugar Mills	Co-operative Sugar Mills	Private Sugar Mills	Chi square Test	Hypotheses Accepted or Rejected
Employees' provident fund benefit	56 (86.2)	40 (87.0)	3 (4.6)	1 (2.2)	6 (9.2)	5 (10.9)	χ^2 =.441 d.f.= 1 p = .507	Accepted
Employee family pension benefit	42 (64.6)	27 (58.7)	14 (21.5)	10 (21.7)	9 (13.8)	9 (19.6)	χ^2 =.048 d.f.= 1 p = .827	Accepted
Maternity/ paternity benefit	11 (16.9)	8 (17.4)	0 (.0)	0 (.0)	54 (83.1)	38 (82.6)	NA	NA
Gratuity benefit	54 (83.1)	30 (65.2)	3 (4.6)	0 (.0)	8 (12.3)	16 (34.8)	χ^2 =1.635 d.f.= 1 p = .201	Accepted
EDLI benefit	49 (75.4)	22 (47.8)	2 (3.1)	6 (13.0)	14 (21.5)	18 (39.1)	χ^2 =6.087 d.f.= 1 p = .014	Rejected**

Source : Compiled from primary data.

Note : ** represents significant at 5 % level of significance.

Percentages are given in brackets.

Table-5 reveals that majority of the employees in the co-operative sugar mills perceive the amount available under various social security benefits (except maternity/paternity) such as employees' provident fund benefit, employee family pension benefit, gratuity benefit and EDLI as sufficient. In the case of private sugar mills, the sufficiency of the amount is shown as adequate by most of the employees for employees' provident fund benefit, employee family pension benefit and gratuity benefit. For the benefits like EDLI and maternity/paternity the perceived sufficiency of the amount is shown by comparatively less number of private sugar mills employees. Regarding EDLI benefit, the amount sufficiency is rated high by more number of employees of co-operative sugar mills in comparison to private sugar mills employees.

The results of the chi square test showed no significant association between sugar mill type and the perception regarding sufficiency of amount availability under various social security schemes ($p>.05$) except for the EDLI benefit ($\chi^2= 6.087$, $p= .014$). Hence, the perception of employees regarding sufficiency of EDLI is associated to the type of mill.

Comprehensively, in all the mills, the amount available is sufficient except for maternity/paternity. But the amount from EDLI is insufficient in the case of private sugar mills.

Table-6 demonstrates the association between types of sugar mill with the perception of employees regarding essentiality of various social security schemes.

Table-6 reveals that most of the employees in the co-operative sugar mills have reported the benefits of social security (employees' provident fund benefit, employee family pension benefit, gratuity benefit and EDLI) as essential. In the case of private sugar mills, majority of employees showed the enthusiasm for essentiality of all the social security benefits. However, the essentiality is found to be lower for the private sugar mills in contrast to the co-operative mills for benefits of social security (except maternity/paternity).

No association is found between the type of sugar mills and essentiality of various social security schemes ($p>.05$) as most of the employees advocated in favour of essentiality of these benefits.

Conclusion and Suggestions

The study concludes that the employees in both types of sugar mills are availing most of the social security benefits. But, there are very limited number of employees who have access to maternity/paternity benefit. As far as the

Table-6 : Perception of Administrative Employees Regarding the Essentiality of Social Security Schemes/Benefits

Social Security Measure	Essential		Not Required		No Idea		Hypotheses Testing	
	Co-operative Sugar Mills	Private Sugar Mills	Co-operative Sugar Mills	Private Sugar Mills	Co-operative Sugar Mills	Private Sugar Mills	Chi square Test	Hypotheses Accepted or Rejected
Employees' provident fund benefit	55 (84.6)	37 (80.4)	1 (1.5)	1 (2.2)	9 (13.8)	8 (17.4)	c^2 =.078 d.f.= 1 p = .780	Accepted
Employee family pension benefit	53 (81.5)	35 (76.1)	1 (1.5)	1 (2.2)	11 (16.9)	10 (21.7)	c^2 =.085 d.f.= 1 p = .770	Accepted
Maternity/ paternity benefit	12 (18.5)	14 (30.4)	1 (1.5)	0 (.0)	52 (80.0)	32 (69.6)	c^2 =.118 d.f.= 1 p = .290	Accepted
Gratuity benefit	53 (81.5)	28 (60.9)	1 (1.5)	0 (.0)	11 (16.9)	18 (39.1)	c^2 =.525 d.f.= 1 p = .469	Accepted
EDLI benefit	48 (73.8)	28 (60.9)	0 (.0)	1 (2.2)	17 (26.2)	17 (37.0)	c^2 =1.677 d.f.= 1 p = .195	Accepted

Source : Compiled from primary data.

Note : * represents significant at 1% level of significance, ** represents significant at 5% level of significance.

Percentages are given in brackets.

contributory social security benefits is concerned, most of the employees are aware about the employee provident fund and employee pension scheme in both co-operative and private sugar mills. However, the awareness regarding the contribution toward employee deposit linked insurance is comparatively less both in the case of co-operative and private sugar mills. With regard to awareness pertaining to maturity is concerned, most of the employees comprising both the types of mills are fully cognizance of the maturity from all the social security benefits as discussed (except from maternity benefit).

The employees of both the types of sugar mills confirmed that the procedural simplicity to avail the social security benefit has been rated very high. The utility for these schemes is found to be better in the case of co-operative sugar mills compared to the private sugar mills. Further, most of the employees expressed their satisfaction and confirmed the terminal benefits as sufficient from all the social security benefits (except maternity) in both types of mills (co-operative and private). Finally, most of the employees advocated the essentiality of all these benefits as well.

Coming to statistical difference, it is found for perception of administrative employees regarding sufficiency of amount availability under EDLI benefit. There is significant difference in the utility of all social security benefits except maternity benefit. These benefits are perceived better by the employees of co-operative sugar mills compared to private sugar mills.

In the light of this observation, it is stated that the different stakeholders of the sugar mills representing the management, government, trade unions must put in efforts to sensitise and educate the employees with regard to their contribution and the commensurate terminal benefits arising from various social security schemes. In particular, the maternity and paternity benefits is less accessed and availed by the employees in both the types of sugar mills. So, there must be special emphasis on this benefit to facilitate the male and female employees in a significant manner.

The State policy mandates to provide social security benefits to be uniform for co-operative and private mills, still the utility of the various social security benefits is perceived better by the employees of the co-operative mills. In this regard, the gratuity and EDLI benefit is not found favourable as much as by private sugar mills compared to the co-operative sugar mills. Moreover, private sugar mills employees are not satisfied with the adequacy of the overall terminal benefits of the scheme. Hence, it is suggested that the management of the

private sugar mills must try their best to find out the reason behind and provide the benefits accordingly.

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S No	Title of Programme	Dates	Programme Director(s)
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2	International Conference on "Making Cities Smart and Sustainable"	Sept 15-16, 2020	DrCh Lakshmi Kumari laxmi_k@ipeindia.org 9652960250
3	Quality Management	Sept 19-21, 2020	DrAbhay K Srivastava abhay@ipeindia.org 8318661311
4	Post Pandemic Corporate Reforms and Changing Corporate Strategy	Sept 28-29, 2020	Dr K Trivikram trivikramk@ipeindia.org 9703746799 / 6303972334
5	10th International Conference on "Corporate Governance"	Oct 5-6, 2020	Ms J Kiranmai kiranmai@ipeindia.org 9177005520
6	Emotional Intelligence for Well Being	Oct 5-6, 2020	Dr A Sridhar Raj sridharraj@ipeindia.org 9246294086 / 9398091924
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14	32nd Board Orientation Programme for Directors	Nov 19-20, 2020	Prof R K Mishra & Ms J Kiranmai kiranmai@ipeindia.org 9177005520
15	Applied Machine Learning Using Python Programming Language	Nov 19-20, 2020	Dr Shaheen shahmsc@ipeindia.org 9866666620
16	Computational Big Data and Visual Analytics Using Hadoop and Tableau	Nov 23-25, 2020	Mr A Rakesh Phanindra rakesh@ipeindia.org 9885933922
17	4th Strategic Management for Success	Nov 26-27, 2020	Mr S N Mantha snmantha@ipeindia.org 9866123510
18	Cyber Crime and Safety Measures	Dec 10-11, 2020	Mr A S Kalyana Kumar kalyan@ipeindia.org 9441744319 / 8500047105
19	8th National Conference on "Management Development of Women Executives"	Dec 16-18, 2020	DrSinju Sankar& Dr Narendranath K Menon sinjusankar@ipeindia.org / narenkrish@ipeindia.org 9885678513 / 9849606782
20	Computational Big Data and Visual Analytics Using Hadoop and Tableau	Jan 27-29, 2021	Mr A Rakesh Phanindra rakesh@ipeindia.org 9885933922
21	Emotional Intelligence for Well Being	Feb 2-3, 2021	Dr A Sridhar Raj sridharraj@ipeindia.org 9246294086 / 9398091924
22	Soft skills	Feb 3-4, 2021	Dr Samarendra Kumar Mohanty & Dr Narendranath K Menon samar@ipeindia.org narenkrish@ipeindia.org 8297199805/9849606782
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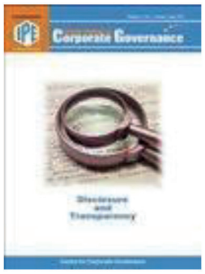

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