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Analysing Structural Variation in the Organised Manufacturing Sector of India: An Inter-Industry Analysis

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Abstract- *Being considered as the 'Engine of Growth', the organised manufacturing sector has not been able to contribute significantly to the employment generation even after this has been a vital topic of policy making. The contrbution of the organised manufactuirng to employment and GDP remained stagnant around 15-17% till date. The economic reforms of 1991 and cheap availability of capital has led to increased usage of capital in various industries. Hence, using semi-log model and finding trend growth rates will reveal the impact of capital intensity on employment. The literature talks about stagnation of labour in 1970s, jobless growth in 1980s, union demand for wage push as some of the factors of declining employment growth. These are also taken into account during the analysis. The data from 1982-83 to 2016-17 for two-digit NIC classification has been drawn from EPWRF-FITS which is concorded at NIC-2004. There are 22 industries at two-didgit level which are further divided into labour-intensive and capital-intensive industries on the basis of average labour intensity. The study has been done by dividing the series into sub-periods 1982-83 to 1989-90, 1990-91 to 1999-2000 and 2000-01 to 2016-17. The variables taken into account for studying the growth performance are employment, capital intensity, wage rate, labour productivity and output. The results revealed heterogeniety in the performance of 22 industries where capital intensity alone cannot be considered as the major factor behind less employment generation. The study revealed low standard of living of masses as wage rates offered were very low. Also, there is a rise in labour producitivity which to a major level has not contributed to the output growth in various industries. Overall, all the factors play a crucial role in determining the future of employment in organized manufacturing sector. The government policies should be made in accordance with the inter-industry performance to supplement the employment growth.*

Keywords*: Organised Manufacturing sector, Growth performance, Semi-log model, Employment growth, Capital intensity*
JEL Codes*: C22, E24, L6*

INTRODUCTION

Indian economy has grown at a decent rate since the early phase of economic reforms but this growth has not markedly improved the employment condition in the country. The problem lies in the fact that modern sectors of industry and service are not employment intensive. In the context of modern economic development theory, industrial sector is considered as the 'engine of development' and is expected to play a major role in reducing disparities among different regions, in employment creation and foreign exchange earnings **(Kaldor, 1967)**. India's population is moving forward at the rate of 17.7% per decade and is currently having a population of

1.21 billion according to 2011 census. According to ***World Bank*** for 2018, the population for India was 1.35 billion standing just next to China (1.39 billion). The demographic dividend of the economy is steadily increasing making it suitable for the country to climb higher in the growth path as compared to other developed economies. In the coming years, India will be the only country to have surplus youth in working age group. But the tragedy faced by this population is the employment avenues which are significantly lacking in the domestic territory.

Manufacturing sector having sophisticated technology and high level of productivity was considered to be a source of both swiftly rising living standards and national prestige in the developed countries **(Myrdal, 1968)**. For developed economies like the USA, the UK, Japan etc., the sector played a salient role in growth and development and improving the living standards of the people. For India, many economists believe that a direct jump from agriculture to services skipping the secondary or industrial sector is the main reason why India is still lagging behind the other economies which are at par with it. It thus became a crucial issue of discussion for various policymakers, primarily during the 1980s when economy was not able to stand at par with the other nations of the world. The sector received highlight during the economic reforms of 1991 where it was designated as the engine of growth and absorber of rising working population.

India before the 1970s was considered as an agrarian economy and was not able to stand at par with other nations in terms of industrial development and GDP. In late 1970s it began to liberalise the industrial policy framework by giving preference to the small and medium enterprises, cottage industries in the policy domain. By 1980, other policies were formulated and competition was promoted in the domestic market with modernisation of industries and technological upgradation to make the economy self-reliant and self-sufficient. The policies became more liberal with the balance of payment shock witnessed in 1990s which led to the formulation of new economic policy with an open approach, removal of restrictions and power in the hands of industrialists by removing excessive government control in the market domain. With this landmark decision, the manufacturing sector was allowed to develop at full length with least controls. But with the advent of technology from other countries and huge demographic pressure, it was not able to utilise the manpower into productive working. **Hasan et al (2013)** have shown in their study that India uses more capital-intensive techniques of production in the manufacturing sector than the countries having similar factor endowment and similar level of development.

Given the above background and considering manufacturing sector to be of immense importance, it is pertinent to understand the growth performance of the organized sector to see which industry has the capacity in current times to absorb the labour and also improve the contribution to employment. The present study focuses on the growth performance of employment, labour intensity, wages, output and labour productivityat two-digit inter-industry level to see which industry has the potential to generate employment, which industries output is contrbuting significantly to employment generation and how the factors of production especially labour and capital are used in various industries.

REVIEW OF LITERATURE

To understand the grounds of present study, it is relevant to have an aerial perspective of the existing literature. The literature review provided a background and also justified the area undertaken for the research purpose. Various empirical studies have been done to assess the performance and contribution of this sector towards the growth and employment creation in the economy which is discussed here in chronological order.

Goldar (1987) in his study attempted to look into the factors which influence the absorption of labour in Indian industries. By using data from ASI and CMIE for the period 1951-80 (being divided into three sub periods of 10 years each) and using tools such as growth rates, employment elasticities and regression analysis he found out that there is slowdown in the employment growth as compared to the output growth in 50s and 60s but the scenario changed in 70s with the growth in both employment and output causing employment elasticity to be near unity (0.9) and fall in the labour productivity. The reason for employment growth in 70s can be attributed to the decline in the share of wages to workers which has been confirmed by empirically testing the data for the concerned time period. The results established negative relation between employment growth and real wages while a positive relation has been established with the output of the industry.

Nagaraj (1994) in his paper examined the trends in real wages and the power of organised labour in the Indian industries for the period 1973-74 to 1988-89. He utilised the ASI data and Occupational Wage Surveys in order to establish results by using trend growth rates and correlation coefficients as the tools. The inter industry division and organisational division is considered for the study purpose and it is found that besides the established facts of decline in employment due to labour market distortions, capital intensity and increase in wages, the stagnation in employment even when the output is increasing at a higher rate in 1980s can be due to **(i)** availability of other natural resources **(ii)** there was an overhang of employment during 1970s which made firms utilise their existing labour more intensively **(iii)** there was an increase in competition caused by trade liberalisation which forced firms to reduce their cost of production.

Papola (1994) examined the social protection to labour in different sectors of Indian economy particularly considering growth and structural changes in employment and industrial restructuring. He used data from NSSO various rounds and five-year plans for the period 1951-1992. Various statistical tools such as percentages, elasticities and growth rates were calculated. The growth of employment was seen from demand and supply perspective wherein demand for labour is fluctuating while its supply is continuously increasing which is paving way for unemployment in the economy, poor living standards of the workers and unfavourable labour contracts. The reason behind fluctuating demand can be pro-labour regulations which hindered the rate of absorption of the workforce in the economy. The study found that 9/10 of the workforce is employed in the unorganised sectors where there is minimal protection to the working class. Also, the contractualisation of the workforce has increased which again is a threat to the living standards of the workforce as these workers are not adequately paid for their work.

Bhalotra (1998) in her study analysed the puzzle of **'**jobless growth**'** (rising output and capital but deceleration in employment) in the Indian manufacturing industries for the period 1979-87. Using an industry-region panel for the aforementioned period and using the technique of generalised method of moments the study shows that product wage increase cannot be the sole reason for deceleration in employment growth rather in the long run this variable has minimal effect on the employment. The study found that the growth in productivity of the labour and increase in the actual labour hours worked were the main factors behind employment deceleration.

Goldar (2000) analysed ASI data for the period 1990-91 to 1997-98 to find out the reason behind employment growth after stagnation in the 1980s. He analysed employment growth under organisational distribution (public-private), inter industry distribution (2-digit industries) and factory size distribution and attributed the positive growth to the change in size structure in favour of small and medium sized industries. He also highlighted that the employment growth which took place in 1990s in the organized manufacturing sector was accounted for by the private sector. By empirically testing the data for two-digit industries in the manufacturing sector he also found that the growth in employment was also due to slowdown in the growth of real wages to the workers.

Mazumdar and Sarkar (2004) attempted to study the impact of economic reforms on employment and output growth in Indian manufacturing for the period 1974-75 to 1996-97. By calculating compound annual growth rates and performing decomposition analysis on the industries, the study found that the employment elasticity showed extensive variations in different time periods. Three time periods can be distinguished from the results: **(i)** 1974-80 where employment elasticity was close to unity, **(ii)** 1980-86 period of jobless growth or employment deceleration causing employment elasticity to be negative, **(iii)** 1986-96 the period of economic reforms where the employment growth started to recover along with the growth in output. The decomposition analysis determined the factors which affected employment elasticity in different time periods. In the first period (1974-80) the favourable domestic exchange rate enhanced the growth rate of the real wage bill to the workers without any significant change in the wage share thus causing both output and employment to grow. In the second period (1980-86) the negative impact of domestic exchange rate, increase in the man-hours per worker, stringent labour regulations and change in the composition of output and employment negatively affected the employment growth even when the output was increasing rapidly. In the third period (1986-96) both output and employment grew positively and the factors behind revival in employment growth were the flexible labour regulations and shifting focus towards the small and medium sized industries.

Nagaraj (2004) studied the organised manufacturing employment in India for the period 1981-2002. Using ASI data for 2-digit industries he found that there was stagnation in employment growth in 1980s with a boom experienced by the industries in 1992 followed by retrenchment from 1996 onwards. He found that almost 15% of workforce lost their jobs in the organized manufacturing. The trend growth rate for the workers was 0.9% and for the supervisory and managerial class it was 2.2% meaning thereby that the job loss was only for the working class. This job loss was primarily because of stringent labour market regulations, introduction of new information technology, increased competition worldwide. Another finding from the study says that the wages stagnated for the working class even when the per capita income was rising at a rate of 3% during 90s which concludes that the gains were accrued to the employers.

Rani and Unni (2004) studied the impact of economic reforms on the organised and unorganised sectors of the Indian manufacturing for the period 1984-2001. Using data from NSSO and CSO the industries were divided into 2 sectors: **(i)** organic industries or the traditional industries including food products, beverages, tobacco, textiles paper products and publishing etc. **(ii)** inorganic or the modern industries including coke, petroleum, metal products, rubber products, chemical products etc. Growth rates, percentages and employment elasticity was calculated for respective groups and the results showed that the economic reforms had a favourable impact on the organised manufacturing sector and that too beneficial for the inorganic industries. Infrastructure and automobile industries played a significant role in manufacturing sector's growth and also contributed to the employment growth in unorganised sector. The initial impact of economic reforms on the unorganised sector's employment was negative but with the initiation of policies towards the small-scale industries this sector regained growth.

Sen and Dasgupta (2006) elaborate upon the employment conditions in the manufacturing sector of India by linking employment growth with the firm's output growth for the period 1980-81 to 2002-03. ASI data for three-digit NIC classification has been used for the study purpose. By classifying industries as high growth (having output growth of 20% and above) and low growth (having output growth of less than 5%) the study shows that the gap between the growth rates of output and employment has been highest for the manufacture of aircraft and space craft industry- the industry experiencing the highest growth rate in output. The capital elasticity of output has been consistently higher for the high growth industries in the post reform period and the same has been experienced by the low growth industries thus affirming the fact that labour has been displaced by capital after the reforms. The result of labour displacement is also confirmed by the fact that the trend growth rate of K-L ratio was positive in almost all the industries which led to positive growth in labour productivity. The miserable condition of labour is also highlighted by the fact that the wages remained stagnant in almost all the industries while the profit share was continuously increasing. Labour flexibilization or the share of contractual workers is quite high in both high and low growth industries in the post reform period highlighting the fact that even when the economy is in prosperity the gains to the labour are unsatisfactory.

Hasan, Gupta and Kumar (2009) analysed the impact of delicensing on industrial performance of India's organized manufacturing sector and also tried to find out the factors other than stringent labour regulations that effected industrial performance. State level analysis for 15 major states has been done for 42 three-digit industries for the period 1980-2004. The study revealed that the impact of delicensing has been highly uneven across the industries. Industries which are labour intensive, use unskilled workers or depend more on infrastructure benefitted less from the economic reforms. The state level regulations also played an important role in determining industrial performance. States with less competitive product market regulations and inflexible labour market regulations benefitted less from the economic reforms than those where competition and flexibility is more. Financial sector development and proper infrastructural availability played a significant role in improving industrial performance across states.

Kannan and Raveendran (2009) studied the impact of output growth on employment in the organised manufacturing sector of India for the period 1980-81 to 2004-05 as a whole and for two sub periods 1980-81 to 1991-92 and 1992-93 to 2004-05. Industries have been classified as employment creating and employment displacing on the basis of employment elasticity and the phenomenon of jobless growth has been confirmed in all the periods. For the entire period the output growth was 7.41% p.a. while the growth in employment was 0.10% p.a. Capital intensification has also increased in the entire period leading to increase in labour productivity and thus increase in overall output. The increase in output did not led to increase in the product wages rather it has declined signifying that the major portion of the returns is retained by the employers in the

industries. As a result, the workers in the economy lost both in terms of additional employment and increase share of wages in the total output.

Hasan, Mitra and Sundaram (2010) attempted to find out the determinants of capital intensities at industry level. A cross country analysis has been done to showcase the importance of country's factor endowment and impact of labour regulations and financial development on their usage. Three studies have been undertaken for different time periods: **(i) 1994-2004** for cross country analysis **(ii) 1980-2004** for India- China comparison **(iii) 1989-1996** for comparative study of India – U.S manufacturing. Database from World Bank Development Indicators and UNIDO International Yearbook of Industrial Statistics has been used for the study purpose. The results obtained showed that in cross country analysis for 63 countries, India is ranked 58th in terms of per capita GDP and factor endowments but ranked relatively high (28) in terms of capital intensity which highlights the role of stringent labour market and imperfections in credit market. While comparing capital stock per worker in Indian and Chinese manufacturing industries who were comparable in many ways during the study time period, the results showed that Indian manufacturing uses more capital stock per worker than China which affirms with the observation of higher cost of employing labour in Indian manufacturing. For comparison between the capital-labour ratios in U.S and Indian manufacturing the results showed that actual capital-labour ratio in Indian manufacturing was higher than the perceived capital-labour ratio in the U.S industries contradicting the comparative advantage theory of factor endowment. This contradiction is mainly because of the strict labour regulations in Indian manufacturing regarding the hiring and firing of workers and collective bargaining over wages.

Goldar (2011) in his study tried to analyse the factors behind increase in employment in the organised manufacturing sector of India between 2003-04 and 2008-09. The employment during this period increased at the rate of 7.5% per annum and output growth at 10% per annum after facing the phenomenon of jobless growth since 198os. Organisational distribution of organised manufacturing industries and inter-state analysis was done to determine the factors behind positive employment growth. The results showed that most of the increase in employment was seen in the private sector companies with the growth rate of 14% per annum since their labour intensity is higher than that at the aggregate level. Private sector companies share in total ASI employment increased from 25% in 2003-04 to 33% in 2008-09. For state wise analysis, results showed that Uttarakhand (41% p.a.) and Himachal Pradesh (25% p.a.) have significantly contributed to employment growth mainly due to tax exemptions provided to industrial units to set up in these states, whereas Kerala (3.8% p.a.), Jharkhand (2.5% p.a.), Delhi (1.9% p.a.), West Bengal (1.3% p.a.) recorded low employment growth. Further the labour reforms undertaken by various states where the labour regulations were made more flexible led to increase in employment growth.

Kapoor (2014) in her study tried to study the factors which are holding back output and employment growth in the organised manufacturing sector of India despite positive economic growth. Using ASI data for 3 digit industries at national level and for 18 major states for the period 1999-2000 to 2010-11 the results showed that economic growth has benefitted only those industries which rely on skilled labour force and capital intensive techniques in the production process and this finding holds true for both labour intensive and capital intensive industries which is a sign of concern as it raises doubt about the manufacturing sector's capacity to absorb the working population of the economy. The increase in the share of contractual workforce from 15.69% in 2000-01 to 26.47% in 2010-11 indicates the deterioration of job quality in the manufacturing sector. The employment elasticity of output is more in labour intensive industries which in comparison to capital intensive industries are growing slowly thus contradicting the comparative advantage theory of factor endowment. State-wise analysis showed that states with inflexible labour market regulations face the problem of declining employment growth. But this decline is mainly seen in the employment of permanent workers as to countervail the effects of labour regulations industries started hiring contract labourers. Cumbersome product market regulations and infrastructural bottlenecks also play a significant role in determining employment growth.

Basole and Narayan (2018) investigated the aggregated long-term trends in the employment, output, capital-labour ratio, wage share and wage rates of the organised manufacturing sector of India at three-digit level. ASI data has been used for the period 1983-2016. Shift share decomposition analysis has been done to find out the factors responsible for declining labour-capital ratio. The study showed that the entire period under consideration can be divided into three sub periods: **(i)** 1986-1996 wherein there was slow employment growth, rapid substitution of capital for labour and rising wages and emoluments. **(ii)** 1996-2006 wherein there was loss of employment, slower substitution of capital for labour and stagnant wages leading to divergence between

wages and emoluments. **(iii)** 2006-2016 wherein there is strong employment growth, decline in labour-capital ratio, rising wages alongside growing divergence between wages and emoluments. For the entire period the growth in employment was two times while the growth in output was nearly 15 times indicating the scenario of 'jobless growth'. Comparing wage rate and productivity for the entire period the results showed that while wage rate increased by 1.4 times, the increase in productivity was around 6 times showing increasing shift towards the capital-intensive techniques. Further the shift-share decomposition analysis showed that rising capital intensity within industry is responsible for the declining labour-capital ratio and not the increasing capital-intensive industries in the manufacturing sector.

Overviewing the existing literature revealed that studies on the manufacturing sector in India are mostly done at national levels. The comprehensive inter-industry studies talking about growth of important variables is not mainly focused upon. Hence, this study is a modest attempt in this regard.

DATA SOURCES AND METHODOLOGY

The study is based on the Annual Survey of Industries (ASI) which is conducted under the Collection of Statistics Act, 1953 and Collection of Statistics (Central) rule, 1959. The survey frame is divided into census and sample sector wherein the census sector includes larger plants. The recent definition of census sector includes all the industrial units employing 100 or more workers and all the industrial units belonging to 7 less industrially developed states/UTs (Arunachal Pradesh, Manipur, Meghalaya, Nagaland, Sikkim, Tripura and Andaman & Nicobar Islands). The rest are included under the sample sector.

For the present study the data has been extracted from Economic and Political Weekly Research Foundation's India time series database (EPWRF-FITS) which provide the concorded dataset of ASI. Concordance is required as the National Industrial Classification (NIC) has changed often with time. The study has included NIC-1970, NIC-1987, NIC-1998, NIC-2004 and NIC-2008. EPWRF provided the concorded series at NIC-2004. The database provided detailed information on the selected variables required for the study purpose such as total persons engaged, fixed capital, emoluments and wages, value of output and gross value added. The present study covers the period from 1982-83 to 2016-17 to assess the long-term trend of various variables in the industries and to get the performance picture of manufacturing sector before and after reforms**.** For this the analysis has been done for the whole period and for sub periods: 1982-83 to 1990-91, 1990-91 to 2000-01 and 2001-02 to 2016-17.

The ASI provides data on current prices and deflating these values is very important for any analytical work. Industry specific Wholesale Price Index (WPI) provided by the Office of Economic Advisor and RBI data on Currency and Finance has been used to deflate the annual values of output and value added. Consumer Price Index for Industrial Workers (CPI-IW) provided by the RBI Handbook of Statistics on Indian Economy has been used to deflate emoluments and wages. To deflate the nominal values of fixed capital, Gross Fixed Capital formation at current and constant prices provided by CMIE Economic Outlook has been used. The base year for both Wholesale Price Index and Consumer Price Index has been taken as 2004-05.

To track the performance of these industries, the classification has been made for the labour intensive and capital-intensive industries by taking out labour intensity (L/K) for all the industries and for each time period. An average labour intensity ratio for each industry was calculated for the whole period 1982-83 to 2016-17 and then average of all industries taken together was carried out. Those industries whose labour intensity was greater than the average labour intensity of all industries was classified as labour-intensive industries and those which had labour intensity less than the average one was classified as capital intensive industries. The same has been shown in Table 1.1

ASI provides book value of the fixed assets owned by the factory at the end of an accounting year. This value has been used to obtain the real capital stock of an industry using the Perpetual Inventory Method as suggested by Goldar. This method has following steps:

1. The initial or the benchmark year's capital stock has been calculated by doubling the fixed capital value as given in the Annual Survey of Industries.

2. For each successive year, value of gross investment has been computed using the fixed capital values for the current year and preceding year. Each year's depreciation allowance has been added to the series. Thus, formula for the same is:

$$I_t = B_t - B_{t-1} + D_t / P_t$$

Where, I = gross investment
B = book value of fixed capital
D = depreciation in year t

3. After this, capital stock for each year was calculated using the preceding year's capital stock and the gross investment. While computing the capital stock for each year the discard of assets must be taken into account to avoid any over-estimation. Following Goldar, a discard of 5% has been taken to correct the capital stock series. Equation for the same is:

$$K_t = K_{t-1} + I_t - 0.05\ K_{t-1}$$

Where K_t stands for real capital stock

4. As ASI provides data on all variables at current prices, these values have been converted to constant values by using Gross Fixed Capital Formation to construct the price deflator. Formula for the same is:

P_t = (GFCF at current prices ÷ GFCF at constant prices) ×100

Where, P_t stands for price deflator.

Further, with data being provided on employment and output, labour productivity for each industry was calculated using the formula:

Labour productivity = Real gross value added/total persons engaged

To study the level of inter-industry variations in employment growth, capital intensity, output, wages and labour productivity, trend growth rates has been calculated for the whole time period i.e. 1982-83 to 2016-17 and for sub periods using the semi-logarithm trend equation:

$$\text{Log } (y) = \alpha + \beta x$$

Table 1.1 Classification of Industries

Labour Intensive Industries	**Labour Intensity**
Tobacco products	27.66
Wearing apparel; dressing and dying of fur	7.78
Tanning and dressing of leather	3.82
Wood and wood products	4.29
Furniture; n.e.c	4.09
Capital Intensive Industries	**Labour Intensity**
Food products and beverages	2.92
Textiles	2.40
Paper and Paper Products	0.88
Printing, publishing and reproduction of recorded media	2.51
Coke, refined petroleum products and nuclear fuel	0.25
Chemical and chemical products	0.70
Rubber and plastic products	1.44
Non-metallic mineral products	1.38
Basic metals	0.55
Fabricated metal products	2.72
Machinery and equipment	2.01
Office, accounting and computing machinery	1.64
Electrical machinery and apparatus	1.76
Radio, television and communication equipment and apparatus	1.52
Medical, precision and optical instruments	2.13
Motor vehicles, trailers and semi-trailers	1.24
Other transport equipment	1.96
Average	3.43

Source: Author's own calculations using data from EPWRF-FITS

EMPIRICAL ESTIMATION

The empirical estimation has been done keeping in mind the objective of studying the structural variations in the inter-industry performance of organised manufacturing sector by analysing the growth performance of key variables as emplyment, capital intensity, wages, output and labour productivity. The trend growth rates for all the industries at NIC-2004 has been calculated and results are then presented in tabulated form.

I. Growth Rates of Employment and Capital Intensity: An Inter-Industry Analysis

The trend growth for employment and capital intensity has been presented in Table 1.2. The results show that most of the values calculated are significant at 1% and also presence of inter-temporal variation is there. If we look into the employment growth and capital intensity growth for labour-intensive industries, only NIC-18 (manufacture of wearing apparel) has maintained employment growth (10.62%) greater and almost double than the capital intensity growth (5.65%). This trend is maintained in the post-reform period too with employment growth of almost 9% throughout while the capital intensity growth was almost 5% in the industry. This can be due to the fact that many small scale and medium sized industries are a part of this industry which provides employment to a large section of the society. In NIC-20 (manufacture of wood and wood products) negative employment growth is observed in the pre-reform (-1.68%) and early years of economic reforms (-3.05%). However, the growth rate picked up in the later years to 4.49% which can be accrued to more flexible labour regulations and government's aim of increasing employment in the economy. With this positive shift in employment growth, the growth in the capital intensity decelerated to 5.86% as compared to 9.74% in early reform years.

For NIC-19 (tanning and manufacturing of leather) a positive response to employment growth can be seen. Although in pre-reform period, the use of capital was quite high (11.85%) but with economic reforms, the focus shifted on employing more labourers as the industry requires workforce primarily for dehairing, degreasing and desalting the animal skin. In 1991, the industry lost huge employment (1.51%) but regained the same in later years of reforms (7.57%). The fall in employment could be due to advent of new technologies which came up with globalization and ease of FDI but this technology cannot be used for small work which might cost more to the company as compared to hiring more labourers.

The tobacco industry (NIC-16) has seen a negative growth in employment in the recent years (-0.39%) and also a fall in capital intensity growth (7.57%) owing to the fact that government has issued various guidelines for prohibition of tobacco products and has increased awareness amongst the use regarding its consumption.

The furniture industry (NIC-36) didn't offer good employment avenues in the pre reform period (1.61%) which improved to a good extent in the post reform period (8.22%). This can be due to the fact that many small businesses have come up with new and innovative ideas in furniture and jewellery articles and also consumer demand has increased with increasing income in their hands. The share of capital intensity significantly came down to 2.22% from 7.03% in later years of reforms as the industry is need of more labour for minting, polishing, making mattresses etc.

As has been well documented in the economic literature that employment generation is disappointing in organized manufacturing sector in general and capital-intensive industries in particular, the same phenomenon is observed in the present study of increasing capital intensity and dwindling growth of employment. The most striking and disappointing results can be seen for NIC-30 (manufacture of office, accounting and computing machinery) where employment growth remained negative throughout the study period (-0.99%). Only a meagre improvement is there in late reform years (0.10%) but the share is very less as compared to capital intensity growth (3.65%). This can be attributed to cheap availability of capital and trade openness as the industry requires more machinery and tools for making suitable equipment for consumer usage. Also, with the advancement of computing technology, less of workforce is required to operate on machines. The growth that improved in later years for employment can be that of skilled workforce which is required to operate the sophisticated technology.

Table 1.2 Employment growth and Capital Intensity in Organised Manufacturing Industries

(Percent per annum)

Industry Code	Employment Growth				Capital Intensity Growth			
Labour Intensive	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**
16	2.12	0.10	-0.39	0.50*	13.42**	11.51*	7.57*	8.11*
18	10.62*	9.52*	5.65*	8.87*	5.65*	8.54*	2.42*	4.70*
19	6.60*	1.51***	7.57*	4.81*	11.85*	5.02*	0.70**	2.73*
20	-1.68*	-3.05**	4.49*	0.40	8.00*	9.74*	5.86*	6.82*
36	1.61***	8.22*	6.71*	6.71*	5.86*	7.03*	2.22*	4.81*
Capital Intensive	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**
15	-0.59	1.61*	2.63*	1.61*	10.40*	7.89*	6.71*	6.92*
17	-2.07*	0.50	3.35*	0.90*	9.08*	9.85*	3.04*	6.28*
21	0.10	2.12*	3.04*	2.12*	4.70*	4.91*	3.97*	3.65*
22	-1.98*	-3.05**	4.08*	0.20	8.65*	14.11*	4.18*	7.57*
23	0.40	1.10	4.91*	3.04*	7.03*	12.97*	6.07*	8.65*
24	2.32*	3.04*	5.02*	2.94*	6.60*	6.92*	1.30*	4.18*
25	3.97*	4.60*	7.25*	5.02*	8.98*	7.03*	2.32*	4.70*
26	0.50**	-0.49	5.86*	2.83*	11.85*	11.07*	3.66*	5.65*
27	-0.39	-0.49	5.02*	1.51*	5.97*	5.97*	5.86*	5.86*
28	2.22*	2.22*	7.25*	4.08*	6.18*	6.39*	5.33*	5.33*
29	-0.39	1.00	5.65*	1.71*	7.78*	5.65*	3.76*	5.44*
30	-1.39	-5.54**	0.10	-0.99*	14.56*	8.76**	3.65*	9.41*
31	2.83**	-0.29	6.39*	2.73*	4.81*	9.41*	2.32*	4.60*
32	5.54*	-0.09	2.94*	1.40*	9.85*	11.07*	1.40***	7.25*
33	3.14*	3.14**	4.39*	2.83*	10.07*	2.94***	1.30	3.97*
34	1.40**	3.65*	10.29*	5.23*	7.03*	12.86*	2.83*	5.97*
35	-0.39	-6.76**	4.91*	0.89**	4.39*	10.73*	4.49*	6.39*

Source: Author's own calculations using EPWRF-FITS data
*= significant at 1
**= significant at 5%
***= significant at 10%

For NIC-15 (manufacture of food products and beverages) also, more inclination towards capital intensity can be seen. The industry was offering employment growth in the pre-reform period even when India in one of the world's largest producer of food producing over 100 million tonnes of food products a year. The capital intensity was maximum in the pre-reform period which may be attributed to processing, preserving, grinding etc. which needs more machines for better quality. The negative growth in employment improved a little in the coming years which can be of skilled labour force required to operate the fast-changing technological equipment.

NIC-34 (manufacture of motor vehicles, trailers and semi-trailers) have shown an impressive employment growth in the later years of economic reforms (10.29%). In the pre-reform period, the industry was capital intensive with 7.03% growth in capital intensity as compared to 1.40% in employment. The gap still increased with economic reforms of 1991 which can be due to the coming up of new technology to make easier availability of heavy motor vehicles for the transportation of goods to far off places. In the later years, the industry then focused on employing more labour (10.29%) that can be used for making parts and accessories of motor vehicles which are demanded more as compared to new vehicle in today's world. Also, for this work more of contract labourers are hired whose proportion is increasing with each passing day.

A similar kind of observation can be made for NIC-17 (manufacture of textiles), NIC-21 (manufacture of paper and paper products), NIC-22 (publishing, printing and reproduction of recorded media), NIC-27 (manufacture of basic metals) and NIC-35 (manufacture of other transport equipment) where in the later years of reform i.e. 2001-02 to 2016-17 the employment growth is almost at par with capital intensity growth which can be attributed to various measures taken by government for the employment creation in the economy like Industrial Training Institutes, National Manufacturing Policy 2011, Make in India 2014, Pradhan Mantri Kaushal Vikas Yojana 2015 to name a few. Although it is lagging behind by few points, but still prospects are there to generate more employment with key focus on these sectors.

II. Growth Rates of Employment and Wage Rate: An Inter-Industry Analysis

Wage rate is a crucial factor to account for the standard of living of people in an economy. It is the payment made to the employee for his/her contribution to the output in the economy. As postulated under the Classical Theory of Employment, as employment increases, the growth in real wage rate decreases. Understanding the employment and wage rate growth is necessary because as the industries are focusing more on mechanisation, what portion of total output is accrued to labourers is extremely important to study. In the earlier studies, it was believed that labour rigidities led to increase in wages of the workers which led to more mechanisation and hence less employment in the manufacturing sector. This phenomenon is more believed to take place in 1980s when the jobless growth was experienced in this sector.

In table 1.3 this relation is depicted for industries at two-digit level based on NIC-2004. The scenario observed in all the industries is same with different extents as an opposite relationship between wage rate and employment growth. To look into the labour-intensive industries, for the period 1982-82 to 1990-91, the most disappointing relation is depicted by NIC-18 (manufacturing of wearing apparel) where though employment growth is high (10.61%) but the wage growth in the same period is meagre (1.91%) which shows that job quality in this sector is not considered. It also confirms the fact that there are many small and medium sized establishments in this industry, where even though employment is provided the standard of living is not looked upon. Mostly contractual workers are a part of this industry who are not in a position to form labour unions to ask for pay hikes. After the reforms, even with decline in labour growth and more mechanisation, the growth in wages is not impressive (2.73%).

A disappointing picture can be observed with NIC-16 (manufacture of tobacco products) where before the reforms the employment creation was there, even though living standards were poor but with reforms and prohibitory measures by government regarding the usage of tobacco by public, the employment growth has decelerated. With the deceleration in employment growth, not much focus is done on existing labour's living standards. Considering these workers are mostly tribal and migrant workers, the industry doesn't provide them a good portion of output and retain the same as profit or for reinvestment.

For NIC-20 (manufacture of wood products) even though employment growth is declining from -1.68% in pre reform period to -3.05% in post reform, the rate of growth in wages is not impressive for the existing labour force. Post 2000, equality can be seen in the employment growth and wage rate growth which shows that policies undertaken by government for reducing poverty and raising standard of living are focused upon.

In the capital-intensive industries, there are industries depicting negative growth rate in pre-reform period like NIC-15 (manufacture of food products and beverages), NIC-17 (manufacture of textiles), NIC-22 (printing, publishing and reproduction of recorded media), NIC-27 (manufacture of basic metals), NIC-29 (manufacture of machinery and equipment) , NIC-30 (manufacture of office, accounting and computing machinery) and NIC-35 (manufacture of other transport equipment) but it is only NIC-15 offering impressive wages to the employees (5.44%). With the growth in employment in the subsequent years, even though wages have declined but the proportion of output offered to labourers is impressive as compared with labour-intensive industries.

For NIC-30 (manufacture of office, accounting and computing machinery) it can be seen that post 2000s a positive growth is there in employment (0.10%). With this positive growth, the growth in wages was extremely high (10.62%) which shows that most of the employment in this industry is of skilled manforce.

For NIC-27 (manufacture of basic metals) with government policy measures and targets, the industry did employ more labourers after 2000 as the growth rate increased from -0.49% in early years of reforms to 5.02% after 2000, the fall in the wage rate was also huge of almost 4%. This shows that even though industries started focusing on employment creation, that creation is happening at the cost-of-living standard.

For industries depicting a positive picture since the beginning of study period like NIC-21 (manufacture of paper and paper products), NIC-23 (manufacture of coke, refined petroleum and nuclear fuel), NIC-24 (manufacture of chemical and chemical products), NIC-25 (manufacture of rubber and plastic products), NIC-28 (manufacture of fabricated metal products), NIC-33 (manufacture of medical, precision and optical instruments) and NIC-34 (manufacture of motor vehicles, trailers and semi-trailers), the employment growth though remained positive throughout but the gap between the wages and employment was alarming especially in rubber and plastic, fabricated metal and motor vehicle and trailers industry. In rubber and plastic industry, it can be observed that after reforms and mainly after various policies of the government, the employment growth has increased (7.25%) but this increase is detrimental if the wages are remaining too low at just 2.32%. This observation confirms the fact of increasing contractual labour in organised manufacturing proved in economic literature by many scholars like **Neethi P (2008), Saha &Sen (2014) and Radhicka &Krishnapriya (2016)**.

Table 1.3 Employment and Wage Rate Growth in Organised Manufacturing Industries (Percent per Annum)

Industry Code	Employment Growth				Wage Rate Growth			
Labour Intensive	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**
16	2.12	0.10	-0.39	0.50*	-0.99	2.02*	1.30*	1.00*
18	10.62*	9.52*	5.65*	8.87*	1.91*	2.22*	2.73*	2.42*
19	6.60*	1.51***	7.57*	4.81*	1.00	0.60	2.73*	1.10*
20	-1.68*	-3.05**	4.49*	0.40	1.61**	2.73*	4.49*	2.94*
36	1.61***	8.22*	6.71*	6.71*	0.60	1.81	2.12*	1.51*
Capital Intensive	**1982-1990**	**1990-2000**	**2000-2016**	**1982-2016**	**1982-1990**	**1990-2000**	**2000-2016**	**1982-2016**
15	-0.59	1.61*	2.63*	1.61*	5.44*	2.32*	3.45*	2.73*
17	-2.07*	0.50	3.35*	0.90*	1.91*	-0.39	1.40*	0.30*
21	0.10	2.12*	3.04*	2.12*	3.14*	1.10*	1.51*	1.40*
22	-1.98*	-3.05**	4.08*	0.20	2.73*	2.63**	2.02*	2.22*
23	0.40	1.10	4.91*	3.04*	3.66*	7.35*	2.22*	3.56*
24	2.32*	3.04*	5.02*	2.94*	1.71*	1.61*	2.02*	1.81*
25	3.97*	4.60*	7.25*	5.02*	1.81**	1.00	2.32*	1.40*
26	0.50**	-0.49	5.86*	2.83*	1.71*	3.04*	2.02*	1.81*
27	-0.39	-0.49	5.02*	1.51*	1.91*	4.49*	0.60***	2.12*
28	2.22*	2.22*	7.25*	4.08*	2.22*	2.63*	2.12*	2.02*
29	-0.39	1.00	5.65*	1.71*	2.73*	2.42***	2.42*	2.63*
30	-1.39	-5.54**	0.10	-0.99*	1.61**	1.91	10.62*	4.39*
31	2.83**	-0.29	6.39*	2.73*	1.91*	1.61**	1.30*	1.10*
32	5.54*	-0.09	2.94*	1.40*	2.02*	3.14**	1.61*	2.94*
33	3.14*	3.14**	4.39*	2.83*	2.83*	2.63*	1.91*	2.83*
34	1.40**	3.65*	10.29*	5.23*	2.32*	2.02*	0.40**	1.20*
35	-0.39	-6.76**	4.91*	0.89**	2.42*	1.51	1.10*	1.71*

Source: Author's own calculations using EPWRF-FITS data

*= significant at 1

**= significant at 5%

***= significant at 10%

A similar trend was observed in fabricated metal industry where earlier there was uniformity in the employment and wage rate growth but post 2000 the gap widened with 7.25% growth in employment and only 2.12% growth in wages. A disheartening picture is observed in motor vehicles and trailer industry where impressive employment growth (10.29%) is observed in later years of reforms but the depressing fall in wage rate growth to just 0.40% calls for attention to the problem of standard of living and poverty.

There are industries like NIC-26 (manufacture of other non-metallic mineral products), NIC-31 (manufacture of electrical machinery and apparatus) and NIC-32 (manufacture of radio, television and communication equipment) where with economic reforms focus shifted towards mechanisation and capital deepening as the employment growth was decelerating to negative numbers. But after 2000s the trend reversed and the industry started providing employment to the population. The massive increase can be seen in electrical industry where growth in employment increased to 6.39% as compared to -0.29% in first decade of reforms. With massive employment growth, the decline in wages was minimal from 1.61% to 1.30%. the other two industries saw employment growth but wage rate growth decelerated by more than 1%.

III. **Growth Rates of Wage Rate and Labour Productivity: An Inter-Industry Analysis**

As discussed above, wage rates play an important role in determining the standard of living of people in economy and that employment and wage rate is inversely related. In this study, we have analysed the relation between wage rate and labour productivity which according to many studies by **Banga (2005), Muralidharan et al (2013)** etc. share a positive relation as with technological progress owing to economic reforms of 1991 the productivity of the labourers has increased and due to increasing FDI into the economy, the wage rate also increased.

Labour productivity is described as the total amount of output produced per labour unit during a particular time period. The same is calculated by dividing total output by the total labour units in the production. As per **Cashell (2004)** if the productivity in the economy is higher, the consumption of goods and services will increase and hence the living standard of the masses will improve. Another observation by **Kannan & Raveendran (2009)** where they showed that major part of the output is retained by employers and hence increasing labour productivity is not getting transferred to wage growth in the manufacturing sector.

Labour productivity increases with more hiring of skilled labour force, capital equipment and enhanced technology. For a country like India, where majority of the population is unskilled and lacks know-how of latest technology, most of the enhancement in labour productivity is on account of increased investment in capital equipment which led to increased capital-labour ratio overtime.

In Table 1.4, analysis has been done to understand the growth patterns of wage rate and labour productivity for sub-period and overall period to understand the level of standard of living and distribution of income between factors of production particularly labour and capital. It has been highlighted in the endogenous growth literature that higher wage growth leads to movement towards capital-intensive products. Thus, wage growth should be lower than labour productivity growth in order to boost employment.

For the labour-intensive industries in the pre-reform period, all the industries have shown huge gap in the wage rate and labour productivity signifying indecent standard of living of the workers. Even though industrial base was not strong, the labourers were putting in their hard and the major portion accrued to the employers.

Table 1.4 Wage Rate and Labour Productivity Growth in Organised Manufacturing Industries

(Percent per annum)

Industry Code	Wage rate growth				Labour Productivity growth			
Labour Intensive	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**
16	-0.99	2.02*	1.30*	1.00*	3.25	6.50*	2.53*	3.97*
18	1.91*	2.22*	2.73*	2.42*	19.48*	5.23*	7.78*	8.11*
19	1.00	0.60	2.73*	1.10*	5.97**	3.25***	4.18*	3.14*
20	1.61**	2.73*	4.49*	2.94*	7.03*	-3.92	7.35*	3.04*
36	0.60	1.81	2.12*	1.51*	6.71	10.73*	6.18*	6.71*
Capital Intensive	**1982-1990**	**1990-2000**	**2000-2016**	**1982-2016**	**1982-1990**	**1990-2000**	**2000-2016**	**1982-2016**
15	5.44*	2.32*	3.45*	2.73*	6.92*	6.18*	5.23*	4.81*
17	1.91*	-0.39	1.40*	0.30*	8.54*	7.35*	5.02*	5.54*
21	3.14*	1.10*	1.51*	1.40*	9.96*	2.73	4.18*	3.66*
22	2.73*	2.63**	2.02*	2.22*				
23	3.66*	7.35*	2.22*	3.56*	19.84*	0.70	3.56*	6.39*
24	1.71*	1.61*	2.02*	1.81*	7.35*	6.39*	4.49*	5.33*
25	1.81**	1.00	2.32*	1.40*	5.75*	7.03*	5.23*	5.75*
26	1.71*	3.04*	2.02*	1.81*	8.32*	7.89*	2.83*	5.75*
27	1.91*	4.49*	0.60*	2.12*	5.97*	9.19*	0.20	5.65*
28	2.22*	2.63*	2.12*	2.02*	3.04*	4.81*	3.25*	3.76*
29	2.73*	2.42*	2.42*	2.63*	3.97*	5.86*	7.68*	5.97*
30	1.61**	1.91	10.62*	4.39*	15.60*	18.17*	10.07*	15.25*
31	1.91*	1.61**	1.30*	1.10*	5.65*	6.18*	4.28*	5.44*
32	2.02*	3.14**	1.61*	2.94*	15.95*	22.96*	8.76*	14.68*
33	2.83*	2.63*	1.91*	2.83*	-0.09	6.60*	5.65*	4.39*
34	2.32*	2.02*	0.40**	1.20*	4.60*	6.60*	3.45*	5.54*
35	2.42*	1.51	1.10*	1.71*	4.91*	10.96*	4.81*	9.08*

Source: Author's own calculations using EPWRF-FITS data

*= *significant at 1*

**= *significant at 5%*

***= *significant at 10%*

The major gap can be seen in NIC-18 (manufacturing of wearing apparel) where previous observations have also shown poor living standards of the workers. The above analysis confirms the presence of jobless growth experienced during 1980s and low bargaining power of the workers. For the post-reform period, the relation between wage rate and labour productivity improved to certain extent as the gap between the two declined. Looking for the overall period, only NIC-20 (manufacture of wood products) is showing a near equal relation between the variables. The reduction in the gap between the variables can be due to increase in skilled labourers, strong labour unions and knowledge of labour rights.

Almost similar kind of observation can be made for capital-intensive industries where NIC-23 (manufacture of coke, refined petroleum and nuclear fuel), NIC-30 (manufacture of office, accounting and computing machinery) and NIC-32 (manufacture of radio, television and communication equipment) are depicting huge wage-productivity differential. Like labour-intensive industries, the situation improved in capital-intensive industries in the post-reform period too. Looking likewise at the overall analysis from 1982-83 to 2016-17, only

NIC-30 (manufacture of office, accounting and computing machinery) and NIC-32 (manufacture of radio, television and communication equipment) are showing huge wage-productivity differential with the former having gap of 10.86 and the latter depicting 11.74. This can be due to the fact that both industries are majorly engaged in manufacture of machinery, radio and televisions which require huge amount of capital and skilled employees to work on these machines.

IV. Growth Rates of Output and Labour Productivity: An Inter-Industry Analysis

Sustained long term growth in the economy is possible with increasing labour productivity and this can further lead to higher incomes and increasing demand in the economy. This shows that there is a positive relation between the output growth and labour productivity. For the entire manufacturing sector, it has already been discussed that share of manufacturing sector in value added has barely risen since decades and majority of the portion has been contributed by service sector in India. **India Rating and Research of ASI** reports points out that globally labour productivity alone accounted for about 2/3rd of GDP during Financial Year 2001-2010. As such the growth of output in terms of labour productivity for organised manufacturing sector becomes pertinent as the previous analysis has confirmed rising labour productivity but is that productivity contributing to rise in GDP or not is analysed in Table 1.5. The inter-industry study at two-digit shows a positive relation between output and labour productivity in both labour- and capital-intensive industries. A closer look at the analysis reveals that for the overall period the association between output and labour productivity in capital-intensive industries is stronger than the labour-intensive industries. This can be again due to increased mechanisation and improved technology usage in capital-intensive industries.

Looking into the performance of labour-intensive industries, almost all the results are significant. Also, it can be observed that growth in labour productivity is leading to significantly more growth in the output of the industries. For NIC-36 (manufacture of furniture; manufacturing n.e.c.) the increase in labour productivity growth since reforms has led to almost double growth in the output. For NIC-16 (manufacture of tobacco products) and NIC-36 (manufacture of furniture; manufacturing n.e.c.), the labour productivity increased in post-reform period and then in the later years declined by almost 4% causing similar changes in the output growth. The labour productivity growth has showed almost similar growth in the output in NIC-16 (manufacture of tobacco products) as with increasing consciousness amongst the public, the demand did not increase significantly for the industry. For NIC-18 (manufacture of wearing apparel; dressing and dyeing of fur) the pre-reform period growth in labour productivity was highest (19.48%) showing higher growth in the output (24.85%). The fall in growth rate was drastic in post-reform period from 19.48% to 5.23% in labour productivity and from 24.85% to 11.85% in output which was regained in the later years.

For capital-intensive industries, the results of the analysis are significant. The labour productivity declined in various industries such as NIC-15 (manufacture of food products and beverages), NIC-17 (manufacture of textiles), NIC-21 (manufacture of paper and paper products), NIC-23 (manufacture of coke, refined petroleum products and nuclear fuel), NIC-24 (manufacture of chemicals and chemical products), NIC-26 (manufacture of other non-metallic mineral products) in the early years of economic reforms. This can be due to less improvement in the human capital in terms of skills and education. Also, for some industries the relation between output and labour productivity was not a direct one where with increase in labour productivity, output growth was declining and vice-versa. These industries are NIC-15 (manufacture of food products and beverages), NIC-17 (manufacture of textiles), NIC-30 (Manufacture of office, accounting and computing machinery), NIC-31 (Manufacture of electrical machinery and apparatus n.e.c.), NIC-32 (Manufacture of radio, television & communication equipment & apparatus).

In NIC-15 and NIC-17 the output growth is more than labour productivity which shows that other factors of production played an important role in output growth. For NIC-30, NIC-31 and NIC-32, the output growth is less than labour productivity which shows lack of optimum utilisation of the available resources with these industries even being highly capital-intensive in nature.

In the later years of economic reforms, most of the industries have depicted negative relation between output and labour productivity where output growth is more than labour productivity. These industries are NIC-15 (manufacture of food products and beverages), NIC-17 (manufacture of textiles), NIC-24 (manufacture of

chemicals and chemical products), NIC-25 (manufacture of rubber and plastics products), NIC-26 (manufacture of other non-metallic mineral products), NIC-28 (manufacture of fabricated metal products), NIC-30 (manufacture of office, accounting and computing machinery), NIC-31 (manufacture of electrical machinery and apparatus n.e.c.), NIC-33 (manufacture of medical, precision & optical instruments, watches & clock), NIC-34 (manufacture of motor vehicles, trailers and semi-trailers), NIC-35 (manufacture of other transport equipment). One such reason for this could be increase in employment growth in these industries as shown in Table 3.4. Another reason could be due to factors that are outside the worker's influence in the industry.

Table 1.5 Output and Labour Productivity Growth in Organised Manufacturing Industries

(Percent per annum)

Industry Code	**Output growth**				**Labour Productivity growth**			
Labour Intensive	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**	**1982-1990**	**1991-2000**	**2001-2016**	**1982-2016**
16	5.44***	6.50*	2.22*	4.49*	3.25	6.50*	2.53*	3.97*
18	24.85*	11.85*	10.07*	13.20*	19.48*	5.23*	7.78*	8.11*
19	12.97*	4.70*	12.18*	8.11*	5.97**	3.25***	4.18*	3.14*
20	5.33**	-6.76**	12.29*	3.45*	7.03*	-3.92	7.35*	3.04*
36	8.32	19.72*	13.31*	13.88*	6.71	10.73*	6.18*	6.71*
Capital Intensive	**1982-1990**	**1990-2000**	**2000-2016**	**1982-2016**	**1982-1990**	**1990-2000**	**2000-2016**	**1982-2016**
15	6.18*	7.89*	8.00*	6.39*	6.92*	6.18*	5.23*	4.81*
17	6.28*	7.89*	8.54*	6.50*	8.54*	7.35*	5.02*	5.54*
21	10.07*	5.02**	7.46*	5.97*	9.96*	2.73	4.18*	3.66*
23	20.32*	1.81	8.65*	9.41*	19.84*	0.70	3.56*	6.39*
24	9.96*	9.63*	9.74*	8.43*	7.35*	6.39*	4.49*	5.33*
25	10.07*	11.85*	12.86*	10.96*	5.75*	7.03*	5.23*	5.75*
26	8.98*	7.46*	8.98*	8.32*	8.32*	7.89*	2.83*	5.75*
27	5.54*	8.65*	5.23*	6.71*	5.97*	9.19*	0.20	5.65*
28	5.33*	7.14*	10.73*	7.89*	3.04*	4.81*	3.25*	3.76*
29	3.76*	7.03*	13.76*	7.78*	3.97*	5.86*	7.68*	5.97*
30	13.99*	1.10**	10.18*	13.88*	15.60*	18.17*	10.07*	15.25*
31	8.65*	5.86*	10.96*	8.22*	5.65*	6.18*	4.28*	5.44*
32	22.38*	22.14*	12.07*	15.83*	15.95*	22.96*	8.76*	14.68*
33	3.04	10.07*	10.29*	7.57*	-0.09	6.60*	5.65*	4.39*
34	6.07*	10.51*	14.22*	11.07*	4.60*	6.60*	3.45*	5.54*
35	4.60**	3.45	9.96*	7.78*	4.91*	10.96*	4.81*	9.08*

Source: Author's own calculations using EPWRF-FITS data

*= significant at 1

**= significant at 5%

***= significant at 10%

CONCLUSION AND POLICY IMPLICATION

Analysis of the growth patterns of industries at two-digit level in organised manufacturing sector presents a heterogenous picture. The above analysis gives roadmap to the government to make policies suitable for each industry rather for the manufacturing sector as a whole. The analysis in Table 1.2 shows that despite observing a meagre or sometimes negative employment growth, the growth prospects improved after 2001 for almost all the industries which shows that employment creation is now looked into by the government and that problem of unemployment and disguised unemployment can be solved if each sector is looked upon separately. The results of Table 1.3 reveals that the quality of life of workers is not focused upon in almost all the industries. This can be due to the fact that government initiatives aim towards creating employment and skill enhancement but none of the policy measure (Make in India, National Manufacturing Policy etc.) focus on enhancing the wage rates and hence the standard of living. The focus should not only be on increasing the rate of employment but also the wellbeing of the workers be taken care of. For a developing economy like India, a multi approach focusing on all segments is to be framed so that poverty can be eliminated from the society. The aim of the government should be productive job creation rather than job creation in the economy. For Table 1.4 it is evident that in the long run, share of wages in total output is very low despite increasing labour productivity throughout the period 1982-83 to 2016-17. The major decline is observed in NIC-17 (manufacture of textiles), NIC-18 (manufacturing of wearing apparel), NIC-30 (manufacture of office, accounting and computing machinery), NIC-32 (manufacture of radio, television and communication equipment), NIC-35 (manufacture of other transport equipment), NIC-36 (manufacture of furniture; manufacturing n.e.c.). The increasing labour-productivity in organised manufacturing sector signifies increasing demand for skilled labourers which is scarce in developing economies like India. With the abundance of semi-skilled and unskilled workers, the country cannot stay on the development path in the long run. For long run development of the economy, the problems of low employment, poor wages and insecure employment should be done away with and hence needs policy intervention by the government. In Table 1.5 it is clear labour-intensive industries are following the positive relation between output and labour productivity whereas most of the capital-intensive industries after the reforms are showing negative relation. This shows the labour productivity in capital intensive industries is not converting into output growth which can be due to mismatch of resources, human capital and physical capital. Even though the output growth is more than labour productivity, this should not continue in long run as productivity is an important determinant of returns to the factors and an important indicator of economic growth and social development.

With the increasing competition around the world, the shift in production is accurate to a certain extent but ignoring the manpower which is the main advantage for the developing economy like India is not justifiable. The major focus should be laid on skill development of the manpower so that they can be utilised in the organised and formal sector of manufacturing. Another important observation should be that simply creating jobs is not enough rather creation of productive jobs is what matter the most in today's scenario. If people are not able to have a quality of life and are not able to maintain a standard of living, then it is futile for the development of the nation as a whole.

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