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GROWTH OF SELECTED INDIAN MANUFACTURING INDUSTRY

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Abstract:

This paper aimed to measure the growth of selected Indian manufacturing industries during the post-reform period. The study estimated the compound interest rate formula adopted by the World Bank used the least square method. The study was estimated using the Annual Survey of Industries (ASI) published by the Central Statistical organisation, time-series data covering 1991-92 to 2017-18 for seven major Indian manufacturing sectors. The findings observed that the growth rate of the capital reported highest at 7.37 per cent, followed by 6.99 per cent in output and 1.48 per cent in labour in the post-reform period. The increase of output is largely driven by more capital than the labour in the Indian manufacturing sector.

Introduction:

Industrialisation is an economic process by which the structural transformation of the subsistence economy is achieved. The present-day rich countries have achieved rapid economic development through the process of Industrialisation. The underdeveloped countries of today, thus, consider industrial growth as the primary means by which their acute poverty and problem of high unemployment could be mitigated. Industrialisation promotes innovation and technological development, capital formation through higher wage incomes and diverts surplus farm labour to modern industry (Shah M. Bijili).

The industrial sector in India has been undergoing significant changes both in structure and pattern owing to the policy changes. From the early 1950s until the early 1980s, the evolution of the manufacturing sector was guided by protected industrial and trade policies, which restricted the growth of the economy in the general and manufacturing sector, in particular under pre-reform industrial policy and trade policy regime, the manufacturing sector was characterised by extensive public sector participation, regulation of the private sector firms, restriction on foreign investment, high tariff and non-tariff restrictions on imports, which held up the growth of the manufacturing sector in India. This has been replaced by adopting New Economic Policy (NEP) in 1991 Sameeulla Khan and Navitha Thimmaiah (2015).

The manufacturing GVA accounts for 19 per cent of the country's real gross value added. As per the latest survey, capacity utilisation in India's manufacturing sector stood at 66.6 per cent in the third quarter of 2021. The Index of Industrial Production (IIP)'s manufacturing component stood at 116.9 between April 2020 and March 2021. According to the Ministry of Statistics & Programme Implementation, India's industrial output measured by the Index of Industrial Production (IIP) stood at 143.4 in March 2021.

Review of Earlier Studies:

Nagaraj (1989)[1]describes trends in the growth of gross value added in the manufacturing sector using mainly National Accounts Statistics, 1989 and report's findings of a comparison of the observed trends in the eighties with the experience of the previous three decades. The results of this statistical exercise appear to be significant in the context of the doubts expressed on the validity of the revised index of industrial production 9with 1980-81 as the base year) and the continuing debate on the persistence of a 'relative stagnation' or 'deceleration' since the mid-sixties.

Kapoor and Krishnapriya (2017)[2] studied the Informality in the Formal Sector: Evidence from Indian Manufacturing. They argue that firms in capital intensive industries are more reliant on contract workers (compared to labour-intensive industries), as this enables them to help the management suppress the bargaining power of regular workers and drive up their profits. Kapoor (2018)[3] studied the understanding of the performance of India's manufacturing sector: evidence from firm-level data. The finding, coupled with the fact

[1] Nagaraj, R. (1989). Growth in manufacturing output since 1980: Some preliminary Findings. Economic and Political Weekly, 1481-1484..

[2] Kapoor, R., & Krishnapriya, P. P. (2017). Informality in the formal sector: Evidence from Indian manufacturing. International Growth Centre. Working Paper, F-35316-INC-1. Available at: http://www. theigc. org/wp-content/uploads/2017/05/kapoor-and-krishnapriya-working-paper-2017.pdf.

[3] Kapoor, R. (2018). Understanding the performance of India's manufacturing sector: Evidence from firm-level data. SWI Background Paper, 2.

that the small firms are not drivers of employment growth in our dataset, suggested that policy interventions directed at small firms ignoring the role of firm age are unlikely to have the desired impact on job creation. Policies that support and nurture young firms, instead of those that protect small firms, would have the additional advantage of not providing indefinite support to firms.

Madhusudan Datta (2019)[4] studied the manufacturing sector in the Indian economy: Output-value added symbiosis. Output (not value-added) and expenditure estimates showed manufacturing's growth almost paralleled that of service-I (in real terms), but manufacturing's relative Gross Domestic Product (GDP) share remained stagnant. This apparent stagnancy of manufacturing conceals the story of labour-saving technical progress under heightened competition, causing slippage of value-added away from the sector. While this dynamic explains the stagnation of manufacturing's GDP share, it is low in India by international comparison has a lot to do with government policies, which encouraged skill formation but effectively discouraged low-skill labour-intensive manufacturing.

Data and Methodology:

Data:

The principal data source utilised herein was the Annual Survey of Industries (ASI), published by the Central Statistical Organization of India. The ASI considers only registered manufacturing sectors and covers only the organised segment of Indian manufacturing, i.e. those factories which employ ten or more workers with power and 20 or more workers without power. The present study consists of 7 Indian manufacturing industries.

Period of the Study:

The required data were collected for the period 1991-92 to 2017-18, the latest year for which the complete set of data is available and thus, the study covers 27 years.

Methodology:

Growth Model:

Growth is studied concerning annual growth rates computed, based on the compound interest rate formula adopted by the World Bank using the least square methods. The least-squares growth rate 'r' is estimated by fitting a least-squares linear regression trend line to the logarithmic annual values of the variable in the relevant period. More specifically, the regression equation takes the form

$$\text{Log } X_t = a + bt + e_t$$

Where this is equivalent to the logarithmic transformation of the compound growth rate equation

$$X_t = X_0 (1+r)^t$$

In these equations, 'X' is the variable, 't' is period and a=log X_0 and b= log (1+r) are the parameters to be estimated, 'e' is the error term. If b^* is the least-squares estimate of 'b' then the average annual percentage growth rate 'r' is obtained as (antilog b^*) –1 and multiplied by 100 to express it as percentage[5].

Results and Discussion:

Table 1 presents the growth rate of Indian Manufacturing Industries during the post-reform period (1991-92 to 2017-18). The growth rate of capital registered highest at 7.37 per cent, followed by output reported at 6.99 per cent and 1.48 per cent in labour during the post-reform period in the Indian Manufacturing Industries. The capital rather than the labour mainly contributes the output growth. It is found that the Indian Manufacturing Industries was in labour-saving bias during the process of liberalisation process. In other words, the Indian manufacturing industries more using capital intensive technology in the study period.

Among the industries, the maximum output growth rate was found in Manufacture of Machinery and pieces of equipment at 9.41 per cent followed by 8.50 per cent in Manufacture of Other Non-Metallic Mineral Products and 7.93 per cent in Manufacture of Other Transport Equipment during the period under review. The minimum output was evidenced by Manufacture of Chemicals and Products at 4.49 per cent.

Table 1: Growth Rate of Indian Manufacturing Industries During Post-Reform Period

S.No	Sectors	Output (Lakhs)	Labour (Number of Employees)	Capital (Lakhs)
1.	Manufacture of Food Products and Beverages	6.59	1.73	9.34
2.	Manufacture of Textiles	6.14	0.86	4.90
3.	Manufacture of Chemicals and Products	4.49	-0.05	4.53
4.	Manufacture of Other Non-Metallic Mineral Products	8.50	4.07	8.85
5.	Manufacture of Basic Metals	5.90	2.39	7.29
6.	Manufacture of Machinery and Equipments N.E.C	9.41	2.05	7.79
7.	Manufacture of Other Transport Equipment	7.93	-0.68	8.89
Indian Manufacturing Industries		6.99	1.48	7.37

[4] Madhusudan Datta (2019), **"**Manufacturing sector in the Indian economy: Output-value added symbiosis", Journal of Asian Economics, Vol.63, pp. 75-87.

[5] The similar methodology used by Saravanakumar and Sivakumar (2019); Saravanakumar et al., (2019).

Note:-Compound Growth Rates are presented in the table.
Source: Annual Survey of Industries.

In employment, the highest growth rate was found in Manufacture of Other Non-Metallic Mineral Products reported at 4.07 per cent followed by Manufacture of Basic Metals at 2.39 per cent followed by Manufacture of Machinery Equipments at 2.05 per cent. The lowest employment growth rate was reported in Manufacture of Textiles at 0.86 per cent. The negative growth rate of employment was reported in Manufacture of Other Transport Equipment at (-) 0.68 per cent and Manufacture of Chemicals and Products at (-) 0.05 per cent.

The highest growth rate of capital was found in Manufacture of Food Products and Beverages at 9.34 per cent followed by Manufacture of Other Transport Equipment at 8.89 per cent and 8.85 per cent was found in Manufacture of Other Non-Metallic Mineral Products. The lowest capital investment was observed in Manufacture of Chemicals and Products at 4.53 per cent during the post-reform period.

Conclusion:

When an industry grows, it could result in greater employment due to the expansion of capacity resulting in creating more employment of the workers as a class or, and it could result in higher wages its growth is the result of increasing capital intensity. Both these are possible depending on the technology and the extent of sharing the value-added between capital and labour. The growth rate of the capital reported highest at 7.37 per cent, followed by 6.99 per cent in output and 1.48 per cent labour in the post-reform period. The increase of output is mainly driven by more capital than the labour in the Indian manufacturing sector. It means the Indian industries realised capital intensive industry, and it creates an appreciable rate of jobs in India.

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