

The logo for the Institute for Studies in Industrial Development (ISID) is located in the top left corner. It consists of the letters "ISID" in a white, bold, sans-serif font, set against a dark blue rectangular background.

Institute for Studies in Industrial Development

An institution of Indian Council of Social Science Research (Ministry of Education)

Policy Research to Foster India's Industrial Transformation

The number "302" is displayed in a large, bold, dark blue font. To its right, there is a vertical column of horizontal lines of varying lengths, resembling a barcode or a decorative element.

WORKING PAPER

Growth and Performance of Indian Corporate Manufacturing Sector

Beena Saraswathy

July 2025

A series of horizontal white lines of varying lengths are arranged vertically on the right side of the page, extending from the top to the bottom.

Growth and Performance of Indian Corporate Manufacturing Sector

Beena Saraswathy

ISID **Institute for Studies in Industrial Development**
An institution of Indian Council of Social Science Research (Ministry of Education)

4 Vasant Kunj Institutional Area, New Delhi – 110 070

Phone: +91 11 3510 4511 | *E-mail:* info@isid.org.in | *Website:* <https://isid.org.in>

July 2025

ISID Working Papers are meant to disseminate the tentative results and findings obtained from the ongoing research activities at the Institute and to attract comments and suggestions which may kindly be addressed to the author.

Growth and Performance of Indian Corporate Manufacturing Sector

*Beena Saraswathy**

Abstract: *The manufacturing sector has played a key role in the growth process of countries, often referred to as the 'engine of growth.' In India, the planned economic development process emphasised rapid industrialisation, particularly focusing on the heavy and basic industries, with the public sector initially taking the lead. Currently, the private corporate sector has largely taken over the role that public sector held in many sectors. The study assessed the growth and performance of the Indian corporate manufacturing sector in terms of output growth, profitability, trade performance and R&D efforts. The findings indicate the scale of operation is critical for sustaining in the market in terms of output, profitability and resilience to shocks. Although smaller firms are having a higher wage share they remain vulnerable to market shocks. Profits are not reinvested in capital formation as required. Even highly profitable firms are failing to invest adequately in technology. Despite policy efforts, R&D intensity remained very low. However, there are promising firms and sectors. Similar to R&D, India must also focus on enhancing the export intensity of firms. In short, to achieve our industrial development goals, India should leverage the complementary strength of both larger and smaller firms. Additionally, the public sector needs to reorient its focus to address investment gaps in emerging technologies and sectors where there is a high import dependence, and low private sector investment.*

Keywords: *Firm Performance; Regulations and Industrial Policy; Industry Studies: Manufacturing*

JEL Classification: *L250; L5; L6*

* Assistant Professor, Institute for Studies in Industrial Development, New Delhi 110 070

Email: sbeena@isid.org.in; vsbeena@gmail.com

ORCID ID: 0000-0003-1955-7530

Acknowledgement: This study is an extended version of the inputs used in the India Industrial Development Report (IIDR) 2024-25. My sincere thanks to Prof Nagesh Kumar for the guidance and support given throughout this study. Also, I am thankful to Prof Chalapati Rao, Dr Satyaki Roy and Dr Surajit Das for providing useful comments on this study.

I. The Context

Manufacturing sector plays a crucial role in the growth and development dynamics of countries particularly through their significant contribution to the countries' GDP, employment, technology, trade and all such development indicators. As per the seminal works of Kaldor, manufacturing growth outweigh the growth of GDP, and also the manufacturing sector has higher income elasticity than that of agriculture (Dasgupta, S and Ajit Singh, 2006). This has been the growth principle of many economies during their initial growth phase. Manufacturing sector played a key role in these countries' growth process, which made it the 'engine of growth.' In India too, the planned economic development process provided greater emphasis on a rapid industrialisation strategy with prominence given to heavy and basic industries. This growth strategy has been based on the idea of Mahalanobis Model, which assumed that, the future growth rate resulting from producing capital goods will be much higher than that of investing in consumer goods in a closed economy framework (Balakrishnan, P, 2015; Mohan, R and Aggarwal, 1990).¹ This is partly due to the absence of diminishing returns applicable to the capital goods production that time, which results in continuous rising capital stock, and thereby the income generated from that was expected to support poverty eradication and faster economic progress.

During the initial planning process in India, public sector was given 'a commanding height' in the industrialisation process due to multiple reasons including to build the basic infrastructure for the industries to operate and due to the absence of capital required for heavy investments. Though public sector was mainly viewed as having welfarist goals, at the time of initial planning process, it was also expected to generate revenue for financing the future development process. Through the Industrial Policy Resolutions, explicit preference was given to central and state government enterprises in certain sectors including iron and steel, aircraft, ship building, coal and so on. Public sector preference for heavy industries was done also with a view to keep the prices lowest, to make it affordable to the national needs. The public sector was responsible to undertake investment in areas where private sector is unable or unwilling to undertake investment (Mohan, R and Aggarwal, 1990).

Private sector firms operated under highly controlled regime due to the greater government regulations for entry and expansion. This along with the then existing state of economy, the role of private sector in most of the strategic industries were very limited. These firms were required to get approval for operation from the central government in almost every stage. For example, in principle approval from the Ministry of Industry was required before making any investment, granting of this results in the issuance of Letter of Intent (LOI), import of capital goods required license from the Ministry of Commerce, which is actually passed by the Ministry of Industry; import of raw materials required

¹ See Balakrishnan, P (2015) and Mohan, R and Aggarwal (1990) for a detailed discussion.

separate license from the Ministry of Commerce, which is based on the recommendations on indigenous non-availability clearance from the Ministry of Industry; foreign collaborations required FC approval from the Finance Secretary, but serviced by the Ministry of Industry, capital issues permission from the Ministry of Finance, if funds to be raised from the capital market. After getting all these clearance, the firm had to apply for industrial License from the Ministry of Industry (Mohan, R and Aggarwal, 1990). Hence, it was not easy to enter into industrial production particularly by individual entrepreneurs, which limited the scope of private investment in industrial sector in the initial decades after independence. This role was largely met by the public sector and the large industrial houses operating at that time.

Nevertheless, it is to be recognised that the development and expansion of private corporate sector has been greatly influenced by the presence of a strong initial public sector investment made in the country (Balakrishnan, P, 2015). In the 1990s, when the economy opened up, a noticeable shift in favour of private sector occurred, in sectors that were previously dominated by public sector, including in heavy industries. While multiple factors contributed to this change, including the inefficiencies associated with the public sector enterprises and the resulting disinvestments, it is important to acknowledge the strong presence, growth and expansion of the private sector entrepreneurial culture in the country over the years. From the stage of infant industry, the Indian private sector is gradually developing, creating a greater competition for both public sector firms and the foreign companies both within India and abroad in several sectors. In sectors like pharmaceutical, the growth of private sector firms led to lower cost for essential medicines benefitting not only the Indian population but also those challenging population in developing countries. Now, the private corporate sector plays a critical role in filling the much needed investment gap faced by the public sector in India. Further, these firms are able to invest in critical and cutting-edge technologies, which often entails a substantial risk particularly at the time of crisis situations, providing a fillip to the government initiatives. Within corporate sector, the critical role of manufacturing sector and industrial policy has been repeatedly reinforced even in light of the recent geo-political tensions including the trade policy uncertainties arising from the US economy. Recent policy initiatives such as Make in India, *Aatmanirbhar* Bharat and more recent Production Linked Incentive (PLI) Scheme have been aiming at strengthening the domestic manufacturing capacity, reducing import dependence and increasing export competitiveness. All these policies are ultimately intended to strengthen and expand manufacturing capacity in the country to increase manufacturing output, employment, and reducing balance of payment deficit, and thereby increase the manufacturing income share in GDP. It is expected that, *“the strategic import substitution policies adopted through make for India, export promotion adopted through policies oriented towards making for the world, digital and green industrialisation has a strong potential to achieve growth and employment targets”* (Kumar, N, 2023). The focal point of all these policies is mainly to strengthen the domestic public and private sector

firms operating in India. It is important to know the growth strategies adopted by these firms, status of their operation, and are they facing any challenges.

Given this background, this study specifically examines the firm level performance indicators such as growth of output, profitability, R&D investment, trade performance and the major sectoral characteristics and the policy lessons. The paper is structured in five sections. After introducing the context, the second section provides a brief review of major studies in the area followed by a discussion of data and methodology in the third section. The fourth section presents a detailed analysis of the findings and the fifth section concludes with policy implications.

II. Studies on Manufacturing Sector Performance in India

There are several studies on various performance indicators of manufacturing sector firms in India. As there has been a paradigm shift in the regulatory regime with the adoption of economic reforms in 1990s, two streams of literature can be clearly identified. First, the Indian industries operating under the era of protectionism under the License Permit Raj and priority to public sector, by following the infant industry argument during the pre-1990s. And the second stage involves deregulation, privatisation and lifting barriers to foreign investment. Studies focused on various issues including the growth of manufacturing vis-à-vis other sectors, trade related issues, performance indicators such as productivity and efficiency, technical efficiency, competitiveness, overall financial performance among others.

While examining the pre 1990s studies, the share of industrial sector in Gross National Product has been continuously increasing except for the period of 1966 to 1980, during which the economy faced several shocks including draught of 1965-68, increased defence expenditure following the wars with China-1962 and Pakistan in 1965 and 1971; and oil price shocks of 1973 and 1979 (Mohan, R and Aggarwal, 1990). However, some economists viewed that the industrial stagnation from the 1960s has been the result of the protectionist policies followed, and thereafter the higher growth witnessed in the 1980s were regarded as the result of initial liberalisation implemented, which allowed somewhat competitive market conditions in the economy (as in Subrahmanian, K.K, 1991). Ghosh (1990) analysed the disaggregate level industrial performance during mid-1970s to mid-1980s, and found that the growth revival of the post mid-1970s and 1980s is over estimated, though it is growing. Sunrise industries such as electronics, synthetics, motor vehicles and two wheelers exhibited better performance during this period.

The share of manufacturing in total employment was also growing during this period. In 1960s, it was 10.5 percent, which slowly, but gradually increased to 11.3 percent in the 1980s² (Mohan, R, 1989; as in Mohan, R and Aggarwal, 1990). Thereafter, during the late 1970s to 2020, there has been a stagnation in the job creation in the manufacturing sector

² Manufacturing share is calculated using Mohan, R, (1989)

(Nayyar, D and Gaurav, N, 2024). Employment share of manufacturing sector remained in the range of 10 to 11 percent during this period. Kumar (2023) has discussed in detail the need for accelerating India's economic growth through manufacturing led transformation. Much of the stagnation in job creation in India during the current period is arising due to the absence of a strong manufacturing sector in India. India largely bypassed the Lewis' Structural Transformation Model due to the direct transition from agriculture to the service led model, bypassing the development of manufacturing sector. Nagaraj (2025) analysed the premature deindustrialisation in India in greater detail and found that though India was one of the few 'growth accelerators' of the 20th century, the trend reversed after global financial crisis of 2008. The decade of 2010s witnessed growth deceleration and premature industrialisation in which the industrial investment in fixed capital had fallen, labour moved from relatively high productive manufacturing sector to less productive agricultural sector. India's dependence on China remained high despite policy efforts to tackle it.

There have been apprehensions that the liberal import of technology increased with the advent of initial liberalisation in India, which is reflected in the number of foreign collaborations, which increased to 702 per year during 1980-86 against the corresponding figure of 239 during 1965-79. Out of this, the cases with foreign equity participation was also substantial, which necessitates the country to invest in in-house R&D to protect the national interest. The protectionist policies constrained the strengthening of technological capability of Indian industry. As the focus was on domestic market, and the given design and specifications, there was limited scope for developing new designs or production processes which are cost effective and high productive, in accordance with the international market (Subrahmanian, 1991). More recent studies also show that India's Investment in industrial R&D remained stagnant, in addition to the overall stagnation in R&D to GDP ratio from mid-1990s (Nagaraj, 2025). Most of our R&D investment is focused on a few sectors like pharmaceutical and automobiles, and it has been argued that, "India's National System of Innovation has been led by the Sectoral System of Innovation of her pharmaceutical industry" (Mani, 2009). Further, the greenfield content of FDI remains less in recent years, which is another indication that, it is not bringing the much needed fresh capital to the Indian industries. A fresh look of investment in technology is essential in the context of the paradigm shift in innovation system across the globe brought about by the emergence of digital technologies and artificial intelligence as well as the regulatory initiatives such as Make in India and *Aatmanirbhar* Bharat implemented in India, with emphasise on the firm level performance. This study addresses this gap.

III.Data and Methodology

The study used PROWESS IQ database of Centre for Monitoring Indian Economy (CMIE).³ As per CMIE, it covers for around 56 percent of the total value of output in the non-agriculture and non-government sector during 2018-19. It covers roughly 62% of the total manufacturing sector in terms of value of output of the firms in the manufacturing sector. Also it covers more than half of India's external trade. Export coverage is around 57 per cent and that of import is 62 percent. As on August 2024, the database coverage is around 55234 companies operating in India across various sectors. Out of this, 17614 are operating in the manufacturing sector, which is around 32 percent of the total companies for which data available. The focus of this study is the manufacturing sector. Sectoral classification is done based on NIC 2008, which is further reclassified to make it more user-friendly. The study covers 24 years from 1999-2000 to 2023-2024. Data for 2023-24 is also used to report the up-to-date indicators, though the missing values are higher in the latest year.

The study examined major indicators of financial performance using three major categories of firms based on (i) ownership (ii) size of firms and (iii) age of firms. Based on ownership, firms are categorised into (i) foreign (ii) private Indian standalone companies and (iii) public sector. Size categorisation is done using the size deciles provided by CMIE. PROWESS classified firms into different deciles based on the three-year average of total income and total assets. This takes care of the limitations of using assets and sales. Though sales is a good indicator, it is exposed to the business cycles and company-specific events. Hence, high or low sales in a year seldom represent the size of the firm. Similarly, assets are influenced by the value of depreciation since the total assets are the sum of the different historical values of various components of assets. Companies use different methods for valuation of depreciation. Moreover, in large labour-intensive companies, asset size may be smaller. This also makes the assets less representative of the size of the company. Hence, the study uses a combination of sales and assets as a better indicator of the size of the company. The three-year average value of income and assets are further classified according to the standard decile classification, of which the first decile comprises the top firms and the 10th decile is the lowest (Saraswathy and Nida, 2021). Further, these deciles are converted into three categories to represent the size factor with much more clarity. In this study, the first decile is classified as mega firms, next three (2nd to 4th) deciles are classified as large, deciles fifth to seven as medium, and the rest as small-sized firms. In order to identify old and new firms, the study categorised the firms incorporated before the year 2000 as old firms and the rest of the firms are new firms. Given this background, the next section discusses the major observations from the analysis undertaken.

³ We are aware of the limitations of using PROWESS, CMIE database. However, the study uses it as there is no other better feasible alternative.

IV. Growth of Output, Profit, Trade and Technology in the Indian Manufacturing Sector

Data features: The following pattern is observed while categorising data as mentioned above. Majority of manufacturing sector firms (93.6 percent) are private Indian followed by around 4.6 percent foreign owned firms and 1.8 percent government owned firms. Size-wise, mega firms constitute only 9 percent of the total, while 32 percent are large, 30 percent are medium and 27 percent are small sized firms. In terms of the age of establishment, 66 percent of firms are old, i.e., incorporated before 2000, while 34 percent are new firms.⁴

4.1 Contribution to Output

Based on the trends in the growth rate of sales, it is worth noting that, the corporate manufacturing sector tends to follow a cyclical behaviour, with booms and recoveries matching with the overall macro-economic scenario. During the initial reference period of the study, a small wave is visible with a peak in the year 2001, followed by a steep decline thereafter, which coincides with the 2001 September 11, World Trade Centre attack (Figure 1). Another peak was observed in 2007, followed by steep decline during the financial crisis of 2008, which led to the lowest growth recorded in 2010. Another two small waves were observed with peaks in 2011 and 2014. From 2015 onwards growth began to decline leading to the lowest growth in 2016. During the period 2014 to 2017, countries such as Russia, Brazil, China and Turkey experienced financial challenges.⁵ Indian corporate manufacturing sector witnessed another peak in the years 2019, which is followed by negative growths in 2020 and 2021 owing to the COVID-19 pandemic. Nonetheless, a clear recovery in corporate sector growth is visible in 2022, though the latest year shows declining trends.⁶ It is interesting to note that the overall corporate manufacturing sector growth has experienced both booms and recessions across all ownership categories of firms (Figure 1). During the COVID-19 affected years 2020 and 2021, the growth rates became negative or lowest for all sets of firms. After that recovery trend is clearly visible. It is important to note, that the downturns are affecting small sized firms more as it is evident that the growth rate of small firms is the minimum compared to others, while decomposing the growth across size categories (Figure 2). The mega firms could withstand the crisis better compared to the small sized firms. Smaller firms are more affected during the period of any kind of economic depression.

Based on ownership categorisation, it is clear that the private Indian firms predominated over public sector in serving Indian consumers in various sectors, which is reflected through their higher sales share in Indian manufacturing, and it has been gradually

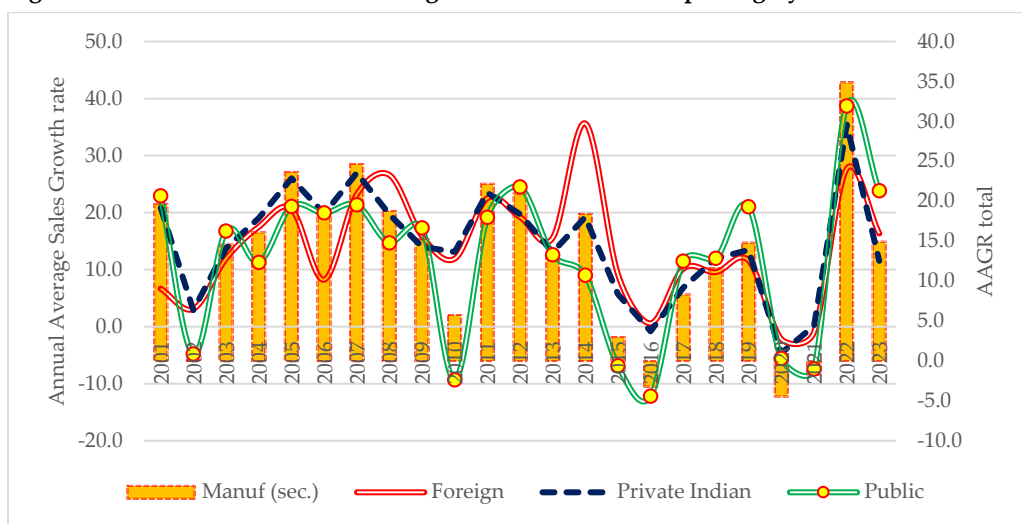
⁴ Data may not add up to 100 percent as there are missing information.

⁵ See Agarwal et.al, 2022 for a discussion on BRICS countries for 2015-19 period, and World Bank Group (2022) for Russia for the similar period.

⁶ The latest financial year for which data coverage from PROWESS, CMIE is very less compared to other years, which may be affecting the overall results.

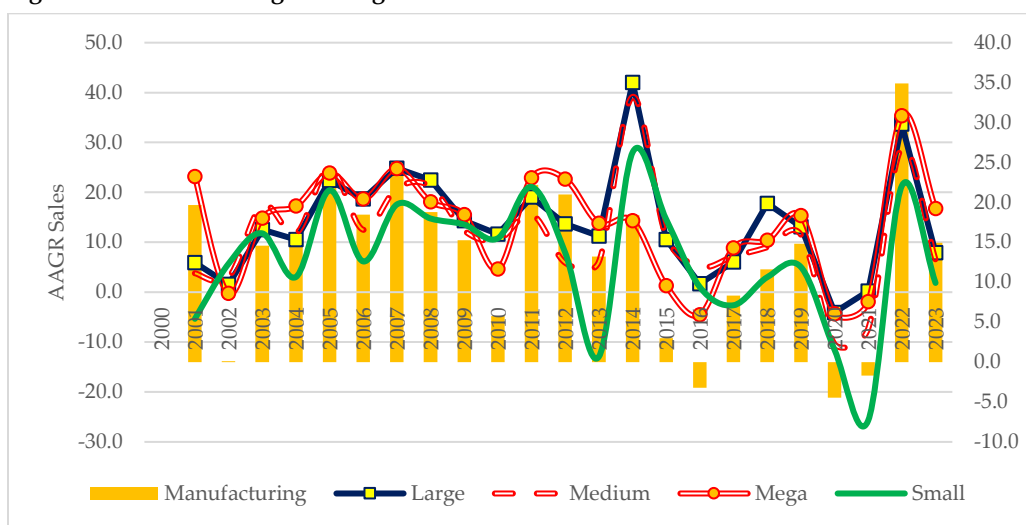
increasing over time except for the latest year. During the initial reference period of the study, i.e., 2000, the share of domestic private sector share was only 51 percent which gradually increased to around 63 percent in 2022, and in 2024, it is 55 percent. Shrinking sales share of public sector firms from nearly 35 percent in the year 2000 to 22 percent in 2022, which is showing a recent increase to around 35 percent in 2024. The sales share of foreign firms remained around 13 percent till 2013, afterwards, there has been a low, but gradual increase in their share to around 15 percent till 2023. In the latest year, the share fell, which has been mainly captured by the public sector companies (Figure 3).

Figure 1: Growth Rate of Manufacturing Sales across Ownership Category

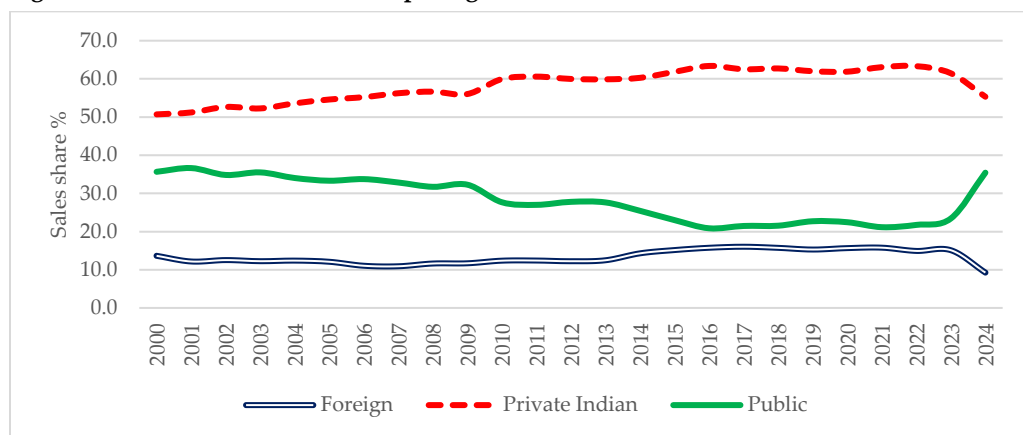


Source: Calculated using PROWESS IQ Database, CMIE.

Figure 2: Who is Growing Fast? Big or Small?

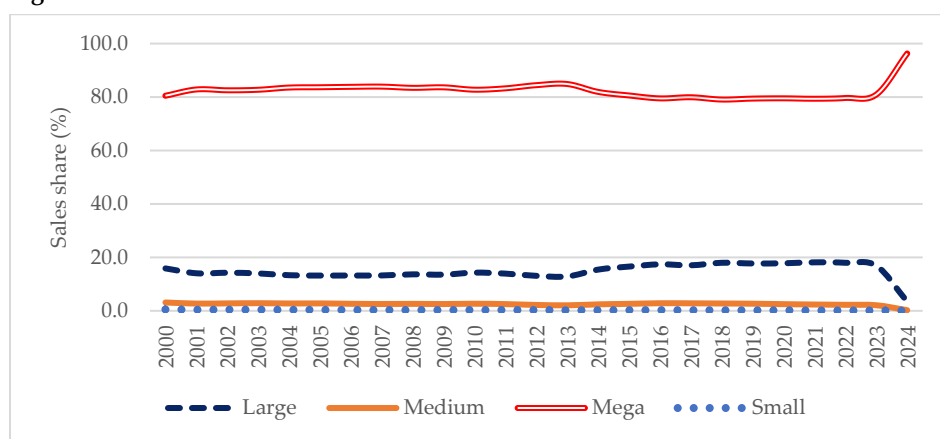


Source: Calculated using PROWESS IQ Database, CMIE.

Figure 3: Sales share across ownership categories

Source: Calculated using PROWESS IQ Database, CMIE.

Size-wise decomposition reveals, the dominance of mega firms followed by large and medium sized firms in the output share. Medium and small firms contribution is meagre. Mega firms' share remained around 80 percent throughout. Mega firm's share increased to 84-85 percent in the years 2012 and 2013. In 2023, it was 81 percent. Contribution from large sized firms has been in the range of 13 to 18 percent during the study period. Hence both mega and large firms account for more than 95 percent of the total sales generated in the Indian corporate manufacturing sector.⁷ The large sized firms share was 17 percent during 2022. There has been a decline in the share of medium sized firms over the years from 3 to 2 percent during the same period. Small firms' share is negligible throughout. Mega firms registered the highest growth rate during the reference period compared to other sets of firms, which is followed by largest and medium firms.

Figure 4: Who contributes more? Size-wise sales share

Source: Calculated using PROWESS IQ Database, CMIE.

⁷ This may be due to the less coverage of small and medium firms' data too.

It is visible that the output contribution of the incumbent firms is much more than that of the newly incorporated firms. Nevertheless, it is important to see the catching up of the new firms, from 1 percent in 2001 to 22 percent shares in 2022. This also indicates the stiff competition faced by incumbent firms across various sectors, and the consequent fall in their sales shares.

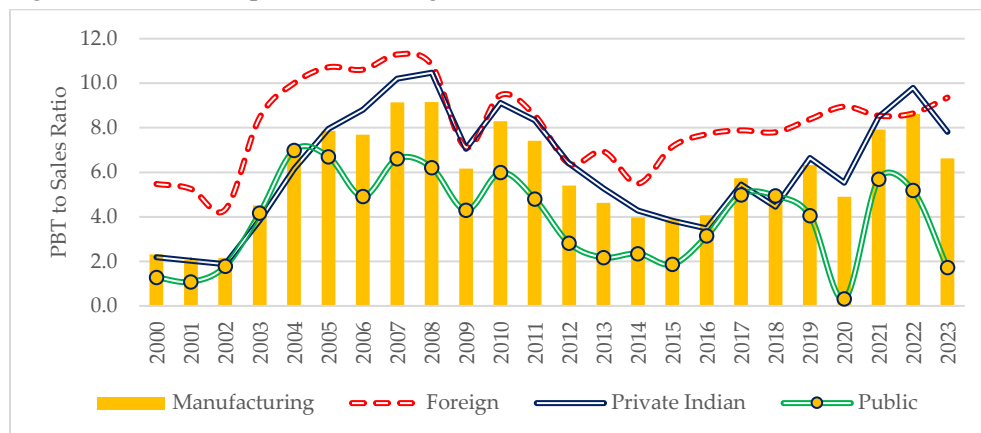
4.2 Profitability Indicators

Profitability has a key role in determining the overall production and output of any sector, without which no rational producer enters into manufacturing. Hence it is important to know the features of profitability in the Indian manufacturing sector. The study has used two major indicators of profitability, i.e., (i) profit to sales ratio and (ii) the relationship between the growth rates of Net Profit to Net Fixed Assets, which gives an indication of the extent of capital investment made in comparison to the profit generated.

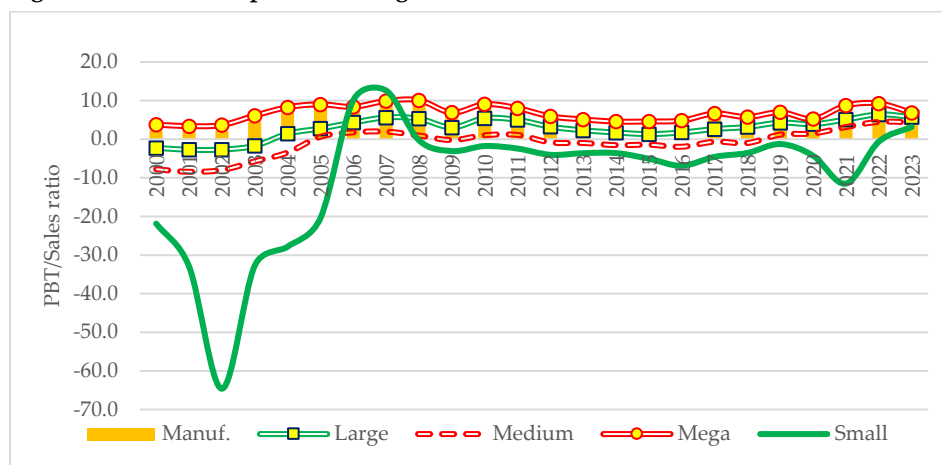
Profit to sales ratio shows that like output growth, profit growth is also influenced by the global macro-economic issues. Overall profitability in the Indian corporate sector has been growing till 2008, afterwards a steep decline in 2009 during the financial crisis period, which has further picked up in 2010, however, following that there has been continuous decline till 2016, thereafter started picking up till 2019. In 2020, it was the lowest due to the pandemic. Overall recovery is visible from 2021 onwards. Ownership categorisation shows higher ratio for the foreign owned firms followed by private Indian and public sector firms. It is interesting to observe, though profitability declined for public sector firms during 2004 to 2015 period, and also during the Covid-19 affected years declined steeply, the foreign firms could withstand a steep decline even during Covid-19 affected years. Private sector firms also experienced a decline, but it is very low compared to the public sector firms. The overall profitability in the manufacturing sector follows the pattern of private Indian firms' profitability (Figure 5).

Firm size and profitability has been an important area of debate in the literature.⁸ The study observes, mega firms remained more profitable for the entire period of analysis followed by large sized firms (Figure 6). It was very low for large sized firms, before 2005. For small firms, profit ratio remained negative for majority of the years. Medium sized firms were performing better than that of small firms, the ratio was negative in some years. During the Covid-19 affected years, it is visible that the profit performances of small firms were very poor, but other categories of firms could sustain well in the market.

⁸ See Yadav, et.al (2021) for a discussion on this.

Figure 5: Who is more profitable? Foreign or Domestic?

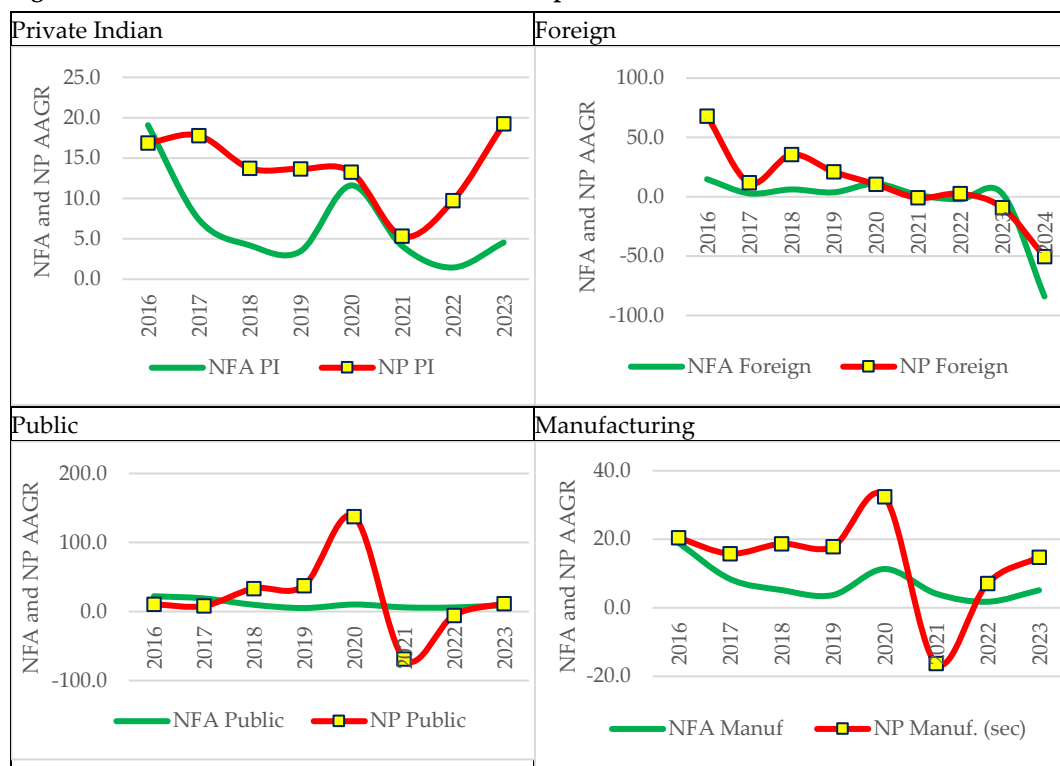
Source: Calculated using PROWESS IQ Database, CMIE.

Figure 6: Who is more profitable? Big or small?

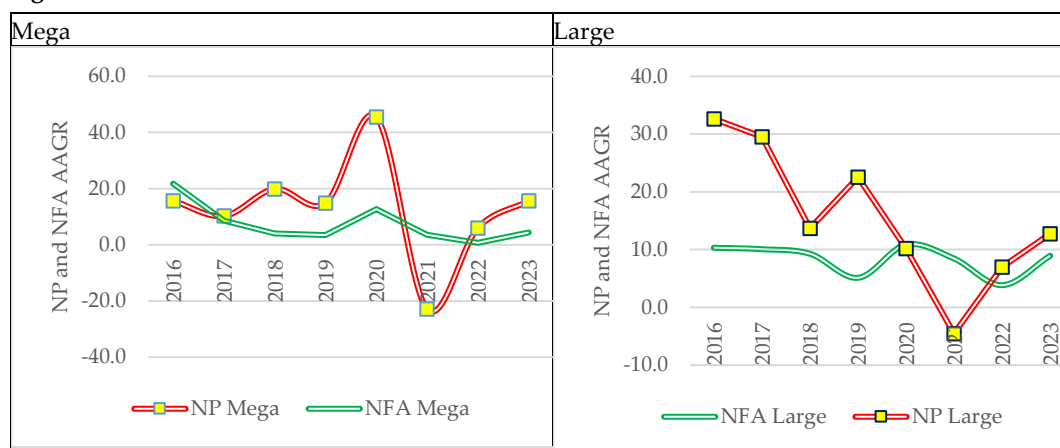
Source: Calculated using PROWESS IQ Database, CMIE.

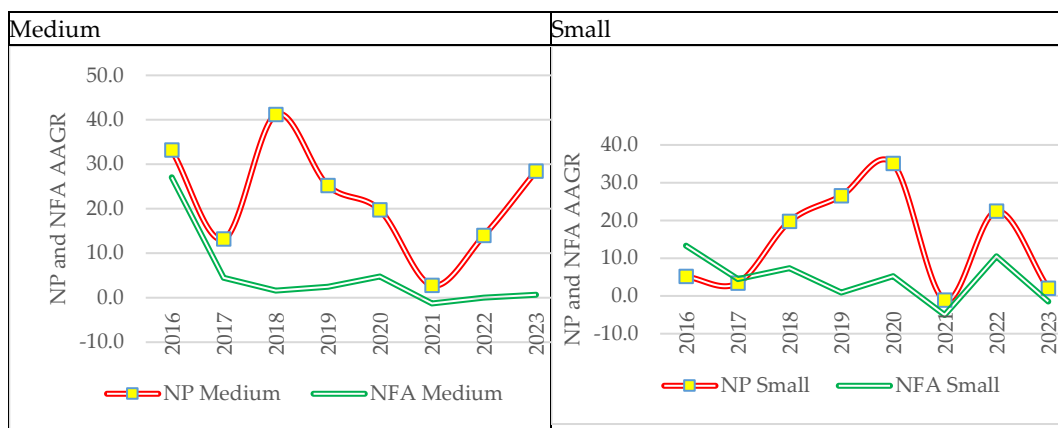
Profitability was not at all favourable to the newly entered firms from initial period itself, which may be reflecting the initial setting up costs. This has remained lower than that of the incumbent firms during the entire period of analysis. Nevertheless, cyclical trends are equally applicable to both sets of firms at the same time. The following observations are made based on the assessment of growth of Net Fixed Assets (NFA)⁹ and Net Profit (NP). Except for the Covid-19 pandemic affected years, the growth of capital investment was always less than the growth of profit generation (Figure 7). This pattern is same for all categories of firms including ownership-wise, size-wise and age-wise (Figure 8 and 9).

⁹ NFA is used as an indicator of capital expenditure.

Figure 7: Growth of NFA and Net Profit: Ownership based Classification

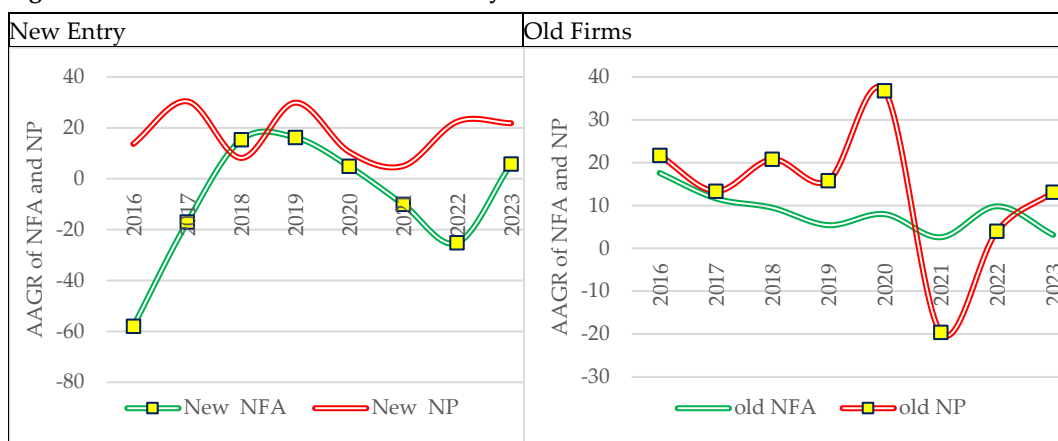
Source: Calculated using PROWESS IQ Database, CMIE.

Figure 8: Growth of NFA and Net Profit: Size Classification



Source: Calculated using PROWESS IQ Database, CMIE.

Figure 9: Growth of NFA and Net Profit: Entry Classification



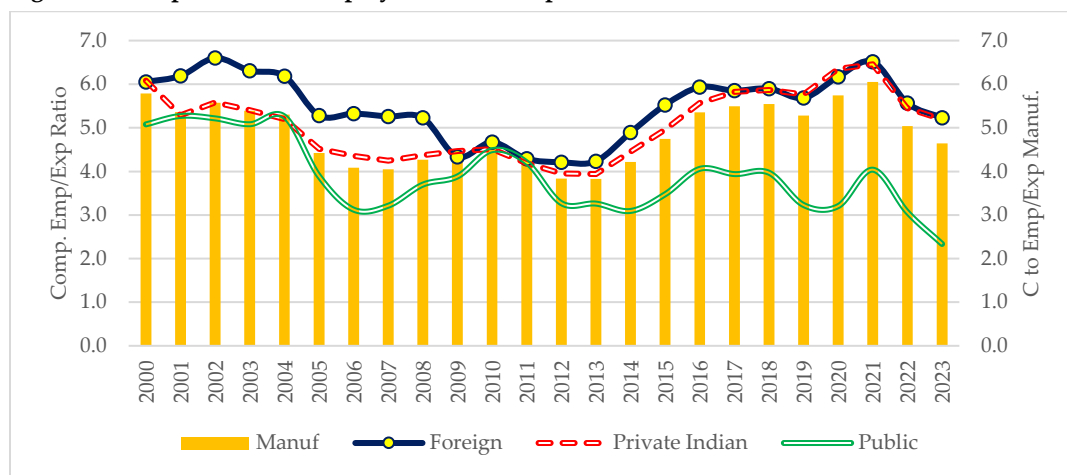
Source: Calculated using PROWESS IQ Database, CMIE.

4.3 Compensation to Employees

As discussed earlier, stagnant wage share in manufacturing sector has been a point of debate. In order to understand the labour share incurred by different sets of companies, we have examined the expenditure on compensation to employees as a share of total expenditure. Companies spend approximately 5-6 percent of their total expenditure on this. The labour cost component remained high during the Covid-19 period. In terms of ownership, foreign and private Indian firms spend higher share on labour cost. Public sector firms considered to be spending higher amount on labour, which is not true as per the data available. Moreover, the labour share has been declining for them till 2000s. This may be due to the privatisation of several public sector enterprises, which results in reducing the wage share too. Size wise, medium and small firms are spending higher amount for labour, in comparison with the large and mega firms, which is also reflecting on their profitability. Overall, it is clear from the data that the wage share in total

expenditure is increasing from 2014 onwards. Of this, the highest decline is registered by the public sector companies, which may be on account of the privatisation of several PSUs post 2000s. This includes, Bharat Aluminium Company, Videsh Sanchar Nigam Ltd, Indian Petrochemical Corporation, Hindustan Zinc Ltd and so on.

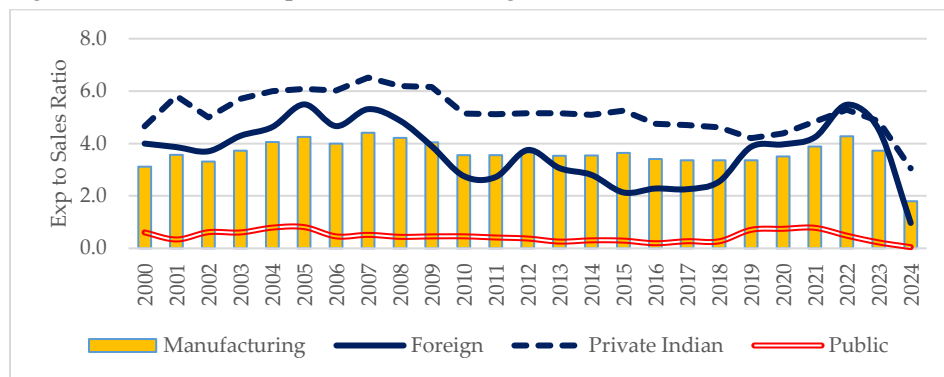
Figure 10: Compensation to Employees: Ownership-wise



Source: Calculated using PROWESS IQ Database, CMIE.

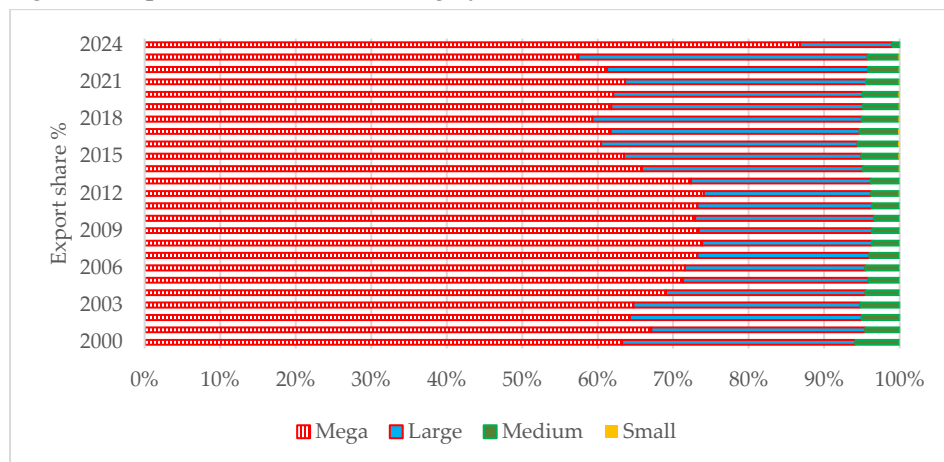
4.4 Trade Performance (Export and Import Intensity)

Increasing trade performance through reducing import dependence and expanding export performance has long been an important policy agenda of government regulations including Make in India and Policy Linked Incentive (PLI) Scheme. In China, manufacturing sector contributed around 95 percent of their total exports during 2014-18 (Charoenrat and Amornkitvikai, 2024), and thereby the firm level export intensity of firms is considered to be very high. For India, the study reveals that, export intensity of the manufacturing firms were increasing gradually till 2007 (4.4 percent), though the levels are very low, and then remained in the range of 3 to 4 four percent till 2021. However, during the covid-19 period (2019 onwards), there has been a further ups and downs in export intensity. Post covid-19 times, there has been a clear increase in export intensity, which might be reflecting the increased external demand for some items, caused by the global disorder in the supply chains of various products. Private Indian firms remained the most export intensive during the entire period of analysis except one year followed by foreign firms. Also the gap between private Indian and foreign remained very high till 2019, after that, the export intensity of private Indian and foreign firms started declining. Hence the decline in the share of private Indian firms explains the overall decline in the manufacturing export intensity during the study period. The public sector remained more or less same at 1 percent throughout (Figure 11).

Figure 11: Who is more export intensive? Foreign or domestic?

Source: Calculated using PROWESS IQ Database, CMIE.

The mega firms contributed a major share of export basket in the Indian corporate manufacturing sector followed by the large firms throughout the study period. And that of medium and small firms are very low. It is noted that post 2012, export share of large firms is increasing. Despite the high share of mega firms in export basket, the export intensity of the large and medium firms is higher than that of the mega firms (Figure 12). It is also interesting to note that the smaller firms' export intensity was higher than that of mega firms during the post 2015 though their overall export share is less. Here the major question that arises is about the less export intensity of the mega sized firms. It might be due to their major focus on the domestic market, whereas the large firms are selling a major share of their products to the market outside India. It is important to see that the new firms are more export intensive. However, the export intensity of newly entering firms continuously declined except for a few years from 2009 onwards. Old firms' export intensity remained in the range of 3 to 4 percent throughout. In recent years, the export intensity of both categories of firms are converging together.

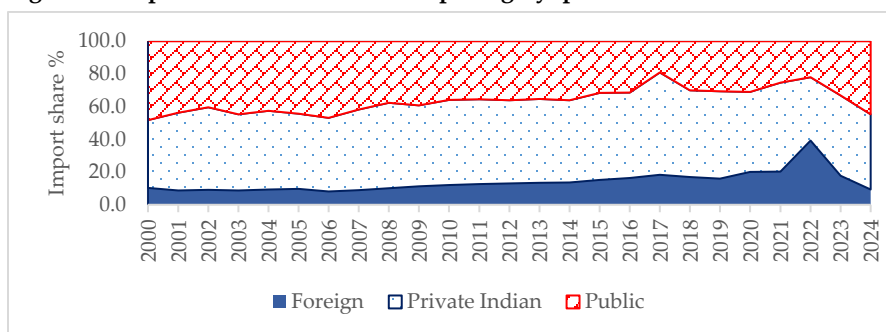
Figure 12: Export Share across Size Category

Source: Calculated using PROWESS IQ Database, CMIE.

Import Intensity and Share

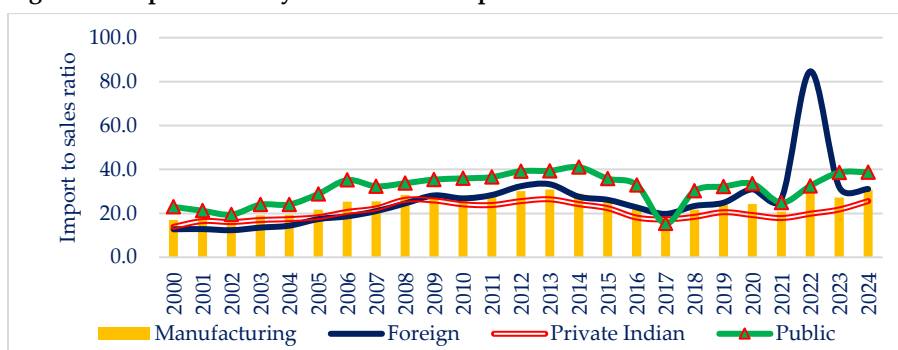
Much of the import has been on account of the standalone private sector firms and the public sector firms. In 2023, private sector firms accounted for 49 percent of the import share in the manufacturing sector, while public sector firms had 33 percent (Figure 13). Import share of foreign firms has been less, though it is increasing over time. However, when the number of firms under each of these categories are considered, the intensity of imports differs. It is to be mentioned that import mainly occur for the raw materials and machineries. Overall import intensity increased over the years from 17 percent in 2000 to 27 percent in 2023 (Figure 14). A clear hike in import intensity is visible after 2005, which essentially indicate the increasing dependence of corporate manufacturing sector on import in recent period. Both private Indian firms and foreign firms are moving together in terms of import intensity except for the post covid-19 period. Import intensity of the public sector firms remained higher throughout. During 2014-17, there was an effort to reduce import content, which is visible for all sets of firms. After that, this is increasing for foreign and public sector firms. A high import intensity is visible for foreign firms during 2022, which may be due to the oil price hike due to Russia-Ukraine conflict in 2022. For the standalone firms, import intensity remained less than that of other categories of firms, though it is increasing over the years.

Figure 13: Import share across Ownership category (percent)



Source: Calculated using PROWESS IQ Database, CMIE.

Figure 14: Import Intensity across Ownership



Source: Calculated using PROWESS IQ Database, CMIE.

When a decomposition of import across size categories undertaken, from 2000 onwards, around 90 percent of the import is accounted for by the mega firms, and around 7 to 9 percent by the large firms, which indicates the meagre presence of small and medium firms in import. The import intensity of the mega firms is also higher than that of large, followed by medium and small firms. After 2015, import intensity has grown high for mega firms, which must be also reflected on the overall hike in import intensity during this period. It is to be noted that the import share of small and medium firms is less, however, medium sized firms' import intensity remained higher than that of small sized firms. Except for one year, incumbent firms were more import-intensive compared to the new entrants. However, the difference between new and old firms in these figures are very less, which indicates new firms also purchase goods and service from abroad as per their requirement. As expected, it is noticed that, top importing companies in India are mainly engaged in petroleum and refinery operations followed by metal manufacturers (especially steel) as seen from the Table 1. This is mainly because of the import of coal and related products. This has been an important raw material for metal products manufacturing too.

Table 1: Top Importers in the Indian Corporate Manufacturing Sector (Avg 2022-24)

<i>Rank</i>	<i>Company</i>	<i>Import share (%)</i>
1	Indian Oil Corpn. Ltd.	15.96
2	Reliance Industries Ltd.	13.61
3	Nayara Energy Ltd.	13.25
4	Bharat Petroleum Corpn. Ltd.	7.51
5	Hindustan Petroleum Corpn. Ltd.	2.78
6	Mangalore Refinery & Petrochemicals Ltd.	2.42
7	J S W Steel Ltd.	1.59
8	H P C L-Mittal Energy Ltd.	1.58
9	Hindalco Industries Ltd.	1.50
10	Tata Steel Ltd.	1.48
	Sub Total	61.68

Source: Calculated using PROWESS IQ Database, CMIE.

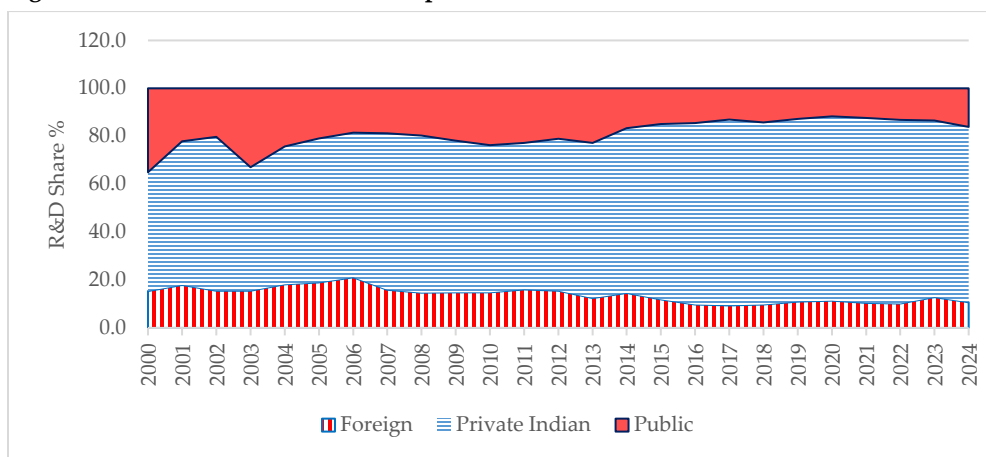
4.5 Technological Progress: R&D Intensity and Share

Investment in in-house R&D is crucial in achieving all our targeted achievements. As we are also depending on import of technology in most of the sectors, it is also crucial to invest in own R&D to sustain long-run competitiveness in future. In the initial years of independence, there was no substitute for public sector R&D. Now private sector has also the responsibility to take it forward as national competitiveness is mainly determined by the firm level investments in technology undertaken in each sector. As Subrahmanian (1991) pointed out, "there should be an adequate in-house R&D investment in technology,

without which achieving a right balance for complementing with import of technology becomes difficult. Too much external dependence on technology will make the sector vulnerable.”

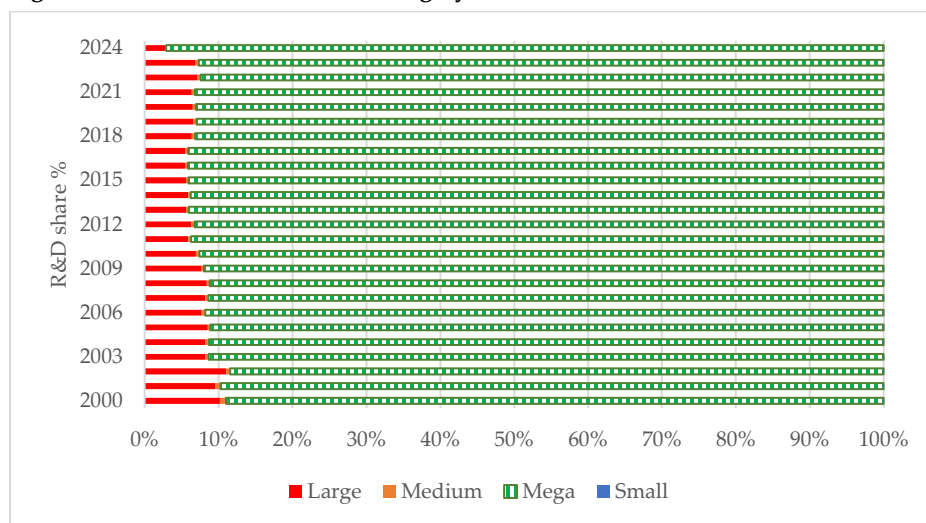
It is encouraging to see that most of the R&D expenditure is incurred by private sector firms followed by public sector firms and then foreign firms. In the initial reference period (2000), 50 percent of the total R&D expenditure was incurred by domestic private standalone companies and 35 percent by public sector companies. Foreign firms had a share of 15 percent. Standalone firms’ R&D investment increased since then and gradually grown up to 77 percent of the total R&D spending in the Indian manufacturing sector. In 2023, the share was 74 percent. Public sector firms’ R&D investment is coming down, while the foreign firms share remained in the range of 10 to 18 percent normally (Figure 15).

Figure 15: R&D Share across Ownership

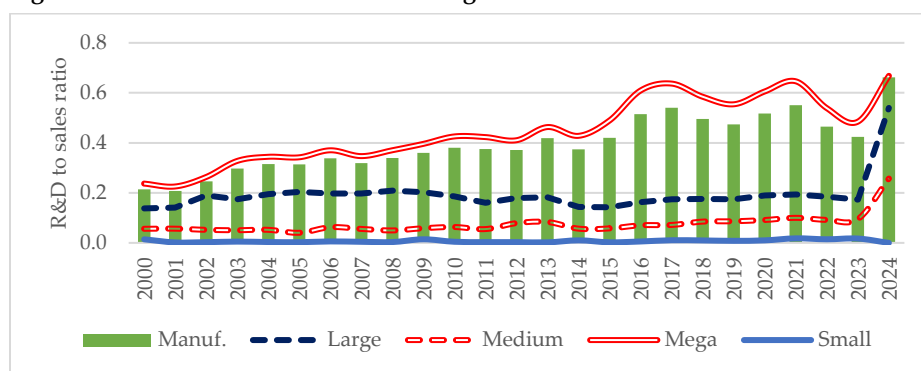


Source: Calculated using PROWESS IQ Database, CMIE.

R&D Intensity remained very small but shows a slightly overall increasing trend. It was only 0.2 in 2000 which is now 0.8. Till 2013, R&D intensity of foreign firms were much higher than that of private Indian firms. From then, the private Indian firms started dominating. Private sector R&D is showing a gradually increasing trend, whereas that of the public sector remained around 0.1 to 0.3 percent except for a few years’ increase. Nevertheless, from the R&D share analysis, it is seen that the overall R&D spending is mainly coming from the standalone and public sector firms. Size-wise, mega firms constitute 92 percent of the R&D expenditure incurred in the manufacturing sector followed by 7 percent by large sized firms in 2023 (Figure 16). This share has been only 89 percent for mega firms in the year 2020. Mega firm’s R&D intensity remained around 0.2 to 0.7, which is much higher than that of large firms, for which the same ranges between 0.1 to 0.2 throughout (Figure 17). Medium and small firms’ R&D intensity has been insignificant. For new and old firms, the R&D intensity has been increasing, however, the ratio for old firms remained much higher than that of new firms except for two years.

Figure 16: R&D Share across Size Category

Source: Calculated using PROWESS IQ Database, CMIE.

Figure 17: Who is more R&D Intensive? Big or Small?

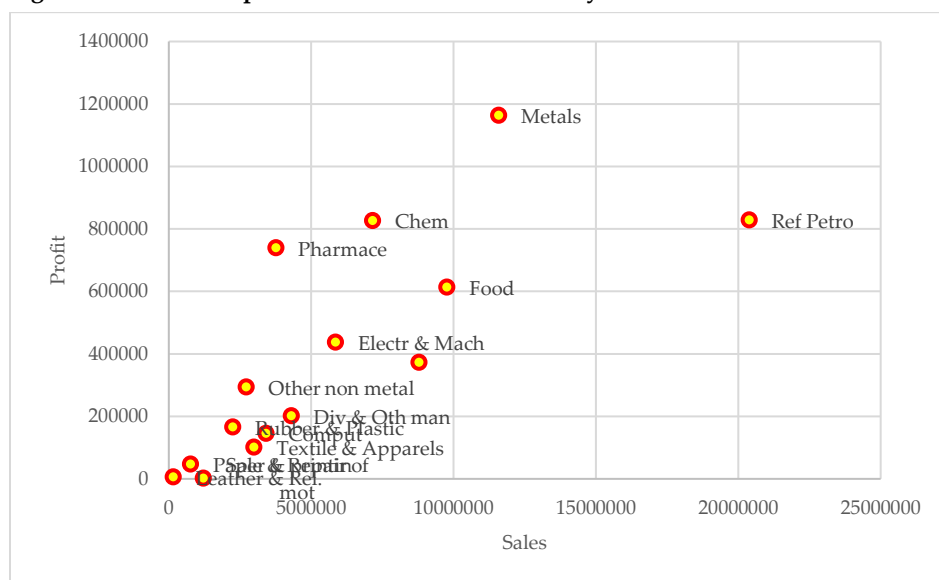
Source: Calculated using PROWESS IQ Database, CMIE.

4.6 Key Sectoral Observations

Coke & refined petroleum; metals; food and beverages, automobile, electrical sector is the top revenue generating sectors in the Indian corporate manufacturing sector based on the average sales revenue generated during 2020-22. To understand which sector generates highest profit share, we have calculated the three-year average PBT values for 2000-2002 and 2020-22. Based on this, the highest profit share in the latest year is accrued by metals, coke & refined petroleum, chemicals, pharmaceutical, food & beverage, electrical machinery and son on. For many of these sectors, profit share has declined compared to the initial period. A high decline in profit share is noticed for coke and refinery. The highest increase is noticed for metals. For textile, the initial period was showing losses, which is now turned to a profitable sector, though with a less profit share.

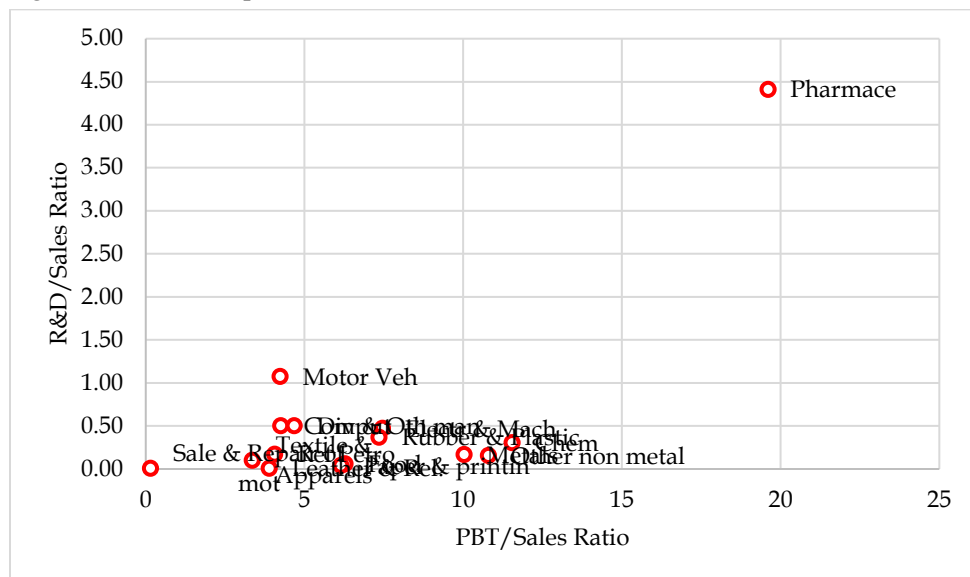
Generally speaking, sales and profits are directly correlated. Profitability increases in tandem with the growth of sales. However, there are sectoral heterogeneity in this pattern. In certain industries, profit generated from the same volume of sales varies. For example, profit in pharmaceutical and chemical sectors substantially higher despite comparatively lesser sales, whereas in sectors such as paper and textiles, both sales and profitability are low (Figure 18). Metals and refined petroleum are the other two major sectors with higher profitability. It is crucial to re-invest the profits to boost manufacturing investment in the country.

Figure 18: Relationship between Sales and Profitability: 2020-22



Source: Calculated using PROWESS IQ Database, CMIE.

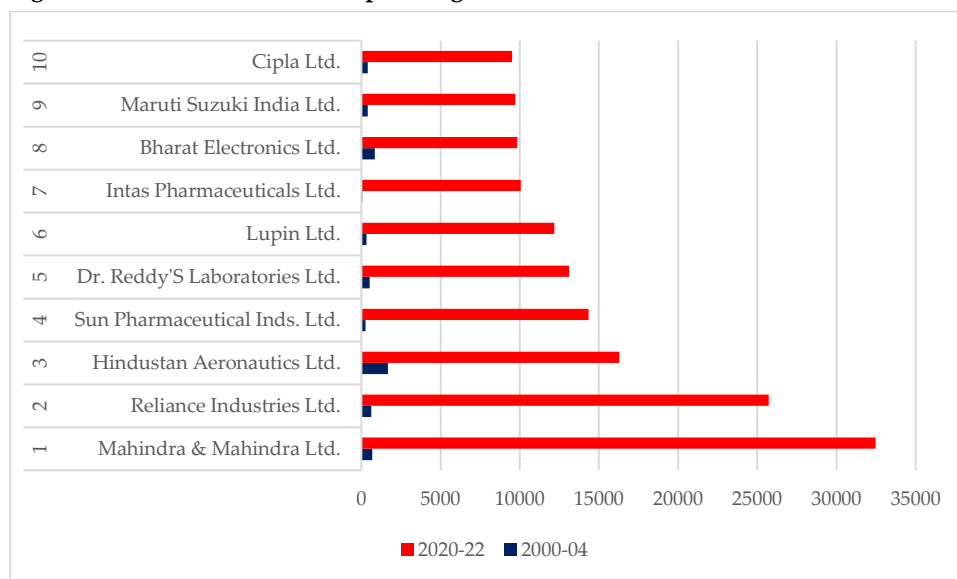
Pharmaceutical sector continues to be the top sectors spending on R&D followed by automobiles, coke & refinery and electrical machinery (Figure 19) It is clearly visible from the scatterplot that R&D expenditure is very low in most of the sectors. Sectors like metals, chemicals are having high profit share, but their investment in technology is minimal irrespective of the fact that in these sectors adoption of green technologies is an important policy dialogue across the world. Based on the R&D performance during 1998-99 to 2002-03, it has been argued that, “India’s National System of Innovation has been led by the Sectoral System of Innovation of her pharmaceutical industry” (Mani, 2009), which has been in the similar state even after the adoption of more than two decades of industrialisation strategy in India, and also the tight competition arising due to the trade war and the changed geo-political situation.

Figure 19: Relationship between Profit and R&D: 2020-22

Source: Calculated using PROWESS IQ Database, CMIE.

Despite the sectoral consolidation of R&D expenditure, it is further noted that the top 10 innovating firms in the Indian corporate sector are also belonging mainly to the pharmaceutical and automobile sector, including the firms like Mahindra, Reliance, Hindustan Aeronautics, Sun Pharma, Dr. Reddy'S, Lupin etc (Figure 20). These firms could substantially increase the R&D expenditure during the period, 2020-22 compared to their R&D investment made two decades ago. We have examined the R&D activity of the top 100 manufacturing companies in India based on sales during the year 2022-23 and found that the top 10 companies are far behind in their R&D intensity. Maruti Suzuki is the only top 10 company appearing as 20th based on R&D intensity. Tata Motors is 15th in terms of size tops the R&D intensity followed by Dr. Reddy'S is (69th in terms of size), Hindustan Aeronautics (46th), Cipla (79th), and Sun Pharma (59th). Hence, we need to rethink the innovation strategy of mega firms in India.

Majority of the mega firms in the Indian manufacturing sector are mainly concentrated in the metals, food and chemicals and most of the revenue generated by these firms belong to the coke and refined petroleum sector followed by metals, automobiles and so on. It is important to note that the top revenue generating mega firms are not the top investors in R&D. From the figure it is clear that the firms from automobile and pharmaceutical sector are top in R&D investment, while the top sales generators are mainly belonging to the refined petroleum. The top ten profit makers are mainly based in refined petroleum, metals and chemicals sectors. Hence, within mega firms also there are clear sector specific variation in terms of the revenue generation, profitability and investment in technology.

Figure 20: R&D Investment of Top 10 Mega Firms

Source: Calculated using PROWESS IQ Database, CMIE.

V. Conclusions and Policy Points

Manufacturing sector played a key role in countries' growth process, which made it the 'engine of growth.' In India too, the planned economic development process provided greater emphasis on a rapid industrialisation strategy with prominence given to heavy and basic industries initially. However, studies show, the development and expansion of private corporate sector has been greatly influenced by the presence of a strong initial public sector investment made in the country. In the 1990s, when the economy opened up, a noticeable shift in favour of private sector occurred, in sectors that were previously dominated by public sector, including in heavy industries. The declining presence of public sector enterprises in terms of number and output contribution to the manufacturing sector is clearly evident in the study, while the overall output and profit are growing, with greater contribution from the less number of mega sized firms.

Stagnant wage share in Indian manufacturing has been an area of debate. Our study indicates that the manufacturing wage share in total expenditure is increasing from 2014 onwards, while the highest decline is noticed for the public sector companies, which may be on account of the privatisation of several PSUs during the post 2000s and the consequent decline in employment. In the earlier development era, public sector had a greater role to play to fill the investment gap in various critical industries. However, now the private sector gradually taken over the role played by PSUs¹⁰ in various sectors, which is the ideal situation. Our policy orientation towards public sector needs to be changed from focusing

¹⁰ ¹⁰It is meant to include the non-welfarist roles.

on the traditional non-profit making PSUs to new and emerging areas where there exists a gap in investment in emerging areas for which private sector may not jump into production due to various kinds of uncertainties prevailing and the lack of incentives. India needs to identify products and intermediary goods where countries like China is too dominant, for which PSUs can provide a boost to the domestic manufacturing base. After providing a critical minimum investment requirement for the domestic private sector to flourish, the public sector may gradually withdraw from that market to allow the private sector to operate efficiently. Indian business groups can also play an important role in this endeavour.

Except for the Covid-19 pandemic affected years, the growth of capital investment in the manufacturing sector was less than the growth of profit generation. This pattern is same for all categories of firms. This indicates the lesser capital investment compared to the profits generated by these firms. Further, despite the export promotion policies implemented from time to time, the overall export intensity remained very less, though it is exhibiting an increasing trend. In China, manufacturing sector has been the key contributor to their total export. Overall import intensity in the Indian manufacturing sector has increased over the years from 17 percent in 2000 to 27 percent in 2023. A clear hike in import intensity is visible after 2005, which essentially indicate the increasing import dependence of corporate manufacturing sector in recent period. Around 90 percent of the import share is accounted for by the mega firms. The outcome of the recent policy initiative such as PLI is yet to achieve. Reducing import dependence is critical. In this context, there should be a clear advisory on procuring raw materials from within the country and strengthening the domestic availability of all critical intermediary inputs. Encourage domestic mega and large firms to invest a portion of their profit or revenue in intermediary goods, which will help to reduce import dependence in future. Alternatively, government may also support overseas acquisition of strategic assets including critical raw materials and components. India should rationalise the export of items depending on their national importance. Export of critical minerals and such scarce raw materials needs to be regulated. It should be made mandatory for the mega firms to invest a fixed percent of their profit/stakes for in-house R&D creation.

R&D intensity is increasing though it remains very low level throughout. Domestic private sector accounts for the larger share of R&D investment, which is mainly undertaken by the mega firms. Pharmaceutical and automobile sectors continues to be the top sectors spending on R&D, while sectors like metals and chemicals are having high profit share, but their investment in technology is minimal irrespective of the fact that adoption of green and better technologies is an essential requirement due to the policy dialogue across the world. Similarly, the top sales generating firms are not top in R&D investment. Sectoral characteristics seems to play a key role in R&D investment. Nevertheless, only a few firms in each industry invest substantial amount in R&D.

Further, the study suggests, the scale of operation matters a lot in sustaining in the market in terms of output, profitability and resilience to shocks. Although smaller firms are having

a higher wage share they remain vulnerable to market shocks. Profits are not reinvested in capital formation as required. Similar to R&D, India must also focus on enhancing the export intensity of firms. India should leverage the complementary strength of both larger and smaller firms to achieve our industrial development goal. Additionally, the public sector needs to reorient its focus to address investment gaps in emerging technologies and sectors where there is a high import dependence, and low private sector investment.

References

- Agarwal, M, and Azim, R (2022), "The Indian Manufacturing Sector: Finance, Investment and Performance of Firms." *Indian Journal of Applied Economics and Business*, Vol. 4, No.2, pp. 151–177, <https://doi.org/10.47509/ijaeb.2022.v04i02.02>.
- Agarwal, M., Azim, R. and Kumar, S. (2022) 'BRICS: The 2008 financial crisis and Economic Performance', *BRICS Journal of Economics*, 3(2), pp. 21–49. doi:10.3897/brics-econ.3.e86488.
- Balakrishnan, P (2015), 'Nehru and the Economy: A 21st Century View', NMML Occasional Paper Perspectives in Indian Development, New Series 58, Nehru Memorial Museum and Library, New Delhi.
- Bhat, T. P (2014), "India: Structural Changes in the Manufacturing Sector and Growth Prospect", Working Paper No. 173, Institute for Studies in Industrial Development, New Delhi.
- Charoenrat, T. and Amornkitvikai, Y. (2024). Factors Affecting the Export Intensity of Chinese Manufacturing Firms. *Global Business Review*, 25(4), p.097215092110002. doi:<https://doi.org/10.1177/09721509211000207>.
- Dasgupta, S and Ajit Singh (2006), 'Manufacturing, Services and Premature Deindustrialisation in Developing Countries: A Kaldorian Analysis', WIDER Research Paper No. 2006/49, The United Nations University World Institute for Development Economics Research, UNU-WIDER, Helsinki.
- Ghosh, Sahana (1990), 'Growth of Manufacturing Industries in India 1975-76 to 1985-86: A Disaggregated Study', Working Paper No. 4, NIPFP, June.
- ISID (2025), 'India Industrial Development Report 2024-25: Towards a Manufacturing Led Transformation', Academic Foundation, India.
- Joumard, Isabelle, et al (2015). "Challenges and Opportunities of India's Manufacturing Sector." Working Papers No. 1183, OECD Economics Department Working Papers, 26 Jan, <https://doi.org/10.1787/5js7t9q14m0q-en>.
- Kapoor, Radhicka (2018) "Understanding the Performance of India's Manufacturing Sector: Evidence from Firm Level Data", CSE Working Paper No. #2, Azim Premji University, March.
- Kelkar, V.L and Kumar, R (1990), 'Industrial Growth in the Eighties: Emerging Policy Issues', *Economic and Political Weekly*, Vol. 25, No. 4, pp. 209-222.
- Kumar, N. (2024). Manufacturing-led transformation for realizing India's Development Aspirations in the context of a fractured trading system: Challenges, Opportunities, and Strategic Interventions, Working Paper 270, Institute for Studies in Industrial Development, New Delhi.
- Mani, S (2009), "Has India Become more Innovative Since 1991? Analysis of the Evidence and Some Disquieting Features", Working Paper No. 415, Centre for Development Studies, Thiruvananthapuram.

- Mohan, Rakesh and Vandana Aggarwal (1990), 'Commands and Controls: Planning of Indian Industrial Development, 1951-1990', *Journal of Comparative Economics*, Vol. 14, pp. 618-712.
- Nagaraj, R (2025), 'India's premature deindustrialization and Falling Investment Rate in the 2010s', *World Development*, 191, pp. 106954. Available at: <https://doi.org/10.1016/j.worlddev.2025.106954>.
- Nayyar, D. and Gaurav, N. (2024). *Made in India: Industrial Policy in a Changing World*. Fifth SANEM-World Bank North America Discussion Forum 31 May 2024, Washington D.C. Available at: <https://thedocs.worldbank.org/en/doc/db73120470778ca317f435d6426c71c5-0310022024/related/Gaurav-Nayyar-MadeinIndia-SARCE.pdf>.
- Saraswathy, B and Nida R (2021) 'Emerging Trends in the Operation of Business Groups in India: A Post Reform Period Analysis', Working Paper No. 236, September.
- Subrahmanian, K.K (1991), 'Technological capability under Economic Liberalism: Experience of Indian Industry in Eighties', *Economic and Political Weekly*, Volume 26, No. 35, pp. M97-M92.
- Yadav, Pahi D, Gangakhedkar R (2022), "The nexus between firm size, growth and profitability: new panel data evidence from Asia-Pacific markets". *European Journal of Management and Business Economics*, Vol. 31 No. 1 pp. 115-140, DOI: <https://doi.org/10.1108/EJMBE-03-2021-0077>.
- World Bank Group (2015) *The World Bank in the Russian Federation the dawn of a new economic era?* Available at: <https://www.worldbank.org/content/dam/Worldbank/document/eca/russia/rer33-eng.pdf> (Accessed: 28 April 2026).

List of ISID Working Papers

- 301 Harnessing India–Japan Economic Partnership for Supply Chain Resilience in the Context of Global Trade Policy Uncertainties, Nagesh Kumar, July 2025
- 300 Nature and Patterns of Entrepreneurial Activities in India, Sanjaya Kumar Malik, March 2025
- 299 Assessing Regional Manufacturing Productivity in India: A Comparative Analysis of Organised and Unorganised Manufacturing, Mahua Paul, Smruti Ranjan Sahoo, March 2025
- 298 Macro-economic Impact of Adoption of New Technologies on Indian Economy: An Analysis Using CGE Modelling Framework, Akhilesh Kumar Sharma, March 2025
- 297 Path of Construction Industry in Economic Development of India, Ajit Kumar Jha, Vaibhav Kumar, March 2025
- 296 Competitiveness and Efficiency of Manufacturing Firms, Seenaiiah Kale, February 2025
- 295 Mitigating the Challenges to Growth in the Textiles and Garments Sector in India: Evidence from Two Clusters, Sangeeta Ghosh, Meghna Dasgupta, February 2025
- 294 Deepening India-Korea Economic Engagement with a Focus on the Indian Manufacturing Sector, Reji K. Joseph, Ramaa Arun Kumar, February 2025
- 293 Trade and Manufacturing Productivity in India: An Industry-Level Analysis by Technology-Intensity, R. Rijesh, January 2025
- 292 Fintech Innovations and Emerging Regulatory Challenges, Santosh Kumar Das, Khushboo Uppal, January 2025
- 291 FDI, Global Value Chains, and Export-Competitiveness in Labour-Intensive Sectors: A Firm-Level Analysis for Indian Manufacturing, Isha Chawla, Nagesh Kumar, January 2025
- 290 Exploring the Growth Dynamics of India's Medical Device Industry: Key Issues and Challenges, Shailender Kumar Hooda, December 2024
- 289 Environmental Consciousness in Large Manufacturing Companies in India: Assessing Recent Trends in Reporting and Performance, Swati Verma, Rajat Panwar, December 2024
- 288 Evolution of Solar Photovoltaic Manufacturing in India: Emerging Trends and Development Strategies, Anjali Tandon, November 2024
- 287 Understanding the Relationship between Material and Energy Efficiencies in Indian Manufacturing Industries, Akhilesh Kumar Sharma, Tiya Mishra, November 2024
- 286 Rising Services Consumption at Low Threshold of Household Income in India: An Empirical Exploration, Satyaki Roy, October 2024
- 285 Firms' R&D Activities in Indian Organised Manufacturing Sector: Are Tech-SMEs Different? *Shailender Kumar Hooda*, October 2024
- 284 Towards a Resilient Steel Industry in India: Optimising Trade Competitiveness vis-à-vis China, *Beena Saraswathy*, August 2024

* Most of the working papers are downloadable from the institute's website: <https://isid.org/in/>

The Institute for Studies in Industrial Development (ISID) is a public-funded, autonomous institution dedicated to conducting policy research, advocacy, capacity-building, and outreach activities to foster the industrial transformation of India.

Registered on October 7, 1986, under the Indian Societies Registration Act 1860, ISID in 1988, became one of the institutions that are supported by the Indian Council of Social Science Research (ICSSR), (Government of India), through grants-in-aid. Since 2006, the Institute operates from its own well-appointed campus located in the Vasant Kunj Institutional Area in South Delhi.

The research themes and key projects are classified under following broad thematic areas,

- o Industrial Structure, Policies, Employment, and Statistics
- o Leveraging MSMEs and Start-ups for Industrial Transformation
- o Globalization, FDI, and Trade and India's Participation in GVCs
- o Technology, Innovation, and Industry 4.0
- o Green Industrialization
- o Spatial Dimensions of Industrial Development and Industrial Infrastructure
- o Sectoral Studies on Competitiveness of Indian Manufacturing

ISID is recognized as a Scientific and Industrial Research Organization (SIRO) by the Government of India. It is also listed on DARPAN portal of NITI Aayog (India's Planning Agency) as a recognized think-tank. It is also a member of the Asia-Pacific Research Network on Trade (ARTNet) and the South Asia Network on SDGs (SANS) of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). ISID's Databases and e-resources are accessed by the academic community across the country through the Information and Library Network (INFLIBNET) Centre of the University Grant Commission (UGC).

ISID Institute for Studies in Industrial Development
An institution of Indian Council of Social Science Research (Ministry of Education)

Policy Research to Foster India's Industrial Transformation

4 Vasant Kunj Institutional Area, New Delhi - 110070, India

Phone: +91 11 3510 4511 | E-mail: info@isid.org.in | Website: <https://isid.org.in>