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GROWTH OF INDIGENOUS DEFENCE MANUFACTURING UNDER MAKE IN INDIA

Brig Naveen Rathi. PhD, Ms. Muskan Rathi

INTRODUCTION

Ongoing Tariff war and display of strength by US has once again highlighted the importance of manufacturing sector in making a country self-reliant and ensure its democratic freedom. Some of the richest countries in the world such as England in the 19th century, US, USSR, Germany, Japan in 20th century and recent phenomena like China and South Korea have grown their economy by focusing on the manufacturing sector. At the same time since independence in India there have been two revolutions in the manufacturing sector firstly adoption of public enterprise-based mixed economy and secondly liberalization of Indian markets in 1991.[i] Both these policies contributed to building a strong manufacturing base but remained limited to few sectors only e.g. Space, steel, cement, fertilizers, pharmaceuticals etc. By the end of 2023, the Indian economy reached a GDP of US$ 3.73 trillion. As per the Economic Survey of India 2022-23 the service sector accounts for 50% to India's GDP and manufacturing sector share is only around 17% to GDP [ii]. Due to this dismal performance in manufacturing India is not regarded as a global manufacturing giant.

The Make in India initiative, launched in 2014 by Hon'ble Prime Minister, seeks to promote domestic manufacturing across various sectors, including defence. The flagship initiative aims to transform India into a global manufacturing hub and reduce dependency on foreign arms imports.

SCOPE AND OBJECTIVE

This paper aims to analytically present the existing data and information on the manufacturing progress made by Indian defence industry. It delves into the role of Micro, Small, and Medium Enterprises (MSMEs) under Make in India initiatives. The hypothesis considers that the steady progress made in manufacturing in last decade has given out various lessons that needs to be focused upon for the continued future growth. The author uses analytical method of research to explain the cause-effect relationship between the policy changes and its implications on defence manufacturing industry to establish itself as major contributor in the world manufacturing. The paper theoretically tests those implications to determine whether they fit the specified hypothesis.

MANUFACTURING VS. SERVICE SECTORS

The manufacturing sector is the backbone of any economy, contributing significantly to GDP, employment, and technological advancements. **A self-reliant defence manufacturing industry enhances national security, reduces dependency on imports, and stimulates economic growth.** Hence a robust manufacturing sector is imperative for producing state-of-the-art weaponry, equipment, and technology.

The manufacturing process of any country is determined by two indicators contribution of manufacturing as a percentage of the country's nominal GDP and share of combined global manufacturing output. As of 2023, India ranked 5th in the world with16% contribution to GDP and approx. 3.3 % to manufacturing worldwide.[iii] One of the main reason for such low manufacturing output in India is probably, that in the quest for transitioning from an agrarian to an industry-centric economy we ended up with a service sector-driven economy which currently contributes 49.9% to the GDP and manufacturing sector got left behind.[iv]

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Few issues of difference between services and manufacturing as relevant to defense sector are tabulated below: -

Aspect	Service Sector (Armed Forces)	Manufacturing Sector (Defense Production)
Role and Function	Safeguarding borders, peacekeeping, and security operations	Producing defense equipment, weapons, and technology
Investment and Expenditure	Major expenditure on personnel, training, and operational costs	Investment in research, development, and production facilities
Self-Reliance	Dependent on imports for advanced technology and equipment	Efforts toward self-reliance through indigenous design and production
Recent Trends	Modernization of equipment, joint exercises, and international collaborations	Emphasis on 'Make in India' and promoting private sector participation

"Make in India" campaigns focus mainly on the manufacturing sector and intend to increase its contribution to the GDP from 14% to 25% by year end ie 2025 [v] The manufacturing sector can be further subdivided into three sub-sectors ie manufacturing, electricity and mining which in turn contain 682 different segments, namely steel, cement, fertiliser etc. The goods manufactured are classified into two categories, capital goods and consumer goods. As the name says the Capital goods or the Heavy Industries are the ones that are not consumed directly by the end-user but are used to produce consumer goods e.g., steel, cement, fertilizers, pesticides, etc. Consumer goods on the other hand are products that are directly consumed by humans, e.g., processed food, electronics, etc.[vi] The Government of India has identified 25 emerging industrial segments and aims to grow them at par with heavy industries.[vii] India's abundant supply of raw materials makes it a desirable destination for manufacturing companies. India's low labour costs, which are between a third and a fifth of those found in developed countries, increase its appeal further.[viii]

ROLE OF MSMEs

Micro, Small, and Medium Enterprises (MSMEs) were introduced with the MSMED (Micro, Small, and Medium Enterprises Development) Act of 2006. As per this act, **MSMEs are the enterprises involved in the processing, production and preservation of goods and commodities**. The definition and criteria for MSMEs based on investment and turnover are as mentioned below [ix] :-

- **Micro Enterprises**:
  - Investment: Up to **₹1 crore**.
  - Turnover: Up to **₹5 crore** .
- **Small Enterprises**:
  - Investment: Up to **₹10 crore**.
  - Turnover: Up to **₹50 crore** .
- **Medium Enterprises**:
  - Investment: Up to **₹50 crore**.
  - Turnover: Up to **₹250 crore**.

Additionally, the provision of excluding exports from turnover calculations encourages MSMEs to explore international markets, potentially leading to increased exports and economic activity. Their contribution is essential not only in terms of economic development but also in building a resilient and diverse supply chain for defence manufacturing sector as enumerated in succeeding paras.

- **Innovation and technology** - MSMEs are known for their innovation and flexibility, traits that are crucial in the rapidly evolving landscape of defence technology. They are major suppliers of critical components and sub-assemblies for complex defense equipment, aircraft, and weapon systems. Estimates suggest they contribute to nearly **80%** of such requirements. The government's initiatives to promote MSMEs in defence manufacturing have led to the emergence of innovative solutions, ranging from advanced materials to cutting-edge electronics. Encouraging collaboration between established defence giants and MSMEs has proven instrumental in pushing the boundaries of technological advancements.
- **Supply Chain Resilience -** A robust and resilient supply chain is indispensable for the defence manufacturing sector. MSMEs contribute significantly to diversifying and strengthening the supply chain by providing parts and services to Defense Public Sector Undertakings (DPSUs), Ordnance Factories, DRDO, and private companies involved in defense manufacturing
- **Employment Generation -** The MSME sector is a significant employer in India, and defense manufacturing is no exception. A large portion of the workforce involved in defense production comes from MSMEs.[x]

To promote further participation of MSMEs Defence Procurement Procedure (DPP) reserves orders up to ₹100 Crore specifically for MSMEs,[xi] In iDEX MSMEs are given special support in developing new defense technologies. Even the Offset policy offers

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multipliers for MSMEs participating as Indian Offset Partners (IOPs), giving them a competitive edge in global supply chains. Further Department of Science and Technology (DST) ensures that infrastructure and manpower is provided for innovation and technology development. It created SATHI, Sophisticated Analytical Technical Help Institute to provide all kind of support to young researchers, scientists, students, start-ups, MSME's and R&D Labs.[xii]

Success Stories

Few success stories from the Make in India initiative in the defence manufacturing sector are noteworthy. These indigenous projects have showcased the country's capability to develop cutting-edge technologies and equipment:-

- **Tejas** - A Paradigm of Indigenous Aircraft Manufacturing -The Light Combat Aircraft (LCA) Tejas developed by the Defence Research and Development Organisation (DRDO) and produced by Hindustan Aeronautics Limited (HAL) is a light, multi-role, and indigenously designed fighter aircraft. The successful completion of this project signifies India's progress in developing world-class aviation technology.
- **Arjun Main Battle Tank -** The project is another milestone in indigenous defence manufacturing. Developed by the DRDO and produced by the Ordnance Factory Board (OFB), the Arjun MBT is a formidable force on the battlefield. The success of this project and further upgrades not only enhances India's armoured capabilities but also showcases the country's engineering prowess.
- **Akash Missile System** – Another notable achievement is in the field of air defence. Developed by the DRDO and produced by Bharat Dynamics Limited (BDL), the Akash missile system is designed to target enemy aircraft and missiles with precision. Its successful deployment demonstrates India's self-reliance in missile technology and air defence capabilities.

Few more stories such as Dhanush Artillery gun System, Advanced towed gun system, electronic fuze and bi modular charge system are also noteworthy here. The annual defence production of India, which was around Rs 40,000 crore in 2014, has now crossed a record Rs 1.10 lakh crore. In line with production the defence exports from a Rs 1,000 crore nine-ten years ago grew substantially to Rs 108,684 crore in 2022-23. Out of this, 21.96 per cent of the production was done by private companies.[xiii] Due to change of policies and ease of doing business the industries, including MSMEs and start-ups, are now forthcoming in defence design, development and manufacturing there is almost a 200 per cent increase in the number of defence licenses issued to defence industries in the last 7-8 years. These measures have not only given a boost to the defence industrial manufacturing ecosystem but also generated tremendous employment opportunities.[xiv] Indian ships are the most attractive defence commodity and account for 61 per cent of the country's total defence exports. This is followed by aircraft at 20 per cent, sensors at 14 per cent, armoured vehicles at 2.8 per cent, and artillery gun system at 1.1 per cent.

Recommendations

While India has made significant strides in indigenous defence manufacturing under the Make in India initiative, certain challenges persist. First and foremost is to achieve low carbon emitting industrial growth. As the manufacturing sector grows, it risks having to contend with India's climate ambitions. Therefore, Indian Government has instituted The National Action Plan on Climate Change (NAPCC) and the State Action Plan on Climate Change (SAPCC) which in turn through missions like; solar energy, energy efficiency, sustainable habitat, sustainable agriculture, Green India, water, Himalayan ecosystem, and strategic knowledge will augment the "Make in India" campaign.[xv] To expedite the process and ensure sustainable growth, the following recommendations are also noteworthy :-

- **Strengthening Research and Development (R&D)**
  Technology has today encouraged creativity, with digital transformation being a critical element in gaining an advantage in this increasingly competitive industry. The Indian manufacturing sector needs to steadily grow into automated and process-driven manufacturing. More Investment in R&D is paramount for the sustained growth of the defence manufacturing sector. The government should allocate substantial funds to bolster R&D initiatives, fostering innovation and technological advancements. Collaboration between academia, research institutions, and industry players should be further incentivised to conduct cutting-edge research.
- **Simplifying Regulatory Processes**
  The government should continue its efforts to simplify procurement procedures, ensuring transparency and efficiency. Clear guidelines and a predictable regulatory environment will attract more private sector participation, both domestic and international, in the defence manufacturing sector.
- **Enhancing Skill Development**
  A skilled workforce is a cornerstone of any thriving manufacturing sector. The government should invest in comprehensive skill development programs tailored to the specific needs of the defence manufacturing industry. Collaboration between industry and educational institutions can bridge the skill gap and ensure a steady supply of skilled personnel.
- **Promoting Public-Private Partnerships**

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Encouraging public-private partnerships (PPP) is crucial for leveraging the strengths of both sectors. The government should create a conducive framework for collaboration between public sector entities, private companies, and MSMEs. Such partnerships can foster technology transfer, boost manufacturing capabilities, and facilitate knowledge exchange.

- **Fostering International Collaboration**
  Collaboration with international defence manufacturers and research institutions can accelerate technology transfer and enhance India's capabilities. Strategic alliances can facilitate the exchange of expertise, resources, and best practices, enabling the indigenous defence manufacturing sector to stay at the forefront of technological advancements.
- **Incentivising Export of Defence Products**
  Promoting the export of indigenous defence products can not only generate revenue but also enhance the global standing of Indian defence manufacturers. The government should provide incentives and support for defence exports, including financial assistance, marketing assistance, and diplomatic efforts to showcase India's technological prowess on the global stage.

CONCLUSION

With factors like electricity expansion, long-term employment possibilities, young and educated population and skill paths for millions of people India also has a huge capacity to participate in global markets. India's assets in terms of raw materials, industrial know-how, and entrepreneurship are well positioned to benefit from these value chains. The Indian economy witnessed a great year, closing 2023-24 with a GDP of US$ 3.73 trillion and a projected GDP growth rate of 6.3 percent against the global average of 2.9 percent.[xvi] Some of the biggest companies in the world like General Electric, Siemens, HTC, Toshiba, and Boeing, are setting up manufacturing plants in India. The rising purchasing power of Indians is another factor supporting this growth. With import substitution, targeting a $1.7 trillion turnover and $350 billion export in military goods and services by 2025 reforms, including increased FDI and corporatization of the OFB we would proceed from Make in India to the goal of Make for the World.

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