ACADEMIC RESEARCH PAPER

on NAVIGATING INDIA'S MANUFACTURING LANDSCAPE: A PMI PERSPECTIVE

by *Ananmay Modi*

Navigating India's manufacturing landscape: A PMI perspective

Research paper by Ananmay Modi

India is one of the fastest-growing economies in the world, with a GDP growth rate of 6.9% in 2021, despite the impact of the COVID-19 pandemic. The manufacturing industry in India is a critical sector that plays a vital role in driving the country's economic growth [Bansal,2023].
One way to assess this growth is to consider the ***Manufacturing index.***

A manufacturing index, also referred to as a manufacturing purchasing managers' index (PMI), serves as a crucial economic indicator offering insights into the performance of a region or country's manufacturing sector. This index is derived from a monthly survey conducted among purchasing managers across various industries within the manufacturing sector. These managers are questioned about different aspects of their businesses, such as new orders, production, employment, supplier deliveries, and inventories.

My research analyses the determination of this index, the trends and its contribution to the Indian industry and economy.

The collected survey responses are condensed into a single numerical index. **Typically, a PMI value above 50 indicates an expansion in the manufacturing sector, signalling economic growth.** Conversely, a value below 50 signifies contraction, showing an economic decline. ***PMI is widely regarded as a leading indicator of economic well-being and is closely monitored by investors, policymakers, and analysts. It plays a significant role in evaluating overall economic activity and aids in making informed decisions regarding financial markets and investments.*** *[Purchasing Managers' Index (PMI) De inition and How It ...Investopediahttps:// www.investopedia.com › Economics › Economy*

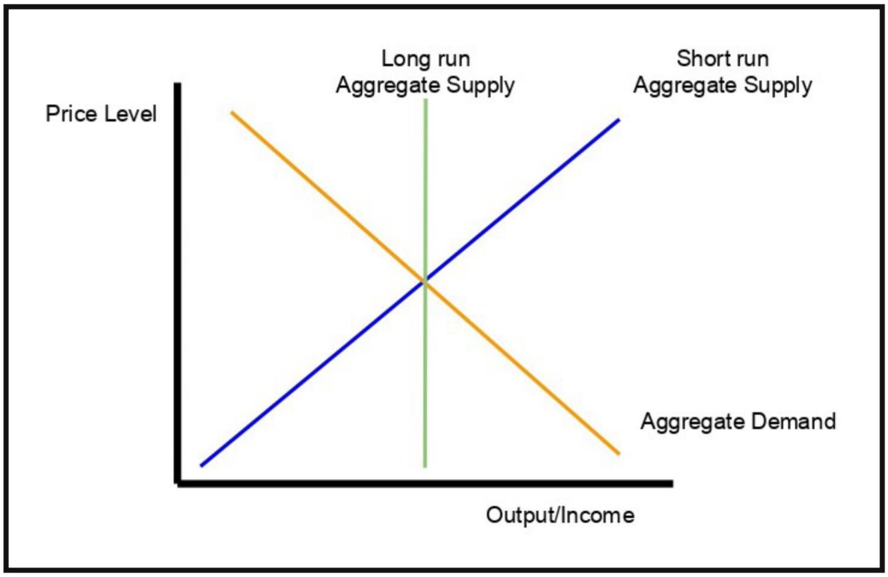
PMI's significance as a leading indicator cannot be overstated. ***Its ability to forecast economic trends before they manifest in other indicators, such as GDP or employment figures, provides an early warning system for economic shifts.*** This predictive power enables businesses and governments to proactively respond to changing market dynamics, minimizing risks and maximizing opportunities.

The strength of PMI lies in its detailed analysis of various components, including new orders, production levels, employment rates, supplier deliveries, and inventories. PMI highlights overall economic health by dissecting these elements and pinpoints specific sector strengths and weaknesses. This granular insight is invaluable for targeted policy interventions and strategic business decisions, fostering sustainable growth.

Moreover, PMI's standardized format is a crucial asset. Its uniform methodology allows for effortless comparisons across different periods and countries. This standardization facilitates global economic analysis, enabling experts to discern patterns, make cross-country comparisons, and identify trends, thereby contributing significantly to understanding the interconnected world economy.

Various factors influence the Purchasing Managers' Index (PMI) by impacting demand and supply dynamics.
On the demand side, consumer demand, robust export markets, and increased government spending contribute positively to PMI as they stimulate manufacturing activities. On the supply side, production

costs, technological advancements, regulatory policies, supplier performance, natural disasters, and currency exchange rates play crucial roles. These factors' fluctuations can significantly affect demand and supply conditions in the manufacturing or services sectors, thereby influencing the PMI.

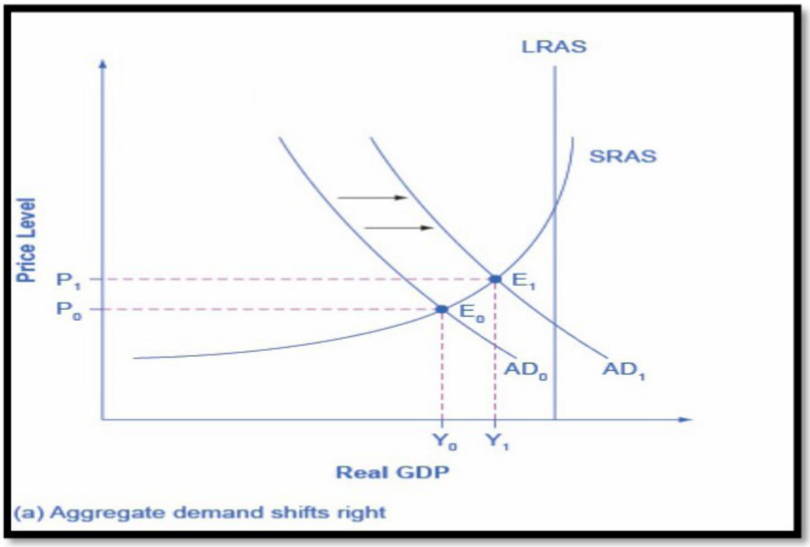


Formula: *PMI = (P1 * 1) + (P2 * 0.5) + (P3 * 0)*
Where,
- P1 = percentage of answers reporting an improvement
- P2 = percentage of answers reporting no change
- P3 = percentage of answers reporting a deterioration

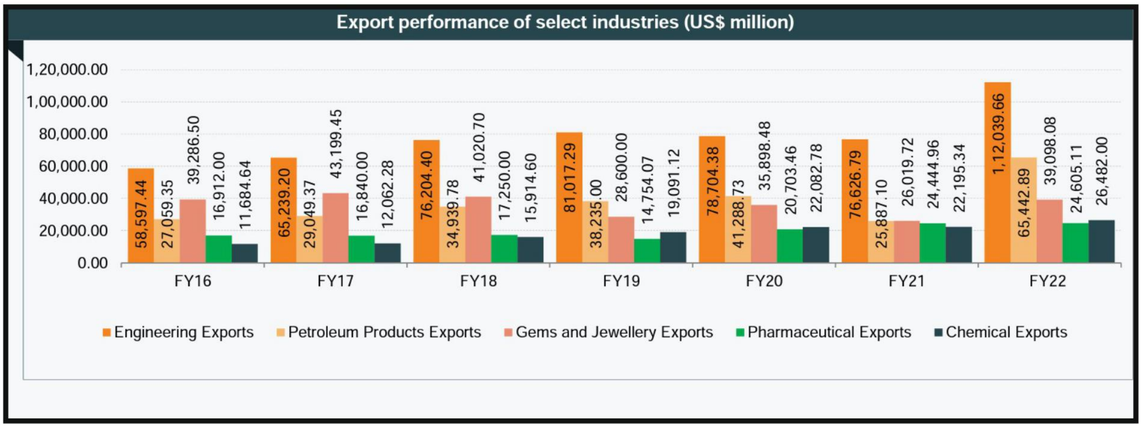
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwj-g4LkiI-CAxUX8DgGHR0jALwQFnoECBUQAQ&url=https%3A%2F%2Fwww.investopedia.com%2Fterms%2Fp%2Fpmi.asp&usg=AOvVaw0W0Qbl5y4DCCA749SNgwx-&opi=89978449]

Through my research, I was able to identify the following critical determinants of the manufacturing index:

1. **Consumer Demand:** The manufacturing sector responds directly to consumer behaviour, which includes purchasing power, spending habits, and economic confidence. Elevated demand fuels production, contributing to economic growth and a higher manufacturing index. Economic factors such as employment rates and consumer optimism are influential. This would reflect a shift in the Aggregate demand curve. This would lead to an increase in employment opportunities in the economy in the Long run. This reflects the Keynesian approach where diagrammatically, Income, output and employment are synonymous.



2. **Export Demand:** International markets significantly impact manufacturing. Countries with competitive products experience heightened demand from abroad, positively affecting production and the manufacturing index. Global trade agreements, geopolitical stability, and international economic patterns influence export trends. As per the table below:
Exports have grown tremendously over the last two years, with a compound annual growth rate of 15%. This has contributed to a rising Manufacturing index.



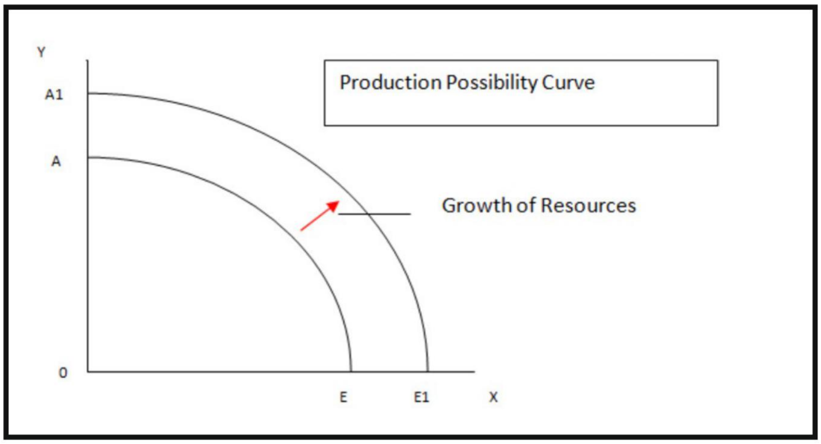
Source: EEPC, DGCIS, GJEPC, CHEMEXCIL, PHARMEXCIL, Bain & Company, News Articles

3. **Business Investments:** Investments in technology, research, and skilled workforce enhance manufacturing capabilities. Companies adopting modern technologies and training programs can boost productivity, The outcome is an increase. In production and an enhanced manufacturing index.

4. **Production Costs:** Manufacturing profitability is directly tied to costs, including raw materials, labor, and energy. Fluctuations in these expenses affect production decisions. Efficient cost management is vital to maintain competitiveness and a favourable manufacturing index.

5. **Technological Innovation:** Implementing technologies like automation and artificial

intelligence optimises manufacturing processes. Automation, for instance, enhances production speed and reduces errors, positively impacting the manufacturing index by improving efficiency. This can be understood in economic terminology as a shift of the PPC- increasing the economy's resource base. The same is reflected in the diagram below.



6. **Government Policies and Supplier Performance:** Government regulations, tax incentives, and trade policies shape the manufacturing landscape. Supportive policies encourage growth, while restrictive regulations or tariffs hinder production. A stable regulatory framework is essential for a thriving manufacturing sector.
   Reliable suppliers ensure a continuous supply of raw materials. Disruptions in the supply chain can halt production, leading to decreased manufacturing output and a lower manufacturing index. Strong supplier relationships are essential for consistent production levels.

7. **Currency Exchange Rates:** Exchange rate fluctuations influence export competitiveness. A weaker domestic currency makes exports more affordable, driving demand and manufacturing. Conversely, a strong currency may reduce export demand, impacting production levels and the manufacturing index.

8. **Global Economic Conditions:** Economic conditions in major trading partners affect export demand. A strong global economy boosts international sales, while economic downturns reduce demand. Changes in global economic conditions directly impact manufacturing activities and the manufacturing index.

9. **Market Competition:** Intense competition promotes innovation and efficiency. Companies strive to enhance product quality and reduce costs to gain a competitive edge. Intense competition often leads to increased productivity, positively affecting the manufacturing index.

All these factors reflect the growth in the manufacturing industry. This further will be reflected in the Manufacturing index through a positive trend. According to the graph below *India's gross domestic product (GDP) at current prices stood at Rs.51.23 lakh crore (US$ 694.93 billion) in the first quarter of FY22, as per the provisional estimates of gross domestic product for the first quarter of 2021-22. The downward trend in 2021 is reflective of the pandemic.*

Source: Ministry of Statistics and Programme Implementation, Economic Survey 2022-23
Note: FY - Indian Financial Year (April -March), PE - Provisional Estimate, AE-First Advanced Estimates;

Significant initiatives have been introduced under ***the Aatmanirbhar Bharat and Make in India programmes t****o enhance India's manufacturing capabilities and exports across the industries. Sector-specific Production incentives (PLI) have been introduced in the aftermath of the pandemic to incentivise domestic and foreign investments and to develop global champions in the manufacturing industry.*

Analysis of the Manufacturing Index in India

Market Analysis of India's Manufacturing sector

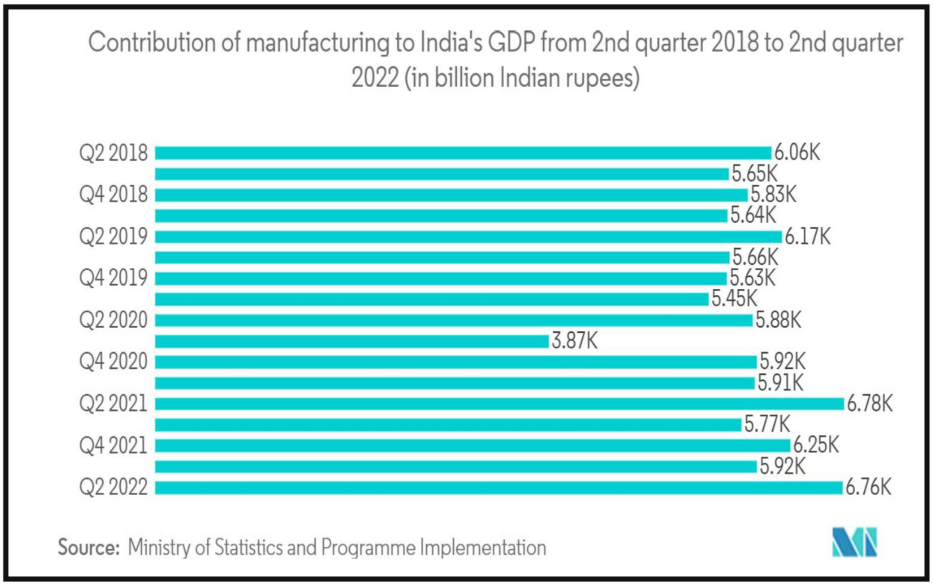
- India's manufacturing sector underwent diverse development phases during the COVID-19 pandemic, constituting about 16-17% of the GDP and employing nearly 20% of the workforce.

Lockdown restrictions in the first wave severely impacted manufacturing, halting most activities due to disrupted supply chains and limited workforce capacity.

- India has become an appealing destination for foreign investments in manufacturing, attracting primary mobile phone, luxury, and automobile brands. Implementing the Goods and Services Tax (GST) is poised to create a unified market with a USD 2.5 trillion GDP and a population of 1.32 billion, making it an attractive prospect for investors. The Indian Cellular and Electronics Association (ICEA) predicts India's potential to increase laptop and tablet manufacturing to USD 100 billion by 2025 through policy interventions.

- The Government of India's Ministry for Heavy Industries & Public Enterprises has launched initiatives like SAMARTH Udyog Bharat 4.0 to enhance competitiveness in the capital goods market. The focus on industrial corridors and smart cities reflects the government's commitment to holistic development. These corridors are designed to integrate, monitor, and create a conducive environment for industrial growth, promoting advanced manufacturing practices.

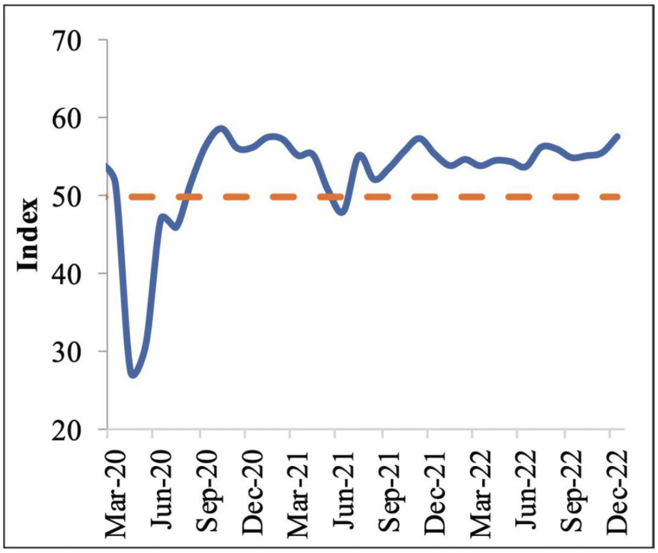
- India is gradually embracing Industry 4.0 through initiatives like the National Manufacturing Policy, aiming for a 25% manufacturing share in GDP by 2025, and the 2022-launched PLI scheme for manufacturing. These efforts shift the manufacturing sector towards automation and process-driven methods, enhancing efficiency and production capabilities. The same is reflected in the graphical analysis below:



Source:
https://www.mordorintelligence.com/industry-reports/india-manufacturing-sector-market

The graph below indicates the PMI value to be consistently over 50, which means that the manufacturing sector is in the expansionary zone indicating a healthy growth.

Figure IX.2: PMI Manufacturing remains in expansionary zone



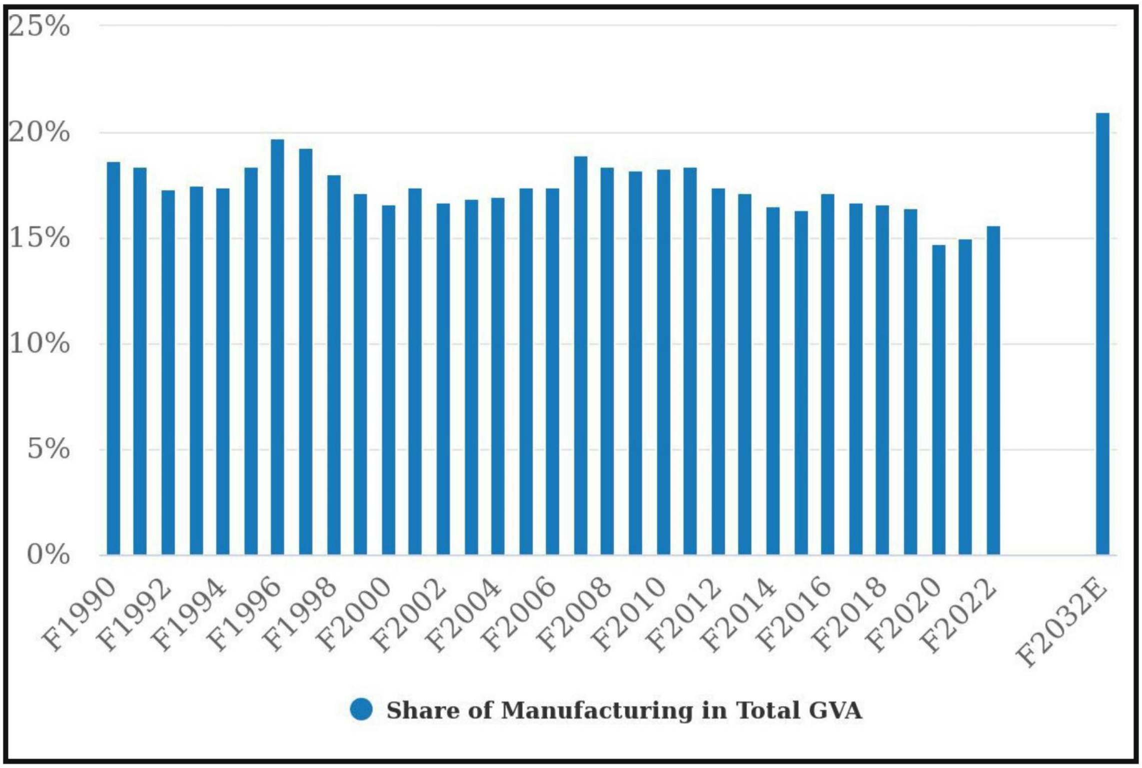
Source: IHS Markit

Trends in the Manufacturing index in the Indian context

<u>India's Share of Manufacturing is expected to increase to 21% of GDP by 2031</u>

India's manufacturing sector is poised for a transformative era marked by robust growth and promising indicators. This is depicted in the graph below, where the contribution of the index to the total gross value added is positive.

Several key factors indicate a positive trajectory for the sector, making it a focal point for investors and policy-makers. I have analysed a few:



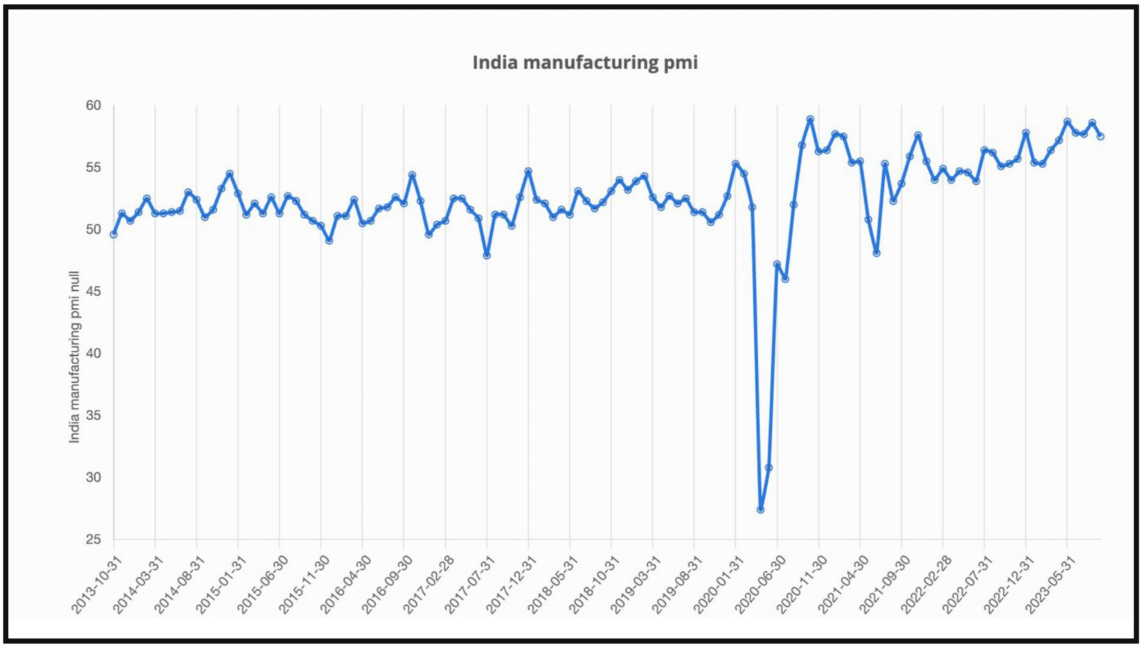
1. **Investment Optimism and Government Initiatives: As Morgan Stanley's data highlights, multinational corporations' burgeoning confidence in India's investment landscape** signals a paradigm shift. Through initiatives such as "Make in India" and the ambitious Production Linked Incentive (PLI) schemes across diverse sectors, the government's proactive role underscores the nation's commitment to bolstering its manufacturing prowess. With an estimated ₹3 lakh crore in capital expenditure over the next five years, these schemes are poised to revolutionise the sector, creating a substantial job market and significantly enhancing India's manufacturing capabilities.

2. **Supply Chain Resilience and Global Opportunities:** The upheavals caused by events like the Russia-Ukraine conflict and the pandemic have reshaped global supply chain strategies. India, in this scenario, emerges as a beacon of stability and opportunity. Government initiatives, especially the Make-in-India campaign, have not only facilitated investment but have also nurtured innovation and world-class infrastructure. This, combined with a focus on building resilient supply chains, provides India with a unique advantage. It positions the nation as a global manufacturing hub, ready to cater to the evolving demands of international markets.

3. **Sector-Specific Dynamics and Innovation:** Within the manufacturing landscape, diverse sectors showcase varying degrees of growth. ***The automobile sector, experiencing a surge in demand and overcoming chip shortages, is a testament to the industry's adaptability. Simultaneously, the electronics sector, especially semiconductors, is witnessing a boom, attracting significant investments. Initiatives related to chemicals, pharmaceuticals, and select petroleum-based products demonstrate sustained momentum, contributing to the domestic market and enhancing India's export potential.*** This diversification and innovation within sectors are crucial indicators of a vibrant and adaptable manufacturing ecosystem.

4. **Credit Demand, Capacity Utilization, and Market Expansion:** The robust increase in credit demand and rising capacity utilization underlines businesses' confidence in future market dynamics. This optimism, translating into substantial investments, is instrumental in expanding production capacities, enhancing technological capabilities, and ensuring competitiveness. It foretells a future where Indian manufacturing can meet domestic demands and capture a significant global market share

India Manufacturing PMI closed at 57.5 as of September 30, 2023 from 58.6 from the previous month and 55.1 last year.



https://macrovar.com/india/manufacturing

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Based on my research and analysis of the manufacturing index of the Indian economy, I have found a clear and positive upward trend. This trend is particularly crucial at this juncture, as it can help to rectify the recessionary trend in the economy.

However the growth of the manufacturing index requires consistency and a stable climate for it to reflect economic growth and **expansion.**

While the trajectory is undeniably positive, challenges persist. Uneven growth across sectors, global economic uncertainties, and evolving trade dynamics necessitate continuous adaptation and policy fine-tuning. To navigate these challenges successfully, sustained government support, investments in research and development, skill enhancement, and fostering a business-friendly environment are imperative.

India is an attractive destination for foreign investors in the manufacturing sector. The Goods and Services Tax (GST) implementation will create a common market in India with a GDP of US$2.5 trillion and a population of 1.32 billion people, making it a significant attraction for investors. [Economic survey 2022-23]

In essence, India's manufacturing sector is not merely on the rise but on the brink of a transformative era. The government's strategic policies, industry resilience, and global market opportunities position

India as a formidable contender in the international manufacturing arena. The coming years are poised to witness a manufacturing renaissance, where India’s innovative spirit and entrepreneurial vigour will redefine its role on the global economic stage.

Conclusion

The research delves into the pivotal role played by the Manufacturing Purchasing Managers' Index (PMI) in assessing India's manufacturing sector. Through a meticulous analysis of various determinants such as consumer demand, export dynamics, business investments, production costs, technological innovation, government policies, currency exchange rates, global economic conditions, and market competition, the study highlights the complex interplay of factors influencing the PMI.

Crucially, the PMI emerges as a potent leading indicator, offering granular insights into economic health by dissecting components like new orders, production levels, employment rates, supplier deliveries, and inventories. Its ability to forecast economic trends equips businesses and policymakers with an early warning system, enabling proactive responses to changing market dynamics.

The research underscores India's manufacturing sector's resilience, especially amid challenges like the COVID-19 pandemic. Government initiatives such as "Make in India" and Production Linked Incentive (PLI) schemes, coupled with global opportunities and sector-specific innovations, position India as a robust contender in the international manufacturing arena. Despite the positive trajectory indicated by the upward trend in PMI, the study emphasizes the need for consistency and stability for sustained economic growth.

In essence, India's manufacturing sector stands at the cusp of a transformative era, driven by strategic policies, industry resilience, and global market integration. The upcoming years are poised to witness a manufacturing renaissance, where India's innovation and entrepreneurial spirit will redefine its role on the global economic stage.

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