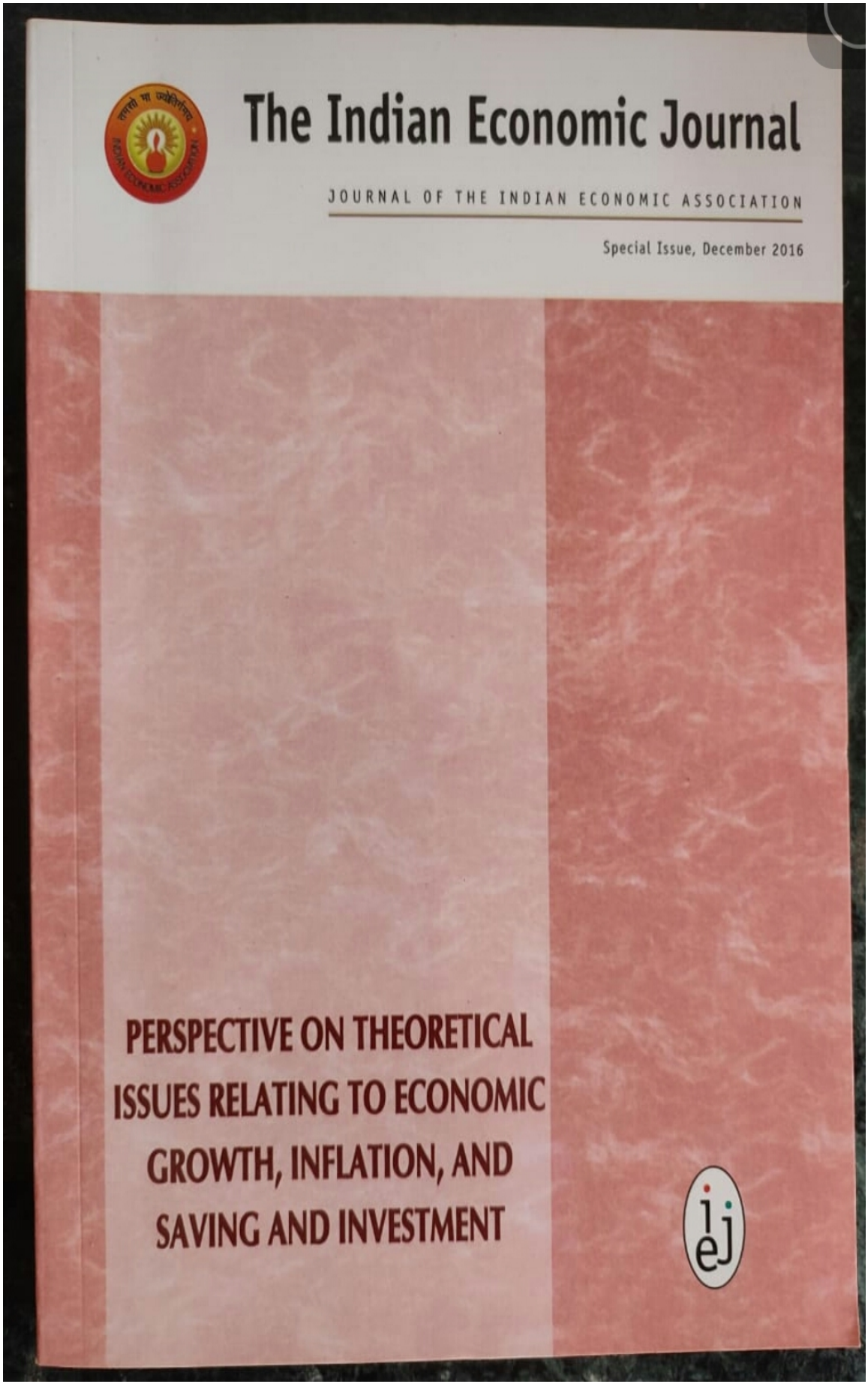
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Role of Manufacturing Sector in India's Sustained Economic Growth – Challenges and Opportunities

B.P. Sarath Chandran and Bikash Krishna Singh

Introduction

Globalisation of manufacturing has benefitted many industries and economies all over the world with improved economic prosperity. For the developing countries globalisation of manufacturing results in creation of value jobs and improved standard of living of growing middle class. Globalisation of manufacturing depends on factors such as widespread growth of digital information, physical and financial infrastructure, computerized manufacturing technologies, and the proliferation of bilateral and multilateral trade agreements that creates complex global networks that enable companies to manufacture products from anywhere and satisfying customers almost anywhere. Many emerging economies used by multinationals as locations of low-cost labour have developed significant manufacturing and innovation capabilities permitting them to produce increasingly advanced manufactured products. The future global manufacturing competitiveness will depend on factors such as creating and maintaining sophisticated infrastructure for growth and employment, competition to attract foreign direct investment, scarcity led significant materials science breakthroughs, affordable clean energy strategies, ability to innovate at accelerated pace, availability of talented human capital and strategic use of public policy as an enabler of economic development.

India's economic growth moved away from agriculture led to service led bypassing the crucial sustained manufacturing sector growth. Even after the substantial liberalization of the economy in the early nineties the manufacturing sector share to GDP remained constant around 13 percent for long giving one of the lowest among the emerging economies of the world. The productivity of the manufacturing sector is lower than the services sector in the country and ranked lower among the emerging economies (China and Brazil have 1.6 and 2.9 times more productivity in manufacturing). The average firm size of Indian manufacturing units are small unable to reap economies of scale and productivity growth. Indian manufacturing sector failed to generate employment on a sustainable basis and the bulk of the employment is created in the unorganised sector accounting about 65 percent of employment in the sector in 2011-12. Total employment outside of agriculture rose by about 51 million between 2004-05 and 2011-12, but only 6 million jobs were created in the

Associate Professor & Head, Department of Economics, Shree Damodar College of Commerce & Economics, Margao, Goa.
BD College, Patna

manufacturing sector largely in the informal sector. In addition firms are incentivized to stay smaller in terms of less stringent regulation and lower taxes and the growth of value added stems from factor accumulation rather than total factor productivity gains.

The share of manufactured goods in total merchandise exports fell from 77 percent in 2003 to 65 percent in 2013 (UNIDO, 2013). The latest competitive industrial performance index ranks India 43nd out of 133 countries, far behind China, but also behind Thailand, Brazil and Indonesia.

The cost of labour in India has remained relatively low. The average hourly compensation costs in India in 2009 were about 25 percent lower than in China. But Indian manufacturing is surprisingly capital intensive compared to China and Indonesia. In 11 out of 14 manufacturing sub-sectors, India has the highest capital-labour ratio. India has also specialised in more skill-intensive production compared to its peers. India should better channel employment from low productivity agriculture to higher productivity manufacturing and services, which would raise wages and living standards for a larger share of the population. Furthermore, India should aim for more formal jobs in the organised manufacturing sector, as these tend to be the most secure and of highest productivity. Indeed, household surveys show that male urban manufacturing workers with regular jobs on average get a salary 2.5 times the level of casual contract workers in the same sector (NSSO, 2011-12). Informality is typically associated with lower productivity and many workers remain outside the reach of labour market regulations and social protection schemes, resulting in higher inequality (OECD, 2011).

Indian Manufacturing Sector – a missed Opportunity

Theory of structural transformation (Simon Kuznes) said that economic development of nations take the path of dominance of agriculture first and then to large-scale manufacturing both in terms of employment and GDP. Only at higher levels of per-capita income did their service sectors come to dominate the economy, becoming post-industrial economies. India defied this transformation followed by developed countries and south East Asian tigers as there were early peaking and premature stagnation of industrialization and rapid growth of services sector driving the GDP growth.

Current state of Indian Manufacturing

Today, Indian manufacturing sector is close to the size of $ 250 billion. Manufacturing sector is one of the key sectors in the Indian economy which contributes to 15-16 percent of total Indian GDP (RBI) and employs about 12 percent (CII). Though India ranks 9th globally in terms of value added by manufacturing sector, it is far behind the leaders. In comparison to the other economies of the world, India contributes a meagre 2.1 percent to the world's manufacturing output. Manufacturing growth is constrained by a complex business environment. India ranks 134th out of 189 countries in the World Bank Doing Business 2014 data. Apart from regulations governing doing business, manufacturing is affected by stringent labour regulations, infrastructure bottlenecks, and the tax system. Because of

the stagnant agriculture India's labor force is languishing in low productivity agriculture. Policies are needed to address all these issues.

Table 1
Country-level Ratings for Key Drivers of Competitiveness

Selected country/manufacturing competitiveness drivers	*Germany*	*U.S.*	*Japan*	*China*	*Brazil*	*India*
Talent-driven innovation	9.47	8.94	8.14	5.89	4.28	**5.82**
Economic trade, financial and tax system	7.12	6.83	6.19	5.87	4.84	**4.01**
Cost of labour and materials	3.29	3.97	2.59	10.00	6.70	**9.41**
Supplier network	8.96	8.64	8.03	8.25	4.95	4.82
Legal and regulatory system	9.06	8.46	7.93	3.09	3.80	**2.75**
Physical infrastructure	9.82	9.15	9.07	6.47	4.23	**1.78**
Energy cost and policies	4.81	6.03	4.21	7.16	5.88	**5.31**
Local market attractiveness	7.26	7.60	5.72	8.16	6.28	**5.90**
Healthcare system	9.28	7.07	8.56	2.18	3.33	**1.00**
Government investments in manufacturing and innovation	7.57	6.34	6.80	8.42	4.93	**5.09**

Notes: Scores on a 10 point scale, where 1 being "least competitive" and 10 being "most competitive" – adjusted for country, size, and industry

Source: Deloitte Touche Tohmatsu Limited and US Council on Competitiveness, 2013 Global Manufacturing Competitiveness Index

Table 1 gives factors driving manufacturing competitiveness in manufacturing sector. India ranks poor in manufacturing competitiveness compared to manufacturing exporters of the world.

India's Potential in the Manufacturing Sector

India's manufacturing industry has many advantages. With rising per capita income India has a large upwardly mobile, burgeoning population with large domestic consumption demand for goods and services. This domestic demand, coupled with large number of multinationals' establishing their production base in India could help India's manufacturing sector to grow six-fold by 2025, to $1 trillion, creating up to 90 million domestic jobs. (Finance Ministry) Today, the sector generates about 45 million jobs, 80 percent of which are in unorganized segment. This is also reflected in the fact the majority of employment is in rather small enterprises. For example, the share of micro and small enterprises in manufacturing employment is 84 percent for India versus 27.5 percent for Malaysia and 24.8 percent for China. (Exim Bank, 2013).

Despite many limitations, India's manufacturing exports are growing rapidly, particularly in skill-intensive sectors such as auto components, engineered goods, generic pharmaceuticals, and small cars. A paltry manufacture share of 16 percent of India's GDP reveals a huge untapped potential. The manufacturing paradox of India is despite huge demand and wherewithal to produce, the manufacturing sector in the country is currently operating way below its estimated potential. In addition to its advantages in the workforce and technology, India also has abundant natural resources needed in production—notably, iron

ore and aluminum for engineered goods, cotton for textiles, and coal for power generation. As such, the country could become a viable manufacturing alternative to China in industries ranging from apparels to auto components and might even dominate some skill-intensive manufacturing sectors. If India's manufacturing sector realizes its full potential, it could generate 25-30 percent of GDP by 2025, thus propelling the country into the manufacturing "big league" alongside China, Germany, Japan, and the United States. Along the way, it is estimated that 60 million to 90 million new Indian manufacturing jobs would be created and the country would definitively become an attractive investment destination for its own domestic entrepreneurs and multinational Corporations.

India is one of the fastest growing economies among the major economies and likely to the top three manufacturing destinations of the world by 2020. India has a favourable demographic dividend and reservoir of low cost labour force. There are reasonably large numbers of technical and scientific institutions supplying qualified technical staff for the industries. Over the years India developed industrial infrastructure such as Industrial Parks, National Investment & Manufacturing Zones, Special Economic Zones, Sector specific clusters, and Industrial corridors.

Reform Measures Required for Manufacturing Revival

India needs to reform radically its manufacturing sector for competitiveness to become major manufacturing hub. India has to create a suitable macro-economic Environment that includes aligning Policies and Goals with Manufacturing sector's targets, easing of monetary policy required to boost investments, bring down subsidies and prune non-productive government expenditure and take measures to bring stability in rupee. There are multiplicity and cumbersome taxes which need to be strengthened and made simple. Labour Legislations & Workers' Housing Scheme/Policy are important for taking advantage of the manufacturing sector. Feedstock, raw materials & electricity for manufacturing are very important for sustained manufacture growth. Other major reforms required for the revival of manufacturing are easy availability of land for manufacturing, industrial Corridors and Clusters, ease of Doing Business in terms labour, environment & forest Clearances, infrastructure creation, Free Trade Agreements & international trade, creating and sustaining MSME sector and skill development.

New Government Initiatives

The Government formulated National Manufacturing Policy (NMP) in 2011which is primarily aimed at increasing the share of manufacturing to 25 percent of GDP and to create 100 million additional jobs by 2022. Restrictive provisions of FDI policy have gradually been relaxed and a not-for-profit single window facilitator for prospective overseas investors, "Invest India", has been set up. The Government of India started a new campaign called 'Make in India' in 2014 to revive the manufacturing sector. The focus of 'Make in India' campaign is easing policies and laws, Invest India team and a dedicated portal for business queries, consolidated services and faster security clearances, identification of 25 sectors where

India can be a world leader in manufacturing and related services. In 2011 Government announced National Investment and Manufacturing Zones (NIMZs) which are greenfield industrial townships with a minimum area of 5,000 hectares. Each zone will be managed by a special purpose vehicle, headed by a government official. The NMIZs will focus on providing a more supportive policy environment for business than presently available. The Delhi-Mumbai Industrial Corridor (DMIC) project, in cooperation with Japan, aims to develop an industrial zone spanning six states by expanding infrastructure and industry. In addition government launched programmes such as digital India, skill India, start up India to revive the economy. FDI cap in sectors like railways and defence increased to attract large FDI inflows.

Can India become the manufacturing Hub

1. China Slowdown

It was China for a very long time acted as a global factory producing and supplying manufacturing goods to the world. But the double-digit increases in China's minimum wages year-after-year have vacated space for low cost manufacturing and many players are interested towards lower-cost destinations like India. Many companies such as Ford Motor, Nidec and Yamaha Motor, Panasonic started their manufacturing operations in India.

2. Infrastructure development

Even though India achieved substantial improvement in infrastructure, the quality of India's infrastructure is generally poor and the country still has a long way to go for achieving an infrastructure environment that enables competitiveness. The World Economic Forum ranks Indian infrastructure 84th out of 144 countries. Traditionally industries are established first and the required infrastructure is built around industries. But to attract FDI and domestic capabilities infrastructure should be built first to attract industries. In addition to the basic infrastructures such as building ports, highways, power grids, etc industrial clusters with basic infrastructures can be established which provide an environment to people who want to move away from the primary sector to secondary and tertiary sectors. Creation of show case industrial clusters by enacting regulatory improvements that remove complexity and uncertainty in areas that include land acquisition improvements, labour laws and taxation can kick start manufacturing in India.

3. Flexible labour reforms

The multitude of labour laws, not all of them being consistent, creates confusion and uncertainty, and raise labour costs. In India labour laws are "fairly rigid and cumbersome", making it difficult for companies to hire and lay off workers according to seasonality and volatility in demand. Stringent labour laws are often blamed for the poor performance of labour intensive manufacturing industries and sluggish job creation, despite relatively low wages (Ministry of Finance, 2013). Employment protection legislation (EPL) for regular employment is particularly high in industrial establishments with more than 100 workers and

frequency of reinstatement of unfair dismissal is higher. Firms with less than 20 employees are not required to comply with the Employees' Provident Fund Act and do not have to pay pension, health and disability contributions but need to meet all of them if they employ more than 20 workers. Another strategy for firms to escape stringent labour regulation, in particular EPL, has been to rely on "contract labour", i.e. workers hired on a temporary basis or through a contractor. Firms have substituted labour for capital, at least in part, to escape labour regulations and hired fewer people than they need and requiring the people they do hire to work overtime. The labour laws need to be amended with a focus on improving workforce relations and allowing greater flexibility for companies to react to changes in demand.

4. Competitiveness

India got limited comparative advantage in the manufacturing sector compared to other emerging countries of the world. But in terms of services exports India has relatively better comparative advantage.

Table 2
Comparative Advantage of Manufacturing Sectors

Industry	*India*	*Brazil*	*China*	*Indonesia*	*South Africa*	*Thailand*	*Vietnam*
Mining & Quarrying	0.50	0.85	0.35	2.57	2.70	0.18	2.07
Food products, beverages and tobacco	0.35	2.51	0.94	3.03	0.82	3.10	3.40
Textiles, textile products, leather and footwear	1.39	0.63	3.77	1.93	0.25	3.04	3.19
Wood, paper, paper products, printing and publishing	0.39	1.27	1.07	1.35	0.84	0.71	0.75
Chemicals and non-metallic mineral products	0.71	0.86	1.03	1.39	0.73	1.31	0.35
Basic metals and fabricated metal products	0.72	1.61	1.45	0.36	1.34	0.75	0.16
Machinery and equipment, nec1	0.37	0.50	1.08	0.44	0.00	0.31	0.16
Electrical and optical equipment	0.63	0.32	2.08	0.64	0.12	2.40	0.18
Transport equipment	0.42	0.93	0.56	0.61	0.69	0.77	0.22
Manufacturing nec; recycling	3.33	0.26	2.53	0.78	1.03	2.25	0.58
Utilities	0.78	1.02	1.28	0.31	0.95	1.16	0.55
Construction	1.43	0.81	0.15	0.91	0.83	0.07	-
Number of manufacturing sectors in which the country has comparative advantages:	2	3	7	4	2	5	2
Number of service sectors in which the country has comparative advantages:	4	2	0	0	3	1	1

Source: OECD-WTO Trade in Value Added (TiVA) - May 2013.

5. Logistics

Anyone considering manufacturing in India should first consider the logistics and infrastructure of the country compared to those of alternative sourcing destinations. Logistics and accessible infrastructure can have a major impact on both the deliverability and quality of goods. The World Bank publishes a Logistical Performance Index (LPI) every two years, ranking countries according to several criteria,

Country	LPIRank	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
Malaysia	25	3.37	3.56	3.64	3.47	3.58	3.92
China	28	3.21	3.67	3.50	3.46	3.5	3.87
Thailand	35	3.21	3.40	3.30	3.29	3.45	3.96
Vietnam	48	2.81	3.11	3.22	3.09	3.19	3.49
Indonesia	53	2.87	2.92	2.87	3.21	3.11	3.53
India	54	2.72	2.88	3.20	3.03	3.11	3.51
Philippines	57	3.00	2.60	3.33	2.93	3.00	3.07

Source: World Bank Logistics Performance Index, 2014

China ranks at number 28 among 160 countries studied, while India is much further down the list at 54. India lags behind China in two areas, in particular – clearing customs and quality of infrastructure.

Strength of Infrastructure

The strength of a country's infrastructure is a major component of logistics and can have a significant impact on the success or failure of supply chains there. KPMG (2010) found, "estimates indicate that India's logistics and transportation bottlenecks hinder its GDP growth by one to two percent." Based on India's per capita income in 2010, this loss equates to roughly 10 million new jobs every year.

As per the World Bank Trading Across Borders report of 2015, India stands at 126 out of 189 countries, while China ranks 98, Brazil 123 and South Africa 100. It takes 17 days to export a container while it takes 21 days to import one in India. While in China, the per-container cost of export is $800, in India it is $1,400. Department of Commerce (DoC) estimates that poor trade facilitation results in transaction cost of R42, 000 crore ($6-7 billion).

Logistics Efficiency Indicators	India	Global
Road Transportation		
Average truck speed (in kmph)	30 – 40	60 – 80 (including China)
Four lane road length (in kms)	7,000	34,000 (China)
National highway length in kms)	66,590	1,900,000
Average surface freight (in cents/km)	- 7	3.7 (Japan)
Average distance travelled by a truck per day (in kms)	200	400
Air Transportation		
Airport waiting time – Exports (in hours)	50	12
Airport waiting time – Imports (in hours)	182	24
Aviation turbine fuel as a % of operating cost	35 – 40%	20 – 25%
Ports & Sea Transportation		
Turnaround time at ports (in hours)	84	7 (Hong Kong & Singapore)
Annual container handling capacity	8.4mn TEUs	60mm TEUs (China)
Containers handled per ship, per hour (maximum)	15	25 – 30
Throughput density (maximum)	45,000 TEUs / hectare	170,000 – 220,000 TEUs / hectare
Warehousing		
Average inventory days	33	24 (China)

Source: Cygnus Business Consulting & Research, KPMG analysis

6. Global Supply chain and International Production Networks

A global value chain (GVC) is a chain of separate but inter-linked and coordinated activities, which can be undertaken within a single firm or be divided among multiple firms in different geographical locations to bring out a product or a service from conception to complete production and delivery to final consumers. GVCs are structured around a lead firm and network of contract manufacturers, suppliers, logistics providers etc. Lead firms take key decisions in the GVC and exercise control over other players, even in absence of ownership. Lead firm –supplier relationship determined by perceived risk to the buyer arising on account of failure of the producer to supply quality products on a reliable and timely basis. Under Buyer-driven GVC the Lead firm prescribes product specification and the manufacturing is done by manufactures of decentralized developing country. Lead firms retain close control on the suppliers. In Producer driven chains, lead firms manufacturers advance products

and exerts control over backward linkages for raw materials and component suppliers and forward linkages in distribution and retailing. Automobile manufactures, PC manufacturers are good examples of producer driven GVCs. The factors that determine decision of lead firms to link with suppliers are labour cost arbitrage, skilled labour and managers, availability of trade-related physical infrastructure, trade logistics and support services, ease of doing business, proximity to markets, role of tariffs, duty free access to markets and ability to comply with standards. India has to join international production networks of Asia and the world. India is actively pursuing Regional Trade Agreements in the recent past. This can only give marginal welfare gains. What complement more is the trade reform measures that improve productivity gains and reduction of cross border trade costs.

7. Manufactured Exports

India's Top Ten Manufactured Exports and Imports at the 2-Digit Level during 1999–2013
(Period average percentage share in total manufactured exports)

Sl. No	Chapter	Commodity	Exports		Chapter	Commodity	Imports	
			1999-2000 to 2008-09	2009-10 to 2013-14			1999-2000 to 2008-09	2009-10 to 2013-14
1	71	Natural or cultured pearls, precious or semiprecious stones, precious metals, clad with precious metal and articles thereof; imitation jewellery; coin	21.8	23.0	71	Gems and jewellery	17.1	16.8
2	29	Organic chemicals	5.7	5.9	84	Non-electrical machinery and parts thereof	8.7	7.5
3	87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	3.5	5.7	85	Electrical machinery and parts thereof	6.7	6.8
4	84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	5.1	5.7	29	Organic chemicals	3.4	3.4

5	85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts	4.2	5.6	72	Iron and steel	2.5	2.7
6	30	Pharmaceutical products	3.4	4.6	39	Plastic and articles thereof	1.5	2.0
7	99	Miscellaneous goods	2.3	4.2	89	Ships, boats and floating structures	1.3	1.2
8	62	Articles of apparel and clothing accessories, not knitted or crocheted	7.7	4.1	26	Ores, slag and ash	1.0	1.5
9	72	Iron and steel	4.9	4.1	90	Optical, photographic cinematographic, measuring, checking, precision, medical or surgical Inst. and apparatus parts and accessories thereof¤	1.9	1.4
10	73	Articles of iron or steel	3.5	3.6	99	Miscellaneous Goods	0.3	1.0
		Cumulative share of the above	62.0	66.5		Cumulative share of the above	44.5	44.2
		Total manufactured exports (Billion US$)	55.9	178.7		Total manufactured imports (Billion US$)	129.3	417.7

8. Skill and Training

There is a major skill gap existing in India as less than a quarter of graduates are estimated to be employable in manufacturing (Planning Commission, 2011). Workers trained under vocational education and training (VET) system often require significant on-the-job training (World Bank, 2009). On the supply side there are very few quality institutions produce highly-skilled graduates for the rapidly growing economy. India to become major manufacturing country government has to invest heavily on quality education and skill development. Government should make efforts to build skills among the large population of minimally educated workforce, establish industry training institutes in the form of public-private sector

partnerships to provide relevant vocational and skill training, create additional polytechnic institutes focused on delivering higher education in vocational or technical subjects and develop targeted training and development for the general management and technical supervisory level.

Conclusion

India's manufacturing is stagnant for long time as the policy environment is constraining its growth. But India possesses inherent strength in manufacture led rapid economic growth. For sustaining high economic growth trajectory and to provide large scale employment expansion of manufacturing sector is vital. Rising cost of production in china leaves some of the low cost manufacturing to India to take advantage of as the cost of labour in cheaper in India. Massive expansion of infrastructure, creation of skilled human resource and reforms in labour laws are most urgent for reviving India's manufacturing sector. Manufacturing sector is getting the attention it deserves from the present government and this sustained for long time India is poised to become the manufacturing hub of the world.

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