

Reversing Pre-mature Deindustrialization for Jobs Creation: Lessons for 'Make-in-India' from Experiences of Industrialized and East Asian Countries

Nagesh Kumar

Discussion Paper # 208



RIS

Research and Information System
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Reversing Pre-mature Deindustrialization for Jobs Creation: Lessons for ‘Make-in-India’ from Experiences of Industrialized and East Asian Countries

Nagesh Kumar*

Abstract: This paper presents new evidence on pre-mature deindustrialization being witnessed by India in terms of rising share of imports in final consumption. Given the compulsions of creation of jobs for 12 million who join the workforce every year, the paper finds Make-in-India as a timely initiative needed to harness the direct and indirect job-creating potential of manufacturing. It then reviews lessons from the experiences of industrialized and East Asian countries in building industrial capacities through strategic interventions that may be relevant for India as it seeks to build its manufacturing sector

Introduction

For a country undergoing youth bulge in its demographic transition such as India, with nearly 65 per cent of its population in the working age group, creation of adequate and productive jobs for nearly 12 million people who join the workforce every year is one of the most pressing development policy challenges. However, the employment elasticity

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of growth has been falling constantly since the turn of the century. Nayyar (2014) has highlighted the importance of jobs creation for sustaining growth itself and for reducing inequalities. The issue of job creation is linked with the nature of technological change and structural transformation that a country experiences and productivity trends. It would appear that India has had a dramatic structural transformation in terms of declining share of agriculture in GDP but it has bypassed industry in general and manufacturing in particular. While the services sector has contributed to India's dynamism over the past decade, it could not pull people out of low productivity activities in agriculture leaving it to sustain nearly half of India's workforce. Far from industrializing, we find evidence that India has witnessed a pre-mature de-industrialization with rising dependence on imports in final consumption, corroborating earlier observations, using different methodology and data sources.

The history corroborates that few countries if at all have attained prosperity without industrialization (Kaldor 1967). In that context, the launch of Make-in-India campaign by the Prime Minister of India in 2015 that seeks to exploit the potential of manufacturing for India's development is timely. The Make-in India campaign is also consistent with the objectives of the Agenda 2030 on Sustainable Development adopted at the United Nations Summit in September 2015 comprising 17 Sustainable Development Goals that recognizes the transformative potential of industry and seeks to enhance the share of the sector in employment and GDP (SDG-9.2). Industrialization through manufacturing is also critical for SDG-8 on accelerating growth and productive jobs creation.

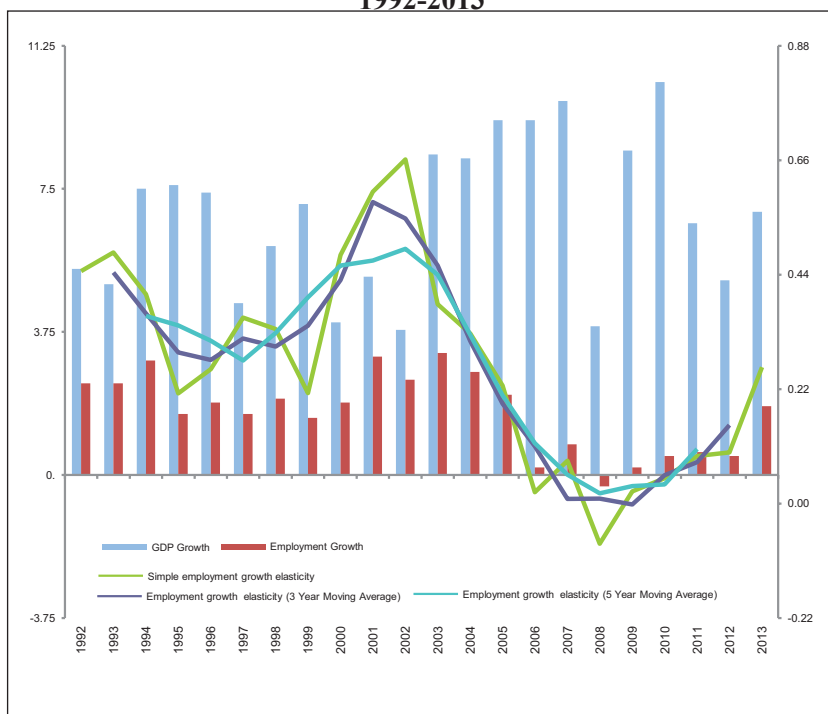
It is in this context that this paper reviews the compulsions for building manufacturing sector in India. It would then review the challenges faced in that process and will make a compelling case for public intervention for fostering industrial development. It will review the experiences of East Asian countries to draw lessons for India for building productive capacities through extensive public interventions in their process of industrialization. It will conclude with some lessons for policy.

Structural Transformation, Vertical Linkages and Jobs Creation

Employment growth not keeping pace with growth rates of GDP in India has been an acknowledged fact resulting in declining employment elasticity of growth process particularly since the turn of the century (Figure 1). The employment elasticity of growth could decline as a result of labour saving technological innovations or capital intensive or automated modes of production. However, a more important determinant of employment creation is the nature and speed of structural transformation that an economy is going through. Indian economy has indeed gone through a substantial structural transformation with the share of agriculture in GDP coming down dramatically from over 50 per cent to under 15 per cent over the post-Independence period. This has been accompanied by share of services nearly doubling from 30 per cent to nearly 60 per cent. However, the industry has been bypassed by the structural transformation with the share of manufacturing and other industries stagnating and even declined after peaking around 1995 (Figure 2). The services-oriented structural transformation has given to India robust economic growth rates but could not provide adequate jobs commensurate with its nearly 60 per cent share in GDP absorbing only about a quarter of the workforce (Aggarwal and Kumar 2015). This lopsided structural transformation has led to agriculture supporting nearly half of the workforce with about 15 per cent share of GDP reflecting their low productivity. Neglect of industry especially manufacturing has cost the country in terms of creation of productive jobs for nearly 12 million workers that join the workforce every year especially because the manufacturing sector has the highest backward and forward linkages of any productive sector (see Figure 3). Hence, its potential of creating direct and indirect jobs remained underexploited. It is its potential to create jobs and contribute to sustainable prosperity that industrialization has been included in the SDGs. The SDG target 9.2 seeks to raise share of industry in GDP, doubling for LDCs. India has one of the lowest share of manufacturing sector in GDP among key Asian countries (Figure 4).

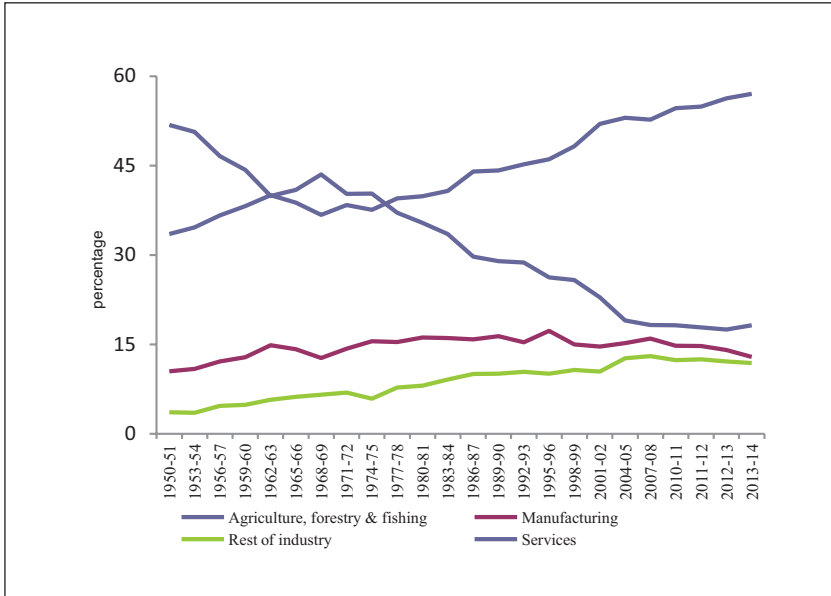
Compared to the East Asian average of around 30 per cent, the share of manufacturing in India is under 15 per cent. It has declined slightly over the years after peaking in the mid-1990s. Therefore, the SDG target for doubling of industry's share in GDP for LDCs is very relevant for India. The deceleration of manufacturing growth started around 2007 (Figure 5).¹ The deceleration of manufacturing growth has been largely responsible for India's inability to reach the 9.5 per cent rate of growth of GDP achieved during 2003-08 period.

Figure 1: GDP and Employment Growth and Elasticity in India, 1992-2013



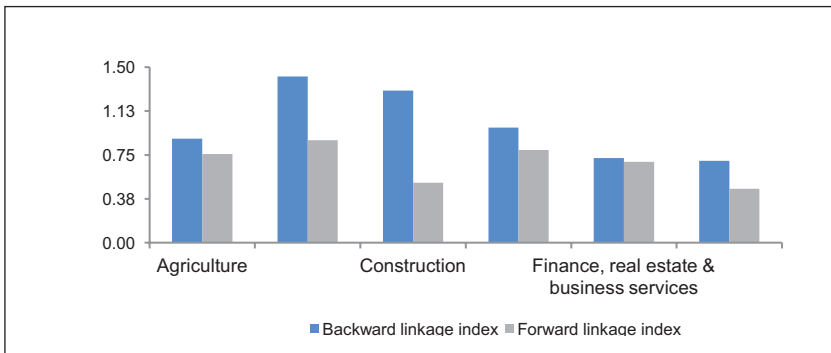
Source: Based on UNESCAP Statistical Database. Available from <http://www.unescap.org/stat/data/statdb/DataExplorer.aspx>

Figure 2: Shares of Agriculture, Industry and Services in GDP, 1951-2014



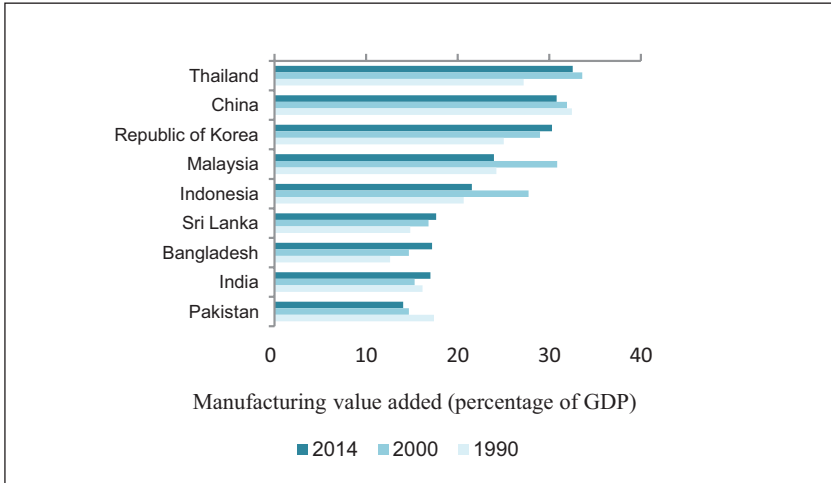
Source: National Accounts Statistics, Ministry of Statistical Planning and Implementation, India

Figure 3: Backward and Forward Linkages Generated by Productive Sectors in India based on Input-Output Tables



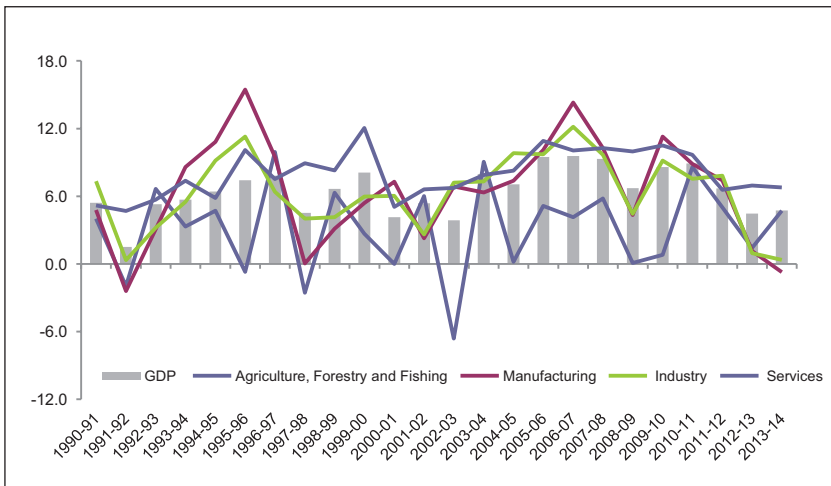
Source: Based on Bose and Kumar (2016).

Figure 4: Share of Manufacturing in GDP of Select Asian Countries



Source: Based on the World Development Indicators database, World Bank.

Figure 5: Growth Rates of GDP and Major Productive Sectors, 1990-2014



Source: CEIC database based on National Accounts Statistics, CSO, India.

Pre-Mature De-industrialization and ‘Hollowing-Out’ of Indian Manufacturing: Role of Liberalization and Currency Appreciation

Has India been de-industrializing prematurely? To examine this question, we analyzed the trends in share of imports in final consumption in India across broad sectors using Input-Output Tables for 2001-2011 period obtained from the World Input Output Database (WIOD) created at the Groningen University (see Timmer et al 2015). The analysis summarized in Table 1 shows a sharp rise in share of imports in final consumption over 2001-11 period particularly in Electrical and Optical Equipment (from 20 per cent to 52.2 per cent), Machinery, n.e.c (from 5.9 per cent to 15.1 per cent), Transport Equipment (from 0.5 per cent to 4.7 per cent), Other Non-Metallic Minerals (8.3 to 37.1 per cent). The rising share of imports in final consumption or import dependence would tend to corroborate de-industrialization taking place in India at least in select sectors with the declining dependence on local manufacturing.

The finding of de-industrialization in India is consistent with a number of studies that have found that the process of de-industrialization happening in developing countries (see Dasgupta and Singh 2006; Felipe, Mehta and Rhee 2014; Amirapu and Subramanian 2015; Rodrik 2015). These studies have generally attempted to capture the extent of de-industrialization in terms of declining share of manufacturing employment in total or manufacturing value added in GDP, however, have reached a similar conclusion as here using the import dependency of final consumption. In particular, Amirapu and Subramanian (2015) report strong evidence of de-industrialization in India.

That the share of manufacturing begins to decline after a certain level of per capita income is reached as services begin to attain a greater prominence, as happened in most of the industrialized countries, has been a stylized fact. However, de-industrialization happening in developing countries is an issue that warrants attention. Rodrik (2015) in particular found de-industrialization to be happening pre-maturely in most African, Latin American and Asian countries and only manufacturer exporters in Asia escaped this phenomenon. Rodrik also finds the turning point to be at around US\$ 5500 (in 1990 prices) per capita levels.

Table 1: Share of imports used in final consumption expenditure in major industry groups, 2001-2011

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Mining and Quarrying	7.1	8.4	9.0	10.9	12.3	13.5	14.4	14.7	16.7	20.3	17.5
Food, Beverages and Tobacco	0.5	0.4	0.3	0.5	0.7	0.9	0.9	0.8	1.0	0.9	0.7
Textiles and Textile Products	5.4	2.2	2.3	1.8	2.0	2.3	2.7	2.6	1.8	2.0	2.4
Leather, Leather and Footwear	4.3	3.3	3.3	3.5	3.8	5.1	4.7	4.6	3.2	3.9	4.5
Wood and Products of Wood and Cork	11.1	4.5	6.4	15.4	20.9	12.6	11.1	15.1	16.0	22.5	19.5
Pulp, Paper, Paper , Printing and Publishing	8.7	8.6	6.3	7.3	8.5	10.7	9.9	4.3	3.3	3.9	3.8
Coke, Refined Petroleum and Nuclear Fuel	7.3	8.7	8.9	8.8	9.1	8.5	8.6	8.0	3.0	2.8	3.2
Chemicals and Chemical Products	10.4	12.2	12.0	12.6	12.1	15.4	16.7	11.7	18.4	15.3	15.4
Rubber and Plastics	7.2	7.0	8.1	9.7	10.8	11.5	11.9	10.7	9.7	10.8	11.2
Other Non-Metallic Mineral	8.3	3.8	3.6	8.7	19.6	9.7	10.2	35.1	29.7	34.1	37.1
Basic Metals and Fabricated Metal	4.3	2.0	3.1	5.5	7.6	6.5	6.4	7.1	8.1	10.1	9.4
Machinery, n.e.c.	5.9	4.1	6.6	8.2	9.4	8.9	9.4	11.5	12.7	14.8	15.1
Electrical and Optical Equipment	20.0	15.2	18.0	32.6	21.4	49.5	39.8	23.8	58.1	49.1	52.2
Transport Equipment	0.5	0.5	1.1	1.2	2.3	2.7	4.7	8.0	4.9	4.1	4.7

Manufacturing, Nec; Recycling	86.0	43.4	49.1	71.3	84.2	81.2	80.6	82.7	80.5	84.6	84.0
Electricity, Gas and Water Supply	0.1	0.0	0.1	0.1	0.1	0.5	0.5	0.5	0.4	0.3	0.3
Construction	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Total manufacturing	8.1	4.9	4.9	6.9	8.1	7.9	7.9	8.5	9.4	11.1	10.4

Source: Author's computations from Input-Output Tables of India available in the World Input-Output Database. Available from http://www.wiod.org/new_site/database/niots.htm

Factors Explaining Pre-mature De-industrialization

In India's case, the de-industrialization has begun much more prematurely compared to other countries and it is important to examine the possible factors responsible for it. Infrastructure deficits, land acquisition challenges and high cost of capital due to monetary tightening may be responsible for deceleration of growth of manufacturing in India over the past decade. Amirapu and Subramanian (2015) blame it on inappropriate specialization on skill intensive industries in which India did not possess comparative advantage. However, by now many countries have successfully gained comparative advantage in newer industries through strategic interventions by the development state. These include Republic of Korea developing a competitive steel industry and other modern industries or Brazil building a competitive aerospace industry. India herself is known for building a comparative advantage in generics pharmaceutical industry and emerging as a global leader. The comparative advantage can thus be acquired.

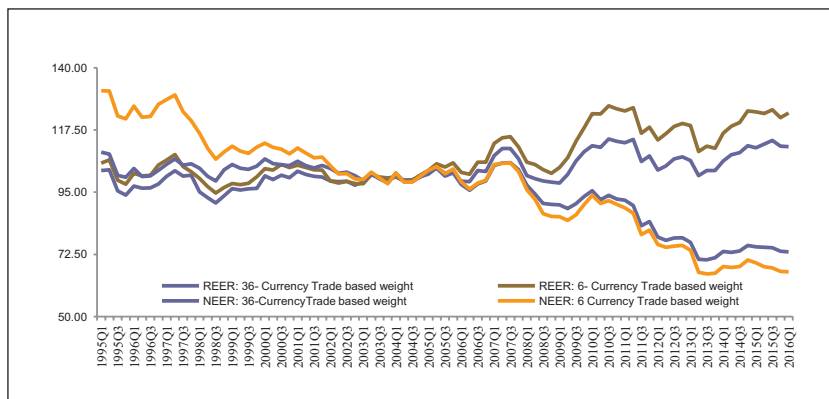
A more important role in deindustrialization in India seems to have been played by import liberalization and exchange rate movements. India has undertaken reforms to liberalize the trade regime since 1991. Although tariffs have been brought down gradually ever since 1991, liberalization began to bite particularly since 2000 when the quantitative restrictions on imports and performance requirements such as local content requirements were withdrawn. The Information Technology

Agreement (ITA) 1996 of WTO as a signatory of which India eliminated custom duties on imports of final IT products also adversely affected the domestic manufacturing of electronic hardware. ITA (and some bilateral FTAs with the East Asian countries) led to removal of tariffs on the imported finished goods but the inputs and raw materials for local manufacture continued to remain subject to duties and taxes, thus eroding their competitiveness. This is consistent with Rodrik (2015) who argues that while technological progress can explain de-industrialization in the advanced countries, trade and globalization have played a bigger role in de-industrialization of developing countries. Santos-Paulino and Thirlwall (2004) in an empirical study using a panel of 22 developing countries from across the continents has found trade liberalization leading to import growth much higher than export growth that has worsened the balance of payments situation, and have made a case for careful sequencing of liberalization of exports and imports.

In India's case, another and perhaps more important factor seems to be real appreciation in the exchange rate of Indian rupee particularly since 2004 (Figure 6) which has prompted outsourcing of manufacture by Indian companies in order to save costs. The outsourcing has been practiced widely by a number of Indian companies owning well-known brand names to get their products manufactured in other countries, mainly China, and continue selling them under their brand names. Outsourcing of production was practiced even for a number of home electrical and electronic appliances that tend to be price sensitive like electric fans, toasters, mixer-grinders, juicers, wall clocks, TVs, refrigerators, airconditioners etc. This also explains a sharp rise in import dependence in final consumption in Electrical and Optical Equipments from 20 to 52 per cent in just a decade as observed in Table 1. Rising import dependence of consumption in India especially through outsourcing of production abroad is akin to the phenomenon observed in Japan that has been described as 'hollowing out' of Japanese manufacturing (Horaguchi 2004). While in Japan, such hollowing out was caused by labour scarcities, in India, at the other end of labour abundance, outsourcing of production was

leading to widespread loss of jobs and potential jobs that could have been created to produce home appliances, manufacturing of which tends to be labour intensive.

Figure 6: Movements in Nominal and Real Effective Exchange Rate of Indian Rupee



Source: RBI (2016) *Database on Indian Economy*, RBI.

Indian rupee has tended to appreciate despite widening trade deficits due to increasing short terms capital inflows coming to Indian capital markets to make quick returns. In 2007/8, just before the onset of the global financial crisis, Indian economy received FII inflows of US\$ 28 billion (Kumar 2014).

Rebuilding Competitive and Sustainable Manufacturing Sector in India: Lessons from Experiences of Industrialized and East Asian Newly Industrializing Countries

The foregoing discussion has underlined the fact that Indian economy has not been able to harness the potential of manufacturing for its development and has in fact been de-industrializing prematurely. In the context of the compulsions to create productive jobs, India has to

reverse the process of de-industrialization and exploit the opportunities for establishing manufacturing plants within the country. In that context, the recent Make-in-India campaign launched by the NDA Government in 2015 is timely and relevant. Services acted as the engine of growth over the past fifteen years, manufacturing needs to drive economic growth over the next fifteen years to help achieve SDG targets regarding growth, jobs and industrialization. As Kaldor (1967) has argued persuasively, growth of manufacturing will not only drive economic growth but will also enhance productivity of the economy overall with increasing returns to scale which could be dynamic in nature. Industrialization has been an engine of economic transformation all across the world. As Kaldor argued, with the exception of Australia, New Zealand and Canada, no country has grown rich without relying on manufacturing. Similar assertions on criticality of manufacturing have been made by Stiglitz, Lin and Patel (2013) and Salazar-Xirinachs, Nubler and Kozul-Wright (2014).

Import-Substitution versus Export-Promotion

Traditionally, import substituting (IS) industrialization and export-oriented (EO) industrialization are considered as two alternative routes to build manufacturing industries. India pursued IS route in the period upto 1990. Even though it is generally believed that the East Asian countries pursued EO route to industrialization (World Bank 1993), they have actually pursued a strategy having elements of both IS and EO simultaneously to harness the economies of scale required to be competitive in international markets.

In any case, in the context of slowdown of the global economy as at present, an EO-based strategy can be challenging given an environment of excess capacities throughout the Asian and the Pacific regions, the growing threat of protectionism in the industrialized countries, and the temptation of dumping by those with deep pockets. In such circumstances, it might also be critical to look at new opportunities for strategic import substitution. As observed earlier, India has high levels of import dependence in a number of sectors such as electrical, electronics and

optical equipment, non-electrical machinery, and defence equipment, among others that provide opportunities for strategic import substitution. Annual imports of electronics imports themselves are of the order of US\$ 40 billion and are growing rapidly with projections of US\$ 400 billion of imports by 2025. Similarly India is importing around \$ 30 billion of non-electrical machinery, \$ 15 billion of transport equipment, \$ 30 billion of chemicals and artificial resins, project imports of around \$ 10 billion and around \$ 15-20 billion of defence equipment. An effort needs to be made to start domestic manufacture of these products. An ESCAP study analyzing opportunities for building productive capacities in South Asia using product space maps also found opportunities for strategic import substitution in India (Freire 2012). As in the East Asian countries, the focus of manufacturing industries should be on exploiting the economies of scale and competitiveness so that they could survive in domestic and international markets. The biggest opportunity for India for *make-in-India* is *making-for-India*, leveraging its large domestic market. It goes without saying that the competitive manufacturing plants exploiting scale economies would also be able to tap opportunities that may arise in the international markets.

Rationale for Public Intervention for Industrial Development

In the foregoing analysis, a compelling case has been made for switching over to a manufacturing-led growth especially to harness its higher potential of direct and indirect job-creation. However, building the competitive manufacturing capacities does not happen in a vacuum and often requires considerable hand-holding and interventions by government playing the role of a development state. Collectively these interventions are called industrial policy, a term which has become fashionable again across the world including in industrialized world after falling out of favour for a while (*The Economist* 2010; Stiglitz et al. 2013; Salazar-Xirinachs, Nubler and Kozul-Wright 2014). Wade (2014) highlights how industrial policy has been revived in the US, otherwise a strong proponent of trade liberalization in multilateral trade negotiations.

The case for state interventions has continued to be made in the theoretical literature at regular intervals. The argument for infant industry protection had been around for very long time since List (1909) and was used to justify high tariff barriers imposed in the US in its period of industrialization, as documented by Chang (2002). Infant industry protection later on was used to justify incorporation of chapter on trade and development in the General Agreement on Tariffs and Trade in the 1960s. The literature on the Developmental State has documented extensive state intervention for industrialization employed in the East Asian countries (Johnson 1982). Strategic Trade Theory has also justified state intervention that can be welfare enhancing shifting profits from international to domestic firms under certain conditions (Brander and Spencer 1985). More recently the New Structural Economics has justified state intervention for building industrial capabilities (Lin 2012).

The need for state intervention arises from the inability of markets to give the correct investment signals in enabling the technological capacity of new industries, when there are high and uncertain learning costs and high levels of pecuniary externalities (see Kumar and Gallagher 2007 for a review). For many reasons including weak capital markets, restrictive intellectual property laws, lack of information, poor coordination, imperfect competition and the need for scale economies, under-investment in technologically dynamic sectors can occur (Arrow, 1962; Nelson and Winter, 1982; Lall, 2005). Historically, to address these market failures, governments have encouraged joint ventures and technological transfer agreements with foreign firms to foster technological capabilities of domestic firms. Firms may under-invest in the training of their workers because of fears of high labor turnover (Rodrik, 2003). Besides investing heavily in skill development, higher education and funding and subsidizing research and development (R&D) activity, they have encouraged knowledge spillovers through vertical inter-firm linkages. Intellectual property rights have been loosened to facilitate absorption of spillovers of R&D activity of foreign firms. Technological and industrial upgrading has been fostered through

government procurement, export subsidies, subsidized capital and tariff protection. History is rich in lessons of strategic interventions employed by industrialized as well as newly industrializing countries in the process of their industrialization, as documented extensively in the literature (Amsden 2001, Lall, 2005; Wade 2003, Chang 2002, Kumar & Gallagher 2006, among many others). The strategic interventions that may be relevant in India's case include as follows.

(i) Privileged Access to Domestic Market

For manufacturing plants to have higher productivity and competitiveness, it is important that they are able to exploit scale economies. To enable domestic firms a privileged or preferential access to their national markets to enable them to reap economies of scale, governments have employed a variety of interventions. These include high tariffs and non-tariff barriers to protect local manufacturing from imports. Although industrialized countries today are champions of trade liberalization in multilateral trade negotiations, it is interesting to see how tariffs have been used as a tool of development policy by most of the developed countries in the early phases of their development. European countries, the US and Japan have employed high tariffs extensively to protect their infant industries in the early phases of their development and liberalized their trade regimes only when their industries gained competitiveness. Thus, 'Britain was protectionist when it was trying to catch up with Holland. Germany was protectionist when trying to catch up with Britain. The United States was protectionist when trying to catch up with Britain and Germany, right up to the end of the World War II. Japan was protectionist for most of the twentieth century up to the 1970s, Korea and Taiwan to the 1990s' (Wade 2003). Protectionism in the developed countries has not been limited to only the pre-War period. Most of the developed countries adopted the Multi Fibre Agreement (MFA) that enabled them to impose quantitative restrictions on imports of textiles and clothing. The MFA quotas have finally been phased out under the WTO's Agreement on Textiles and Clothing (ATC), by 31 December 2004. However, industrialized countries

continue to employ high peak tariffs on select labour intensive products such as textiles and clothing, leather goods, among others. The incidence of contingent protection e.g. anti-dumping duties, on these products is also very high.

The East Asian countries have emulated the industrialized countries in their own process of industrialization. Chang (2002) highlights the role that protection has played in emergence of Hyundai, POSCO among other enterprises in Republic of Korea as world's leading enterprises in their respective industries. Malaysia has protected Proton with high tariffs on imported cars ranging upto 300 per cent and had resisted the liberalization of tariffs under ASEAN Free Trade Agreement. Nearly full access to domestic market enabled Proton to grow to competitive scales and even export its vehicles to 26 countries. Similarly NTBs have been employed extensively and have included different unique and stringent standards (as Japan setting its electric current at unconventional 100 volts), registration requirements as on pharmaceutical imports in China, among other barriers. WTO's SPS and TBT Agreements allow countries to impose standards and other requirements to protect human health and environment which have been used extensively to deter foreign competition to protect the fledgling domestic industry.

Therefore, a privileged access to domestic market to local producers through tariff and non-tariff barriers could enable them to reap scale economies. India has maintained wide space between bound and applied tariffs for most industrial products. However, given the liberalization commitments within the framework of bilateral and regional FTAs, NTBs provide more viable options for building manufacturing capacities and allowing them to grow to a certain scale before being exposed to competition.

In order to prevent rent seeking behavior of domestic enterprises provided protection, the East Asian countries normally fostered domestic competition while protecting them from external competition, for

instance, between Toyota and Honda, or between Sony and Panasonic, between LG and Samsung, or Hyundai and Daewoo. Also the protection can be for a limited period and phased out gradually as the domestic capacities become well entrenched.

(ii) Government Procurement for Supporting Domestic Production

A number of developed countries have used government procurement as a policy tool to foster deepening and diversification of domestic industrial structure. The U.S. government adopted the Buy American Act in 1933 that mandates preference for the purchase of domestically produced goods over foreign goods in U.S. government procurement. The provisions of the Act have also been used as local content requirements (LCRs). For instance, in order to qualify as domestic product to claim a 25 per cent price preference under the Buy American Act, a Hungarian manufacturer of buses had to buy US made engines, transmissions, axles and tyres (Krugman and Obstfeld 2000:205). EU also has provisions for minimum local requirement and preference for European firms in government procurement (Corrales-Leal and Sugathan 2003). A number of countries including developed countries like Switzerland impose offset requirements in government procurements especially of defence equipment where the exporters have to undertake obligations to import or outsource a certain proportion of the value of exports from the importing country. India has recently started to use some local content or offset requirements in its defence procurements. However, a recent ruling by the WTO dispute panel against India's domestic content requirements under its solar energy mission shows that some of the multilateral trade rules need to be reviewed to recover policy space eroded in the Uruguay Round under TRIMs agreement.

(iii) Performance Requirements on Foreign Enterprises and Proactive FDI Promotion

The WTO Agreement on TRIMs (Trade Related Investment Measures)

has taken away the ability of governments to impose some types of performance requirements on foreign investors. Among the specific types of performance requirements (PRs), local content requirements have been employed by most of the developed countries at one time or other for deepening their industrial structure (Kumar 2003). In particular, governments have employed LCRs in auto industry to promote backward integration and localisation of value added activities. For instance, when Ford Motor Company took over a minority stake in the UK in 1960, ‘a string of conditions on exports, earnings retentions, employment and import policies were imposed’ (UNCTAD 2003: 266). Countries like Australia, Canada, France, Japan, among others, have made extensive use of PRs.¹⁷ Australia (and New Zealand) imposed 50 per cent domestic ownership requirements in natural resource projects, and also employed offsets policy under which larger government contracts required new domestic activity of 30 per cent of their import content. Canada enacted a Foreign Investment Review Act (FIRA) in the early 1970s by means of which an extensive set of PRs (called undertakings) were imposed to ensure the reaping of ‘significant benefit’ by Canada from the operations of FDI (UNCTAD 2003). Japan also imposed PRs at the time of approvals depending upon the contribution to technology development, exports or import substitution, competition to Japanese industry, 50 per cent foreign ownership and required the president of the joint venture to be a Japanese (UNCTAD 2003). Thailand has emerged as the third largest exporter of automobiles in Asia and the Pacific by using performance requirements on Toyota and Honda by initially imposing LCRs to deepen production linkages and once integrated production bases developed, to impose export performance requirements to virtually turn these facilities into global sourcing hubs for certain models (Kumar 2005). India’s emergence, for instance, as a competitive exporter of auto parts in recent times owes to a particular strategic intervention by the government in the form of an erstwhile performance requirement that required foreign-owned companies to balance imports by foreign exchange earnings (Kumar 2005). While some performance requirements such as LCRs

have been outlawed by WTO's TRIMs Agreement, others like export performance requirements can still be imposed by host governments. Again there is a case for a review of TRIMs Agreement for retrieving the policy space by developing countries in the context of their SDG commitments (Correa and Kumar 2003). Quantitative studies have found a trade-off between quantity and quality of FDI in terms of effect of performance requirements. While performance requirements may affect the quantity or magnitude of FDI adversely, the quality of those that come in terms of their depth and vertical integration, export-orientation and R&D activity improves (Kumar 1998, 2000, 2002).

Proactive targeting which involves inviting MNEs to undertake certain investment proposals on the basis of agreed parameters could also be a useful tool for attracting the right kind of investments, as demonstrated by the case of Maruti-Suzuki joint venture in India.

(iv) Investment and Export Incentives

Under the WTO Agreement on Subsidies and Countervailing Measures (SCM) many possible subsidization measures such as export subsidies and investment incentives have been phased out except for low income countries with a per capita income upto US\$ 1000. However, investment incentives and subsidies have historically been widely practiced in developed countries to give to their enterprises a competitive advantage. Examples include large sums of subsidies doled out to investors by governments in developed countries to industrial enterprises such as US\$ 484 million given to Ford in Portugal in 1991 for creating 1900 jobs or \$ 300 million to Mercedes-Benz in Alabama in 1996 for creating 1500 jobs (Kumar and Gallagher 2007). The billions of dollars or euros given as subsidies to Boeing and Airbus by the US Government and the EU countries are well known. The European governments have been giving the so-called 'launch aid' to Airbus while Boeing gets huge subsidies from the US government for R&D projects. The aircraft subsidies dispute has been one of the biggest feuds at the WTO dispute settlement. Another dispute running at the WTO dispute settlement concerned the policy of

the US Government to pass on the anti-dumping duties collected from the foreign exporters to the US enterprises under the Byrd Amendment, that has since been deemed illegal by the WTO. WTO has also deemed illegal the subsidies given to exporters under the Foreign Sales Corporation Act totalling US\$ 4 billion annually on the basis of a complaint brought by the EU.² Developed country governments also assist their exporters through export credits extended to importing countries tied to imports from them. Reportedly the developed country export credit agencies had outstanding guarantees of US\$ 500 billion in 2000 to their firms in developing countries and had issued US\$ 58 billion worth of new export credits for goods and services exported by their firms. The European Community Structural Funds consist of over 540 programmes including areas such as agriculture, R&D, industry, among others, besides several regional funds such as European Regional Development Fund, European Social Fund, the European Agriculture Guidance and Guarantee Fund. The EU has allocated a total of euro 347 billion placed at the disposal of the Structural Funds for the period 2007-13, making them the largest share of total EC budget.

The East Asian countries have supported their industrialization through various kinds of subsidies. Republic of Korea has directed subsidized credit to the chaebols or their national champions in their formative years. Chinese government has been offering a variety of subsidies and incentives including subsidized infrastructure in the special economic zones. Malaysia offers a range of incentives to manufacturing enterprises under its pioneer industry programme. India's Biocon Ltd has been lured by the pioneer industry incentives to locate a billion dollar insulin plant in Malaysia. In the early post-Independence period, India had also established term-lending institutions to support industrialization by providing long-term capital viz. the Industrial Development Bank of India (IDBI), the Industrial Finance Corporation of India (IFCI), and Industrial Credit and Investment Corporation of India (ICICI). However, over time, as capital markets developed, two of them have moved on to become full scale retail banks (ICICI Bank and IDBI) and IFCI has

turned its attention to infrastructure financing (Nayyar 2015, Kumar 2016b). However, the Government has recognized the importance of providing directed credit to industry and has started MUDRA and Stand-Up programmes to SMEs and the start-ups recently.

(v) Infrastructure Support

A number of countries have supported their industrialization by providing infrastructure support by investing in development of social and physical infrastructure such as development of transport corridors passing through lagging or backward regions. Others have been more proactive and have invested more directly by building industrial infrastructure such as special economic zones, technology parks, and industrial estates which are often offered to prospective entrepreneurs at subsidized or nominal prices. China has fostered its industrialization by establishing special economic zones (SEZs) in coastal areas and by investing in physical infrastructure development all across the country. In addition, provincial and local governments in China also offer a variety of support to potential entrepreneurs including subsidized land and utilities to attract investments. By lowering the initial set up costs, such industrial infrastructure can incentivize and facilitate rapid industrialization.

(vi) Supporting Technological Development and R&D Activity for Sustainable Products

In order to retain and further sharpen the technological edge of their corporate enterprises, governments of industrialized countries have been supporting the technological activities of national enterprises through a wide variety of government-industry complexes and direct and indirect subsidies and tax breaks. In the US, the federal government accounted for \$125.7 billion, or 30 per cent, of U.S. total R&D in 2011, a substantial part of this funding was to support directly or indirectly the activities of US firms.³ The governments in France, Germany, the U.K. and the US, for instance, accounted for 48.8, 37, 34, and 47 per cent respectively of total gross R&D expenditure in their countries with a

substantial proportion of the funding directly going to business enterprises (Kumar and Siddharthan 1996 for more details). In the EU, the national programmes for supporting corporate R&D are complemented by the European Union's Framework Programmes for subsidising corporate R&D to the tune of 50 per cent. The Eighth Framework Programme (FP8) (2014-2020) had a budget of Euro 80 billion.

Among the East Asian countries, in Republic of Korea the government was spending 0.42 per cent of GDP in directly or indirectly supporting business R&D, the highest in OECD countries.⁴ With respect to learning in private firms, East Asian tigers—like developed countries before them—also spent a great deal of effort providing education and training to their people. This was done by spending a significant amount of funds on education (including providing scholarships to obtain PhDs in developed countries), clustering schools in export processing zones, requiring that foreign firms hire nationals and train them on the job, and subsidizing training programs in domestic firms (Kim and Nelson, 2000; Amsden, 2001).

Strengthening the enterprise level innovative activity assumes a greater criticality in the context of sustainability considerations for the future manufacturing activity in terms of intensity of products in terms of energy, natural resources, and emissions. Given the international commitments undertaken by India under the Paris Agreement, carbon intensity of the production will have to decline progressively. Growing environmental consciousness among consumers within the country and in export markets will increasingly put a premium on greener products. Only through investment in innovative activity focused on sustainability can the enterprises stay in competition. Heavy subsidization of enterprise level R&D activity by governments in industrialized and newly industrializing countries directly and indirectly puts them at an advantage vis-à-vis others.

Indian government has been providing tax incentives to enterprises to encourage corporate R&D activity. However, it has been argued that

a more direct subsidization may yield greater benefits in select strategic sectors in terms of sharpening the competitive edge of Indian enterprises (Kumar and Aggarwal 2005). Under WTO's Agreement on Subsidies and Countervailing Measures, subsidization of upto 50 per cent of precompetitive R&D expenditure is non-actionable.

An important strength of Indian enterprises, now recognized worldwide, has been their frugal engineering capability emanating from their experience in serving a market where the volumes lay at bottom of the income pyramid. This frugal engineering capacity has led to development of some of the cheapest products and processes anywhere in the world ranging from generic pharmaceuticals and vaccines, automobiles, home appliances, medical diagnostic equipment, among others. This capacity can be harnessed to develop greener and more affordable products that can become a source of competitive advantage in the era of sustainability. The R&D incentives and subsidies could be directed to harness this frugal engineering capacity of Indian enterprises.

(vii) TRIPs and Intellectual Property Protection Policy

There is extensive evidence suggesting that the developed countries of today have used lax intellectual property rights to absorb spillovers of innovative activity in other countries during the process of their industrialization. They started demanding stringent IPR standards from others after emerging as the source countries of innovations to provide monopoly rights to their enterprises to exploit the inventions. The US is a typical case in this regard. The US has been seeking to strengthen IPR protection through bilateral negotiations and through unilateral sanctions under the Super 301 Priority Watch Lists before using multilateral trade negotiations in the Uruguay Round to harmonize the IPR protection under the TRIPs Agreement. However, history suggests that the US has followed a discriminatory IPR regime in its period of industrialization. Between 1790 and 1836, as a net importer of technology, the US restricted the issue of patents to its own citizens and residents. Even in 1836, the patents' fees for foreigners were fixed at ten times the rate for US citizens (CIPR 2002).

The East Asian countries such as Japan have similarly used extensively, weak IPR regimes to facilitate absorption of foreign inventions and did not recognize product patents until mid-1970s. Republic of Korea did not have product patents till mid-1980s to facilitate absorption of innovations of others (Kumar 2009). India herself has benefited from soft IPRs in building a globally competitive generic pharmaceutical industry that serves as a major sourcing base for affordable medicines and vaccines for developing countries. Although some of the policy space has been eroded under the TRIPs Agreement, yet there are still a number of flexibilities available and can be used for instance, the criteria for patentability and compulsory licensing provisions on account of public health considerations. Furthermore, in order to foster the frugal engineering activity in the context of sustainable and affordable products as discussed above, India may adopt a petty patents regime or utility models that provide a short duration protection to incremental innovations (Kumar 2009). In Japan, petty patents have been used effectively to foster innovative activity of SMEs among other enterprises.

(viii) Competitive Exchange Rates

East Asian countries have widely used managed exchange rates as a tool for fostering industrialization. Japan has extensively used the depreciated exchange rate of yen to boost competitiveness of its exports before the Plaza Accord of 1985. Even in recent times, exchange rate management has been an important component of stimulus policy adopted by the Japanese government. The US sought to depress the exchange rate of dollar through policy coordination among major economies at the Plaza Accord in 1985. The Chinese Government has kept a tight leash on the exchange rate of yuan during 1979-1994 during which a dual exchange rate was maintained, followed by a hard peg during 1995-2005. It has allowed the exchange rate of yuan to move within a narrow band since 2005, as international pressure mounted with growing trade surpluses.

As observed earlier, appreciation of rupee in real terms over the past decade has adversely affected local manufacturing in India encouraging

offshore outsourcing of production. What would serve the cause of local manufacturing is a competitive and slightly depreciating real exchange rate. It is an important challenge for Indian policy makers especially in view of the pressure on the exchange rate to appreciate from the short-term capital inflows attracted by the dynamism and robust macro-fundamentals of India's economy. From that point of view some kind of capital controls in the form of taxes on short-term capital inflows would be fruitful not only in moderating the volatility and upward pressure on exchange rate of the rupee while also generating some revenue.

(ix) RTAs and Preferential Access to Markets

Non-discrimination enshrined in the most-favoured nation (MFN) clause is a bedrock of multilateralism trade regime within the GATT framework. But rules provided an exception from MFN for regional economic integration (REI) (Art. XXIV of GATT) to take care of the exceptional situation of critical interdependence between economies. However, in the 1990s the exception was exploited by developed economies to form a number of groupings, a trend led by the formation of a Single European Market and of the North American Free Trade Agreement (NAFTA), EFTA, and European Economic Space, APEC among others. Major implication of the formation of large trade blocs of 1990s was that a large proportion of world trade began to take place outside MFN, on a preferential basis. This was because of high share of advanced economies in world trade (73 per cent in 1990, 65 per cent in 2000 and 51 per cent in 2012) and a very large proportion of their trade taking place within the region (63 per cent of EU's \$ 5.8 trillion trade was intra-regional; 49 per cent of NAFTA's \$2.37 trillion trade was intra-regional). There was a domino reaction world-wide with MERCOSUR being formed in Southern America, SADC and SACU in Africa, among others. Besides trade diversion, participation in FTAs also influences magnitude and quality of FDI inflows (Kumar 2002). Recently, there has been another fresh trend of formation of mega FTAs of transcontinental type led again by advanced economies that will have major implications for the world trade further eroding the remit of MFN. This trend started

with launch in 2011 of the Trans-Pacific Partnership (TPP) negotiations bringing together US and Japan, Australia and New Zealand, among other countries. It was followed up the launch in July 2013 of the EU-US Transatlantic Trade and Investment Partnership (TTIP) negotiations. The implications of TPP and TTIP, in case they come into force, would be that virtually entire mutual trade of advanced economies –intra-regional as well as interregional-- would be conducted on preferential basis with existing regional blocs (EU and NAFTA) and their new emerging inter-regional trade blocs. Thus they will further erode MFN (Kumar 2016a).

With the bulk of trade of their major trade partners going off the MFN, developing countries like India need to look at the policy options. In any case the advanced economies have been facing an uncertain and subdued economic outlook in a post-global financial crisis phase and the growth rate of world trade has come down dramatically. India has concluded preferential trade agreements with Sri Lanka, SAARC, Singapore, Thailand, ASEAN, Japan and Republic of Korea. India is also part of Regional Comprehensive Economic Partnership of East Asia (RCEP) negotiations that are currently ongoing to evolve a comprehensive trade agreement between ASEAN and its six dialogue partners. RCEP when concluded is poised to become an important regional grouping that shall provide to its members including India a preferential access to a large and dynamic region in Asia and the Pacific. However, India's experience with FTA/RTAs so far suggests that Indian enterprises have not been able to exploit the market access that they gain through these agreements but enterprises from the partner countries were able to get a toehold in the Indian market. The preferential market access obtained by the government through these negotiations is of no use, unless exploited by the Indian enterprises to enhance their exports.

Concluding Remarks

The foregoing discussion has shown that there is a compelling case for strategic interventions for reversing the premature de-industrialization that the Indian economy has faced, particularly to meet the challenge of job creation. In this context there are useful lessons from experiences of

present day developed countries which have extensively employed infant industry protection, industrial policy and performance requirements, soft intellectual property protection regimes, investment incentives and R&D subsidies, government procurement and regional economic integration among other policies in their process of industrialization. Many of these policies have also been effectively and successfully emulated by the newly industrializing economies in East Asia to build internationally competitive modern industries despite the lack of the apparent comparative advantage.

The elements of industrial policy that may be relevant for the contemporary Indian situation could include infrastructure support and help with land acquisition, facilitation of approvals through single window clearances and ease-of-doing business, infant industry protection and pioneer industry programmes, preferences in public procurement, direction of subsidized credit, skill development, among others. Some of these are being addressed within the framework of Make-in-India, Stand-Up India and MUDRA schemes. Maintaining a competitive exchange rate is perhaps most critical in an open economy environment of low tariff barriers for development of manufacturing as demonstrated by the experiences of the East Asian countries. Domestic competition should be fostered in order to prevent rent seeking behavior of domestic enterprises provided protection from external competition. In any case the protection from external competition should be for a limited period and phased out gradually as the domestic capacities get entrenched.

In the world of trade alliances, facilitating strategic access to markets through preferential trade agreements can be an important determinant of development of industry. In that respect, India's participation in the ongoing RCEP negotiations has the prospect of giving to India preferential access to a very large market bringing together Japan, China and ASEAN among other countries and an opportunity to participate in the regional value chains.

Innovation is an important driver of modern manufacturing and competitiveness. Here government support through direct subsidies and through petty patents to enterprises may help to harness Indian strengths in frugal engineering and software design for developing new, more efficient and resource-saving products and processes for domestic and international markets.

Another important tool for developing competitive manufacturing capabilities is to leverage the large domestic market for attracting FDI in manufacturing. The exporters of manufactured goods to India could be pushed to set up manufacturing plants in India through a facilitating regime to serve not only the domestic market but also for global and regional sourcing to take advantage of abundant skilled and low cost labour and scale economies. Performance requirements and proactive targeting could be a useful tool for attracting the right kind of investments. As some of the performance requirements have been outlawed under WTO's TRIMs Agreement, India along with like-minded countries could seek a review of TRIMs Agreement to retrieve the policy space.

Endnotes

- ¹ Nayyar (1978) had observed stagnation in India's industrial growth during mid-1960s and mid-1970s too.
- ² See for details https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds108_e.htm
- ³ See for more details <https://www.nsf.gov/statistics/seind14/index.cfm/chapter-4/c4s1.htm>
- ⁴ See for more details <http://www.oecd.org/sti/scoreboard-2015-interactive-charts.htm>

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