

# China's Manufacturing Success: Lessons for India

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# **China's Manufacturing Success: Lessons for India**

## **ABSTRACT**

This paper attempts to study the conditions under which China's manufacturing sector thrived in the last few decades. We discuss some distinctive policies (such as in decentralisation, foreign direct investment (FDI), special economic zones (SEZ), and infrastructure development) and stress the importance of a policy framework in China's manufacturing success. It follows that India fell short on a number of aspects, and that there is considerable merit in finding lessons in China's success for India. To add topical relevance, we also discuss the recent policy changes in India to boost manufacturing.

Keywords: India, China, exports, policy lessons

JEL classification: F11, F13, F14, F15



## 1 INTRODUCTION

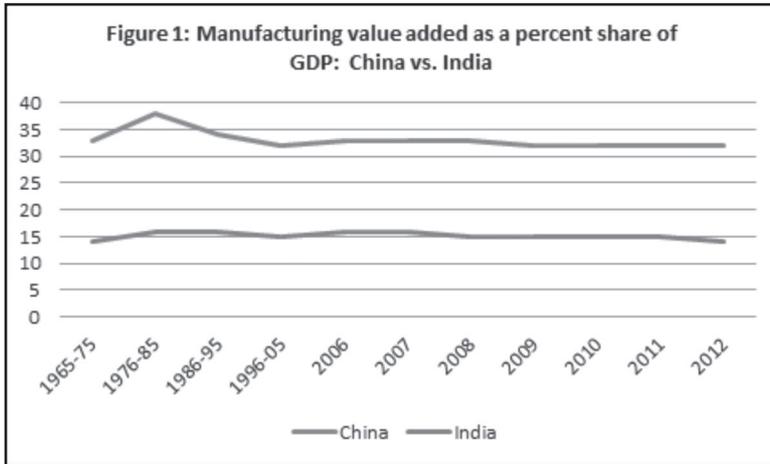
In China, privatisation began to gather steam after 1992, and the private sector surpassed the state sector in share of GDP for the first time in the late 1990s. China's leaders saw great potential in large-scale, low-cost manufacturing, and economic policymaking centred on forming special economic zones (SEZ) and giving foreign firms 'super-national' treatment. In addition, China manually pegged its currency to the dollar at an undervalued rate to provide its exports an edge. In short, it put in place a range of strategic policies to enable its ascent in the world economy, and became the indomitable manufacturing exporter to the world with a massive chest of foreign exchange in a matter of three decades. China accounted for 22.4 per cent of global manufacturing in 2012, while India's share of global manufacturing stands at a little over 2 per cent. The present government in India however has unleashed a set of reforms targeted at boosting the manufacturing sector and encouraging exports after years of neglect in what Sanyal (2014) calls 'India's East Asian dream'. For India to achieve its stated goals of reviving its manufacturing sector and providing jobs to the tens of millions of its unemployed youth, it must design policies targeted at low cost mass manufacturing, and will need massive investment, including major contributions from foreign investors. There are crucial lessons for India in China's success in the manufacturing sector.

This paper looks at the policies that drove China's manufacturing success and draws lessons for India. It starts by looking at the initial stages of reform in China, which focused on the agricultural sector, followed by the turnaround in the economy achieved by town and village enterprises. We then look at big bang reforms undertaken by China, mainly in the form of SEZ and FDI policies, and to a lesser extent China's exchange rate policy. It also looks at the role of the non-resident Chinese in Hong Kong and Taiwan in China's economic development, as also the role of infrastructure development and labour reforms in China, among other things. The objective of this paper is a comparative analysis of China and India's manufacturing sector; therefore, it discusses every aspect of Chinese economic policy that led to its manufacturing success and compares it to the Indian policy context. The most important comparisons are drawn in policies relating to SEZs, FDI, infrastructure, and labour. India and China have fairly similar factor endowments, but there is wide disparity in the performance of their manufacturing sector; this paper is primarily concerned with understanding why.

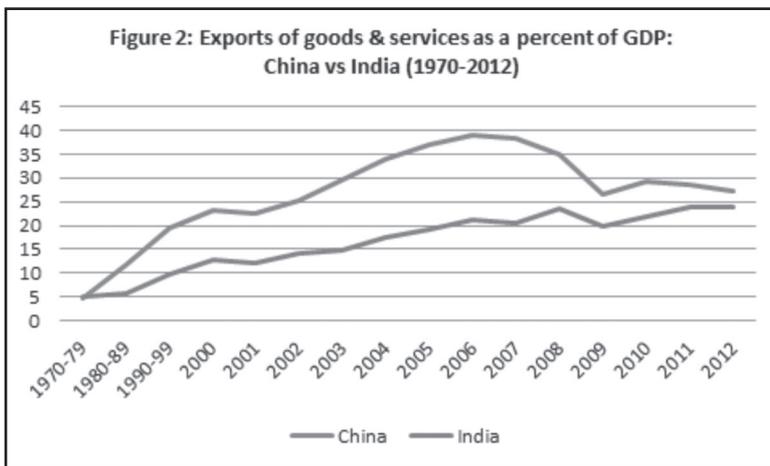
At this stage, it is worth looking at where China and India stand with respect to basic indicators. The share of manufacturing in China's GDP is 32 per cent compared to India's 14 per cent. Importantly, the respective shares of both countries have been fairly consistent in the last several decades (Figure 1).

China's share of exports in GDP has been higher than that of India over the past four decades, and China maintained a substantial lead until the onset of the 2008 financial crisis, when its exports were somewhat hit. For instance, China's exports-to-GDP ratio was 19.56

per cent in the 1990-99 decade as against 9.68 per cent in India. In 2007, China's export of goods and services was 38.4 per cent of its GDP whereas the concomitant share in India was 20.4 per cent (Figure 2).



Rounded off figures; Source: WDI



Source: WDI

The importance of manufacturing sector growth to reap the benefits of 'demographic dividend' and revive India's high growth is well known. The National Manufacturing Policy rightly envisages that the sector's contribution to the GDP should rise to 25 per cent by 2015. Improving the efficiency of the manufacturing sector and its share in GDP will also engender external sector stability through exports of manufactured goods. The emerging country that achieved the most remarkable success in manufacturing is India's neighbour, China. Its

consistently high GDP growth is due to its success in labour intensive mass-manufacturing and, later, value added manufactures.

The historical context is worth looking at. After years of post-independence socialist existence, political leaders in both China and India figured out that the pitfalls of shutting down borders and shunning trade were large, and dramatic reforms were necessary if the lives of large populations were to be improved. The combined population of China and India today stands at more than 2.5 billion, or roughly 35 per cent of the world population. To take a practical approach to alleviating the lives of these billions, ideological considerations and the socialist mindset eventually gave way to pro-market reforms. What followed was a globally integrated China and India, with incrementally higher trade volumes every year. Between 1978, when China launched its reforms, and 2006, China's share in world export of goods and services jumped more than fivefold from 1.4 per cent to 7.6 per cent. During the same period, India's share in the world export of goods and services grew threefold from 0.4 per cent to 1.2 per cent. But while India might have done well compared to its own record, it lags far behind China, particularly in manufacturing exports. China is known to be a labour-intensive goods exporter and has historically excelled in it. At the same time, an active FDI policy oriented towards learning and the transfer of technology ensured China's rise in the past decade in higher value added exports in manufacturing.

Figure 3 captures the stunning rise of China's exports between 1992 and 2012 in both absolute terms and as a share of world trade and compares it with India's export performance.

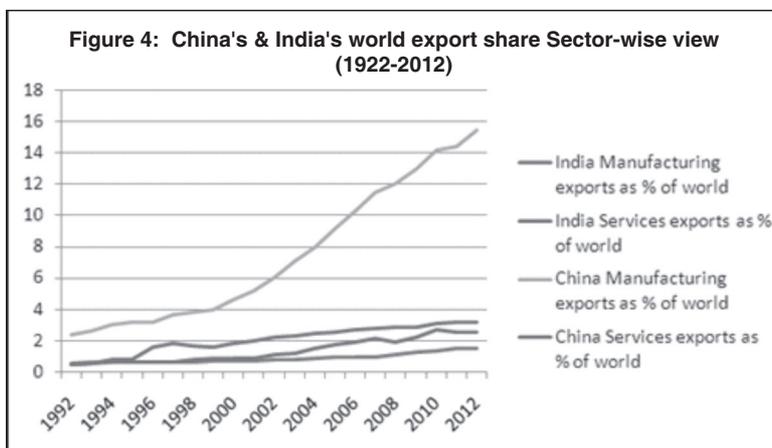


Source: WDI

Between 1992 and 2012, China's exports in absolute terms grew manifold, and so did India's but at a much slower rate (Figure 3). From 2001 to 2007 (China's immediate post-WTO accession period), exports went up almost fivefold, from \$266 bn to \$1220 bn. In

contrast, India's exports grew one and a half times from around \$32 bn in 1995 (post WTO period) to around \$44 bn in 2001. Notably, China's exports grew even after the global financial crisis of 2008, although to a smaller extent.

In terms of share of exports in the world, China plays a dominant role in global manufacturing, whereas India is slowly emerging into the global scene at best or a non-player at worst. Figure 4 provides the shares of China's and India's manufacturing and services exports as a share of world exports in those sectors and shows that as of 2012, India's contribution to world manufacturing exports was approximately 1.5 per cent, or around a percentage point less than the share that China commanded way back in 1992.



Source: WDI

In terms of exports over the decades (of which data over the past two have been compiled in this chapter), there is a major difference between China and India. While China has continued to focus on its manufacturing sector, and thus increased its share, by encouraging export-oriented FDI and labour-intensive manufacturing, India seems to have jumped the queue and straightaway witnessed a service sector boom. Of course, China still beats India as far as services exports as a share of the world is concerned (Figure 4). According to the linear stage theories of development, an economy moves from being based on primary goods to being focused on industrial development, urbanisation, and growth in manufacturing, and finally becomes a post-industrial economy or one based on knowledge-based services. China stuck to this theory, to its benefit. India neglected its manufacturing sector, and its policies have not been enough to propel industrial development. The next two sections look at the initial reforms in China on their own merit. Thereafter, a more comparative analysis follows wherein China's SEZ and FDI policies, currency policy, infrastructure building and labour market policies are all studied vis-à-vis the Indian scenario in the respective domains.

## 2 EARLY STAGE REFORMS IN CHINA

Most empirical studies confirm that Chinese growth since the reforms period owes as much to institutions and policymaking as it does to observed economic phenomena (Lin 1992; Fan, Zhang, and Zhang 2004). Institutional reforms date back to the early days of PRC's formation.

In 1959, during Mao's Great Leap Forward, China suffered a massive drought-led famine, in which tens of millions starved to death. Understandably, Deng Xiaoping's reforms started with the agricultural sector, but also because China was still an agrarian society, where more than 60 per cent were engaged in cultivation. The idea was to boost production by bringing in two landmark legislations: the household responsibility system and the dual pricing system (DPS). By the late 1970s, production was severely deficient and the rural sector was capital-starved. Under the Mao regime, capital-intensive heavy industries were prioritised, and agriculture suffered neglect. Since the late 1970s, a slew of reforms were made to agriculture to boost production. Deng responded by decollectivising agriculture (dismantling the commune system) and started the household responsibility system (HRS), which divided land into private plots.

Under the DPS, farmers were able to keep the land's output after paying a share to the state, a move that eventually increased agricultural production, boosted incomes, and stimulated rural industry, because rural households could sell their agricultural surplus in the private market after the government agricultural output quotas were fulfilled. Rural reform was a success, and the growth of income soon spread to different parts of the country, especially the coastal regions (Kui Wai 2001). Between 1978 and 1984, agricultural GDP grew at an annual average rate of 7.1 per cent, and the income growth in rural areas (almost 14 per cent per annum) increased aggregate demand in consumer and light industrial goods. However, domestic expansion of industry was still limited and, as a result, imports were sought to meet demands. Later, import tariffs were brought down as part of trade reforms. Rural reforms demonstrated that a rise in income would be inflationary if it is not for a corresponding increase in industrial supplies (Kui Wai 2001). The next phase of reforms accordingly focused on industries. But it was indeed agricultural reforms that kickstarted the manufacturing revolution in China by raising farm incomes and fuelling demand for manufactured goods (Gulati 2014).

The HRS led to heightened agricultural productivity and the surplus labour therein was absorbed by the towns and village enterprises (TVE) sector. In 1980, the TVE sector in China accounted for only 6 per cent of the total GDP and 9 per cent of employment. Their shares rose to above 30 per cent and 27 per cent respectively in 2002 (Brandt and Rawski 2008). The crux of China's rapid growth lies in the rebalancing of the economy towards labour-intensive sectors, wherein its comparative advantage lies. The dual pricing system was a key aspect of Chinese economic reforms in the 1980s. It started with the agricultural sector but was soon

extended to the industrial sector, and even the banking, finance, and housing sectors by the late 1990s (Benett, Dixon, and Hu 2008).

Under the DPS, most of the goods produced would be sold primarily at command prices, but a small share of it would be sold at market prices, to foster productivity and zeal by way of profit incentives. Although the system had its dangers, it was a gradualist and transitional way of eventually shifting from planned pricing to market pricing (Liu 1985).

The DPS also let farmers sell dearer than the planned price, over and above the income generated through the HRS, which boosted the agricultural sector in general and productivity in particular. An empirical study of the impact of reforms on agricultural productivity found that 78 per cent of the increase in productivity in Chinese agriculture between 1978 and 1984 was due to changes in the incentive scheme. The rest of it was due to higher prices; the effects of HRS also included a 32 per cent increase in total factor productivity (TFP) in agriculture (McMillan, Whalley, and Zhu 1989). The DPS gradually phased out planned prices completely in favour of market prices, a process largely concluded by the late 1980s (Naughton 1995).

### **3 DECENTRALISATION: INSTITUTIONAL REFORMS UNDER DENG XIAOPING**

China owes its economic reforms to institutional and structural changes in administration, and this came in the form of decentralisation of power to local bodies during the Deng Xiaoping era.

Provincial governments had an important role to play in both Chinese reforms and the ensuing high growth miracle. According to the Chinese Institute for the Reform of the Economic System, provincial governments in the 1980s were responsible for 37.8 per cent of total mandatory production targets. This means that they did not play second fiddle to the central government as far as roles and contribution were concerned. However, although China is a central command economy, decentralisation was pursued in decision making and became one of the features of the reforms carried out during that period.

Providing local governments operational autonomy lets them act quickly and efficiently according to the needs of the local economy and—as they have greater say on utilising resources—ensures them the wherewithal to bring about economic prosperity. But there is a tradeoff between vesting decision making powers in the central government and the merits of decentralisation; choosing has always been a dilemma, and China has faced it during the reforms period, contends Huang (1999). Of course, as Cai and Treisman (2006) point out, China was one of the most centralised economies in the world during the reforms period in the 1970s and 1980s. But the overall direction has been towards decentralisation.

Dubbing decentralisation a key component of change, Chung and Lam (2009) argue that within the overarching framework set by the central government, provincial governments were expected to act autonomously; for instance, they were expected to perform specific policy functions and decide legislative fine points. In 1979, legislative powers were granted to the People's Congress of each province for the first time (Chung and Lam 2009).

As a result, provincial governments passed 2,483 laws between 1979 and 1991. Most of these laws were in the realm of economic policy. This set the stage for deepening reforms and province-specific high growth. This also meant that each province had its own location-specific and endowment-specific strategy for growth, and respective policies were put in place. Provinces also acquired budgetary powers and, thus, local governments allocated capital expenditure liberally. Since the mid-1990s, the central government allowed provinces to undertake large investment projects without central approval, including while dealing with foreign investment up to \$30 million. This cap was later raised to \$100 million.

The creation of SEZs is arguably the best manifestation of regional initiatives designed to shape new loci of economic activity. In the coastal provinces of Fujian and Guangdong, SEZs were built to open China to the international economy. The interaction was limited to these towns, but the success of the SEZs in enabling FDI-led growth led to the extension of the policy across China, as other local authorities established their own Special Economic or Technological Development zones (Breslin 2000). Much of the SEZ success in China has been led by provinces and their governments where foreign investors have come in direct contact with these local governments (Breslin 2000). In short, provincial authorities were made partners and stakeholders in the growth story by delegating powers to local governments to attract, approve, and manage foreign investment (FI), the driver of Chinese growth.

Decentralisation helped China grow rapidly in many ways, because

- regional governments are best informed on local issues;
- regional governments can process information on local issues more and better than the centre; and
- decentralisation allows institutional changes on an experimental scale, thus sparing disruption to the rest of the economy (Xu 2011).

In India, however, fiscal decentralisation never took off as in China (Tables 1 and 2). The extent of local government participation in state expenditure is way higher in China, and so is the case with revenues.

**Table 1** Local govt. earning / spending in China compared to India, South Asia & RoW

Country	per cent of government revenue raised by subnational governments	per cent of government expenditure undertaken by subnational governments	Transfers to subnational govts as a share of total subnational revenues
India	33.6	52	39
China	59.7	81.5	35
Bangladesh	<2	3-4	64-70
Pakistan	7.3	30.3	81.1
Sri Lanka	7	12	82.5
Canada	52.2	59.7	21.3
USA	41.1	49.3	28.9
Mexico	23.5	23.1	47
World	21.7	29.1	32.5

Source: Ghani et al. 2012

**Table 2** Revenue & expenditure ratio of the central and local governments in China 1978–2009

Year	Revenue (per cent)		Expenditure (per cent)	
	Central	Local	Central	Local
1978	15.5	84.5	47.4	52.6
1980	24.5	75.5	54.3	45.7
1985	38.4	61.6	39.7	60.3
1990	33.8	66.2	32.6	67.4
1991	29.8	70.2	32.2	67.8
1992	28.1	71.9	31.3	68.7
1993	22.0	78.0	28.3	71.7
1994	55.7	44.3	30.3	69.7
1995	52.2	47.8	29.2	70.8
1996	49.4	50.6	27.1	72.9
1997	48.9	51.1	27.4	72.6
1998	49.5	50.5	28.9	71.1
1999	51.1	48.9	31.5	68.5
2000	52.2	47.8	34.7	65.3
2001	52.4	47.6	30.5	69.5
2002	55.0	45.0	30.7	69.3
2003	54.6	45.4	30.1	69.9
2004	54.9	45.1	27.7	72.3
2005	52.3	47.7	25.9	74.1
2006	52.8	47.2	24.7	75.3
2007	54.1	45.9	23.0	77.0
2008	53.3	46.7	21.3	78.7
2009	52.4	47.6	20.0	80.0

Source: China Statistical Yearbook 2010 and Wu (2013).

#### **4 SEZs: THE GAME-CHANGER, ONLY IN CHINA**

There are two distinct but inter-related aspects of China's rapid GDP growth and its manufacturing success in the past few decades: FDI and SEZs. And these are also areas where comparisons with India are both striking and illuminating.

In July 1979, the Standing Committee of the National People's Congress passed the SEZ law, which opened China to the world. The rules governing these SEZs were made favourable to foreign investment and policies were targeted and tailored to attract it. Money began flowing in heavily. The planning and developing of SEZs, which were transforming China's economy since 1979, was part of the Communist Party's adaptation towards capitalism by way of privatisation, marketisation, and expansion of international trade (Coase and Wang 2012).

One of the major objectives of setting up SEZs was attaining advanced technology. To that end, FDI into SEZs was encouraged in sectors where generous technology transfers were possible. The government was determined to build a modern domestic manufacturing industry, and designed policy to achieve it (Rodrik 2006). As a result, China benefited from positive spillovers over the years and underwent export sophistication or value addition by the end of the last century (Morisson 2014).

With a view to attracting export-oriented manufacturing FDI that would make use of China's abundant cheap labour, SEZs were set up in coastal cities initially. Four SEZs were set up in China's Guangdong and Fujian provinces between 1979 and 1983. These SEZs attracted FDI, particularly export-oriented FDI in manufacturing. This is where India fell drastically short, as we will see later. Since 1984, Hainan Island and fourteen other coastal cities were opened to FDI and a massive surge in FDI was noted. During 1985-90, when the overall economy grew at 6.9 per cent, industrial output grew at 16 per cent in Guangdong province and at 14.7 per cent in Fujian province. SEZs were clearly contributing to the Chinese economic growth phenomenon like none else as province after province adopted SEZs (Table 3). Xu (2011) claims that SEZs converted China into a trade-surplus nation with the US and the EU, as 89 per cent of China's exports came from SEZs in 1985, and 93 per cent of it in 2005. In 2005, China also became the largest FDI recipient in the world. The role of FDI in SEZs is again crucial, if not defining. According to 2005 Chinese custom statistics, almost 60 per cent of its exports were FDI related.

The SEZ success was made possible by another important institutional reform in China starting 1979, which has been discussed earlier: decentralisation. China owes its economic prowess also to political reforms in the form of decentralisation of decision making: most SEZs were formulated, executed, and implemented in provinces by provincial governments without central assistance or orders (Qian and Weingast 1996). A range of factors affect SEZs' performance (Panagariya 2008).

**Table 3** SEZ activity in China since 1978

Variables	1978	1979-1985	1986-1990	1991-1995	1996-2007
No. of municipalities newly granted SEZs	0	30	49	145	76
No. of municipalities with SEZs	0	30	79	224	300
Total no. of municipalities	326	326	326	326	326
Ratio of municipalities with SEZs	0.0	0.09	0.24	0.69	0.92
Average distance to coast	-	0.15	1.34	3.75	6.26

Source: Wang (2009).

**Table 4** Comparison of SEZ policies: China & India

Factor	China	India
Size	Mostly mega-SEZs. Typically running into hundreds of hectares. Some even thousands	Considerably smaller in scale. Even ten hectares qualifies
Location	Located mostly near coasts to facilitate maritime trade	No such strategic location-specific planning. Land acquired anywhere
Labour laws	Relaxed in the SEZs	Relatively less flexible
Source/nature of investment	Largely FDI-driven	Not FDI driven
Tax holidays	Exists	Exists. Arguably on a greater scale
Infrastructure	Superior connectivity, mainly through ports	Port infrastructure shoddy. In addition, land acquired anywhere without provision of suitable railway/road links
Nonresident nationals	Nonresident Chinese in Hong Kong and Taiwan well tapped	Lacks such geographically favorable condition. But inability to tap NRI funds fully

First, local governments had a free hand in investment, pricing, taxation, housing, labour, and land management policies. Moreover, most foreign investments required virtually no central clearance.

Second, SEZs offered many economic incentives to investors that were not available in inland provinces, such as considerably lower corporate tax than domestic peers (and even tax holidays) and duty-free imports for use in exports; these were lapped up by foreign investors (Panagariya 2008). Greater the investment and more advanced the technology, greater were the tax breaks offered.

Xiao and Zhao (1998) argue that the Chinese external sector was made immune from the relatively backward domestic economic and legal edifices by erecting an entire institutional structure to deal with FIEs alone. These include SEZs, special enterprise laws, and regulations

that favoured foreign firms, in addition to special tariff and tax treatment. This provided additional sheen to SEZs.

However, there were two other aspects of the success of China's SEZ policy: proper state attention to the development of infrastructure and the creation of efficient administrative machinery (Tantri 2012).

In the late 1990s, India realised that its EPZs were not performing as well as SEZs in China because of limited scale, a lack of logistic links and infrastructure surrounding the zones, and a lack of interest and authority by state and local governments and the private sector in establishing and managing them (Sahoo, 2006; Sahoo et al. 2013). In 2000, the government announced a policy to make SEZs an engine of growth by providing quality infrastructure with minimum regulation. Foreign investors and developers are rewarded with a number of fiscal incentives such as exemptions from direct and indirect taxes. Tax exemptions cover income tax, central sales tax, excise duty, export profit, capital gains, and dividend and customs duties on imported goods and local excise. There is a single window clearance for SEZs. Foreign ownership of up to 100 per cent is allowed under the automatic route for all manufacturing activities, except those under the reserved and negative list. FDI of up to 100 per cent is permitted under the automatic route for setting up 100 per cent export-oriented units and industrial parks, subject to sectoral policies. Proposals for FDI or for NRI investments in electronic hardware technology park units and software technology park units are eligible for approval under the automatic route. As we see, SEZs have many sops for investors, but still play a modest role in India's total exports, although exports have grown to reach \$11 bn in 2007-08. Also, Indian SEZs have failed to catch the fancy of international investors for reasons ranging from lack of infrastructure support to legislative complexities including those pertaining to the labour market and land acquisition. Some of these are discussed below.

The reasons why SEZs failed to have the desired impact was that major concerns with respect to lack of infrastructure, land acquisition problems, and labour law rigidities remained (Sahoo 2006, 2014; Sahoo et al. 2013) . As we will see in subsequent sections, China dealt with the infrastructure and labour aspects in its policy while India did not. This points to the multidimensional nature of the Chinese manufacturing policy. In India, there was a simple, one-dimensional reading of the SEZ policy through only the fiscal incentive lens; the more deep-seated aspects of the economy were not addressed. That is why investors did not buy the idea of an Indian SEZ.

Among other operational issues besetting Indian SEZs, India failed to exploit economies of scale given its size constraints. Also, unlike in China, SEZs employ a small proportion of the working age population. The experience of SEZs in China provides lessons for India. China

set up SEZs to attract investors into labour-intensive manufacturing exports and to experiment with market-oriented economic reforms. The Chinese SEZs were very large and housed activities such as commerce, tourism, housing, agriculture and industrial production, as well as export processing. The SEZs were given special status with minimum bureaucracy, good infrastructure, and generous tax holidays for manufacturing units, and unlimited duty free imports of raw, intermediate, and final goods as well as capital goods. In India, the powers for foreign investment approval in SEZs are vested with development commissioners, who represent the central government. In China, provincial and local authorities were made partners and stakeholders and power was delegated to them to approve foreign investment. These authorities introduced legislation to incentivise foreign investment in SEZs and clear and approve proposals faster. Thus, a conducive policy environment, along with infrastructure, low cost labour and flexible labour laws, and capital availability, made Chinese SEZs a viable proposition for foreign investors. Table 4 compiles the SEZ traits of China and India.

The analysis of FDI policy and trends shows that many difficulties still prevent India from being a prime destination for foreign investors. These are discussed in the next section. As far as land acquisition problems go, the current government has amended the existing land acquisition law, which was promulgated last year. It is reported that the removal of the consent clause for public private partnership (PPP) projects might be considered. Amendments to the current land acquisition law may also include a re-look at the definition of 'affected family' to bring in clarity. More importantly, the mandatory social impact assessment (SIA) will be reserved for large projects only, a demand that the industry lobby has long made. These steps are likely to keep delays (both time and cost) at bay and minimise the impact of other hurdles. But to spur activity in the SEZs, more needs to be done, as the subsequent sections on FDI policy, infrastructure development, and labour laws demonstrate.

## **5 FDI POLICY AND ROLE IN MANUFACTURING GROWTH: CHINA VS. INDIA**

Foreign investment is the main force behind the exceptional growth in China's provinces. Panel data estimations by Tuan, Ng, and Zhao (2009) indicate that FDI has positively affected economic growth in Pearl River Delta in Guangdong and Yangtze River Delta, two of the most internationally integrated and renowned open economic zones of high volume FDI activity in China. The literature has established that FDI in general has contributed to higher productivity growth, a dynamic export sector and created jobs aplenty in China. But the role of government policy in fostering FDI related growth has been important and has lessons for other countries (Tseng and Zebregs 2002). Low cost labour has also played a role (see Chen 1996; Cheng and Kwan 2000).

Overall, China has pursued a more proactive policy towards FDI than India (Huang and Tang 2011). In India, foreign invested enterprises (FIEs) face more obstacles and hurdles than domestic firms, particularly in the area of government policy and regulations; in China, FIEs are treated preferentially and find officials very helpful (Huang and Tang 2011). Over the course of 25 years, FIEs have been, and still are, eligible for and greeted with 'markedly different' treatment compared to domestic firms. To that end, an entire legal and institutional framework governing highly favorable FDI rules and policies has been created (Long 2005). These include Law of the People's Republic of China upon Foreign Wholly Owned Enterprises, Law of the People's Republic of China upon Sino-Foreign Joint Ventures and the Guiding Directory on Industries open to Foreign Investment (Long 2005).

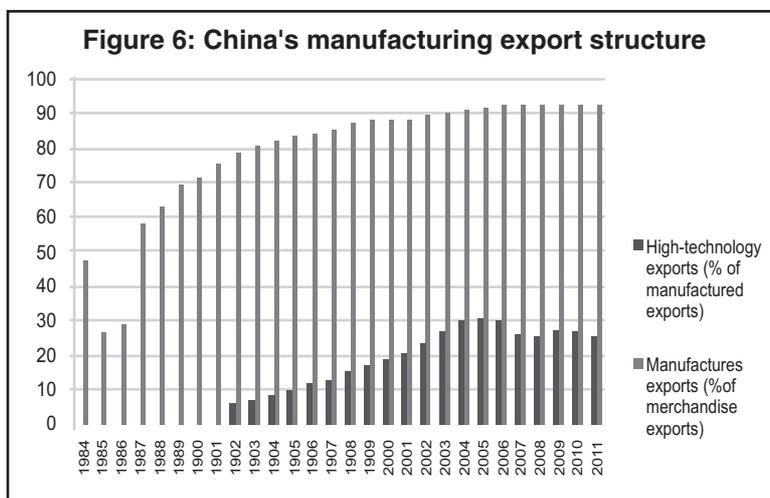
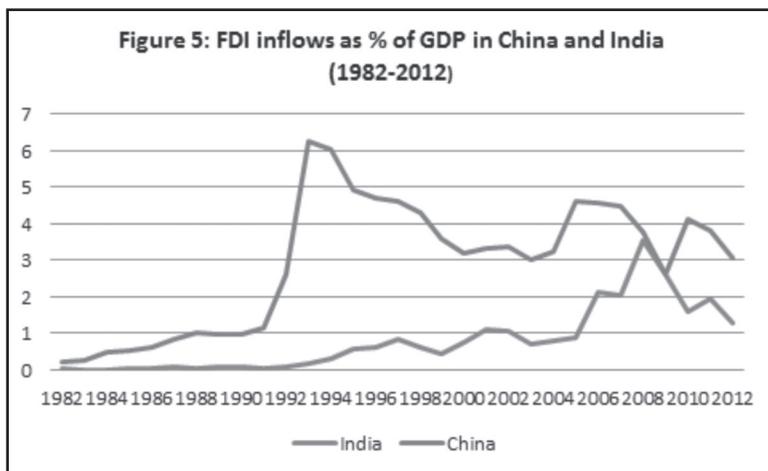
China put in place a highly decentralised FDI approval mechanism, wherein policy implementation too was left to local governments. What resulted was healthy competition among local authorities for FDI. Simultaneously, local governments sought to ensure the administrative and operational efficiency of the approval process, the best manifestation of the same being the setting up of 'one-stop' facilities, which allow investors to carry out all formal procedures in one place, at one time (World Bank 2010).

China's attractiveness as a destination for manufacturing FDI has also much to do with the development of physical infrastructure, and market/trade openness. Both of these factors have been established in the empirical literature to be important determinants of inward FDI (Seekat and Varoudakis 2007; Khadaroo and Seetanah 2010; among others). Moreover, Chinese provinces that had better infrastructure in place tended to receive more FDI (Head and Ries 1996). This also explains concentration of FDI in coastal areas with superior infrastructure and high transport linkages.

Interestingly, in the context of China, Jun et al. (2007) find based on provincial panel data since 1990s that decentralised FDI policies created competition among local governments to attract FDI, which in turn acted as an incentive for local authorities to spend on infrastructure. Thus, with its statecraft, China managed to deal the twin issues of FDI and infrastructure by a simple act of devolution of power, which served to deliver a mutually reinforcing virtuous cycle of infrastructure development and inward FDI. The role of FDI in enabling value addition and increase the technology intensity of Chinese exports is also recognised. But there is a policy cog to this trend too. The Chinese manufacturing success in some high-tech products including cell phones, laptops, liquid crystal displays (LCDs), among others, can also be sourced to its industrial and export policies like setting up 'science parks' that encouraged quality FDI engaged in high-tech production (Berger and Martin 2011).

High technology exports are products with high R&D intensity, such as computers, pharmaceuticals, scientific instruments, and electrical machinery; these have grown over

time as a share of total manufacturing exports. As we will see in the penultimate section of the paper, China has undergone a structural shift in exports over the years, especially in machinery and equipments. The share of high technology exports in total manufacturing exports was in the range of 26-28 per cent between 2009 and 2012 (Figure 6). Much of this value addition can be sourced to quality vertical FDI, which has been lacking in India, because of its inability to position itself as a good production site.



Source: Lang (2013).

The share of FDI in GDP in India was 1.29 per cent in 2012, as against a sufficiently higher 3.08 per cent in China (Figure 5). Much less FDI has flowed into India than into China,

and its nature has been different too—largely market seeking in India but export-oriented in China. India receives large amounts of horizontal or market-seeking FDI; it should incentivise export-oriented or vertical FDI and design necessary policies to that end (Sahoo et al. 2013; Nataraj and Bhunia 2014), because FDI is important in the manufacturing sector. However, vertical FDI is known to best respond to quality infrastructure (Sahoo 2012b), and due to their labour intensive nature, a flexible labour regime helps. In addition, transparency and institutional friendliness towards FDI are other factors that attract FDI into manufacturing. India performs poorly on key infrastructure indicators (transport, connectivity, power, and electricity supply). That is why foreign investors have so far largely stayed away from the Indian manufacturing sector. The caps on FDI in major sectors have also played a part, although the new government is trying now to overcome these.

Raising the FDI limit in defence will help in providing firepower to India's defence manufacturing sector. Technology transfers are likely only when the cap is further liberalised, but the current 49 per cent cap should enable joint ventures in defence manufacturing. The role of FDI in boosting indigenous capabilities is also well known, not least with the help of the Chinese example. Thus, the potential to boost India's homegrown manufacturing sector via FDI largely remains untapped. India has the factor markets to attract export oriented FDI, but has not been able to because of inadequate infrastructure and inflexible labour markets (Sahoo 2012a; Pradhan and Abraham 2005). However, the present government has initiated reform and, as discussed later in detail, labour reforms are currently being implemented at both central and state levels (for example, in Rajasthan). The harm is likely to be at least partly undone when the amended laws are in effect. But, arguably, the more important reform is in the new government's concerted effort at building infrastructure, which is discussed later, to attract manufacturing FDI, particularly export-oriented FDI, which has propelled Chinese manufacturing to new heights. This also dovetails into PM Modi's recent call to global investors to 'come, make in India' and sell anywhere in the world.

The Modi government's cabinet recently allowed 100 per cent FDI in railway infrastructure. This is important, as one of India's perennial problems is lack of quality transport infrastructure. Industrialisation and urbanisation have driven a huge increase in demand for infrastructure, but the railways have not been able to expand adequately, and so 60 per cent of India's freight still moves by road. The cabinet's FDI approval straddles railway sub-sectors such as high-speed train systems, suburban corridors, and dedicated freight line projects implemented in PPP mode. Estimates suggest that the railways are currently facing a capital deficit of around Rs. 30,000 crores. With the allowing of FDI, the Mumbai-Ahmedabad high-speed rail corridor is expected to get a push, along with the other freight corridors currently being planned. During April-November 2012, the total FDI inflow into the infrastructure sector declined by 98 per cent from the last financial year; this underscores the need to boost FDI.

India has the fifth largest rail network in the world, but it is not modernised. Last year, the Indian railways failed to supply enough rakes to supply coal, which is a key input in many core industries like steel and power. Rail infrastructure is key to coal transport in India; with India's dependence on thermal power generation, this is a crucial aspect that needs attention, most of it through injection of capital. In this context as well, FDI in railways is a welcome move.

Finally, thanks to some political or populist considerations, railway passenger fare hikes in India are kept at bay, because of which the state of railway finances is woeful. The capital deficit can thus only be overcome through infusion of private capital—foreign or otherwise. But easing FDI inflows in India is hardly a matter of tweaking a policy here and there. A strategic focus on attracting FDI by fixing the fundamental bottlenecks in the economy, and thereby strategically trying FDI with the developmental needs of the country is going to be necessary.

## **6 TAPPING RICH NON RESIDENT CHINESE**

Another aspect of China's FDI policy was a targeting of Chinese not residing in the mainland, or NRCs. Ever since China opened up its economy, there was a focus on tapping the investable funds in Hong Kong and Taiwan. For this reason, coastal cities that were well connected to these states, flush with rich nonresident Chinese, were the first ones to get SEZs. Guangdong province is one of the most notable, and earliest, cases.

Hong Kong has always been the most important source of FDI for mainland China. Cumulative FDI from Hong Kong to China made up about 55 per cent of China's total FDI as on 2000. In the initial years, Hong Kong's contribution of FDI in Guangdong province was as high as 70-80 per cent. China's preferential policies and setting up of SEZs in Guangdong, which is right next to Hong Kong, meant that it planned to exploit the advantages of distance.

Hong Kong firms moved their manufacturing base to Guangdong for geographical proximity, cheap labour, and low rent. This is in line with studies that confirm that cheap labour was one of the most important factors that China attracted so much FDI. Cities close to Hong Kong and preferential policies were key attractions for Hong Kong FIEs (Xu and Yeh 2013). Taiwan, too, with its mass of Chinese speaking investors invested heavily in China. Xu and Yeh (2013) again find that proximity to Hong Kong and low labour and rent were key determinants of Taiwanese FDI in China since the 1980s.

In fact, geographical proximities and policy incentives like preferential treatments were both equally responsible for Hong Kong and Taiwanese firms investing in China (Zhang and Yuk 1998). In later years, Taiwanese firms specialising in making computer parts also relocated to these provinces. That China set up technology parks and solicited investment further helped FDI from Taiwanese electronic firms.

A significant determinant of FDI from Hong Kong and Taiwan is their common language and ethnic and cultural heritage with China. The cultural commonality reduces contract distortions on one hand and associated tailoring costs on the other. As a result, Chinese-speaking regions have contributed the lion's share of FDI in China (Lo, Hsu, and Wu 2012). Relatedly, FDI from the EU, US and Japan was mainly market-oriented, but FDI from Hong Kong and Taiwan was vertical, the basis of China's rapid ascent in manufacturing Zhang (2005). Most of India's neighbours (SAARC countries) are poorer than India, and there are political differences. India's main NRI base reside in the developed West, but the record of rich NRIs investing in India is rather poor, and it is believed that India's poor ranking in ease of doing business and a high degree of non transparent dealings have served to put off NRIs.

## **7 CURRENCY POLICY AS EXPORT SUBSIDY**

China's economic prowess, driven by exports, is also allegedly due to some unfair play and strategic manipulation of the market. Specifically, the charge is that China by artificially undervaluing its currency, manages to ship high volumes of manufactures to the world, as they are rendered cheap and thus price competitive.

In 1994, China pegged the RMB to the dollar at about 8.28 yuan (the base unit of the RMB) per dollar and has kept the rate constant till 2005 (Morisson and Labonte 2013). This deliberate undervaluation of the currency might be construed as an indirect export subsidy, which serves to lower the prices of Chinese products exported worldwide (ibid).

Froot and Stein (1991) find evidence that a weaker host country currency tends to increase inward FDI within an imperfect capital market model. This is because depreciation makes host country assets cheaper compared with assets in the home country. In fact, a depreciated currency is associated with greater FDI inflows in the manufacturing sector (Xing 2005; Walsh and Yu 2010). Thus exchange rate manipulation explains, at least partly, the high FDI inflow into Chinese manufacturing, particularly vertical or export oriented FDI. In addition, the empirical trade literature confirms that changes to the effective exchange rate are directly related with variations in the degree of exports (Faberberg 1988).

So wide ranging have been the impact of Chinese artificial undervaluation of the Yuan that some economists argue the US lost millions of jobs owing to its artificial trade deficit with China. According to Scott (2012), the US, which corners the largest share of Chinese exports in the world, lost 2.7 million jobs (most of them in manufacturing) between 2001 and 2011 simply due to China's artificially competitive exports being imported in US.

Coudert and Couharde (2007) set out to determine the gap between the evolution of the real exchange rate (RER) in China and what would have been the normal 'Balassa effect'.

They find that the Balassa effect did not exist in China. This finding is consistent with the fact that the real exchange rate did not appreciate in China despite rapid growth. The authors further use a FEER (Fundamental Equilibrium Exchange Rate) method to calculate the real effective exchange rate and the results indicate that China's RER was undervalued between 2002 and 2005 in effective terms.

There is not much scope for a comparison with India in this aspect, as it is arguably unwise to suggest manipulation of exchange rates as a lesson to be taken up by India. However, the next section deals with the labour market and this has lessons for India. It is important to point out at this stage that India should be drawing the right lessons here, as this paper does not suggest or remotely endorse worker exploitation or business advancement at the cost of the labour force's well being. Currently, India's labour laws might be well intentioned but serve a purpose to the contrary, and reforms are much needed to spur investments.

## **8 OF FLEXIBLE AND RIGID LABOUR LAWS: HOW INDIA FALTERED**

In the face of rapid globalization, China's leaders have faced the challenge of designing market friendly labor laws and policies by promoting greater flexibility in the labor market, while safeguarding the welfare of workers and their families at the same time (Gallagher, Lee and Park 2003).

But economists have by and large concluded that China's flexible and business friendly labour laws have ensured continued investments in Chinese manufacturing, unlike in India, where restrictive labour laws have been a cause of concern for investors (Panagariya 2008). It has been politically expedient for China however to undertake labour and wage reforms whereas India, owing to its democratic structure, has found it harder to bite the bullet.

According to Ding and Warner (2001), the labour reforms in China saw the demise of the 'three old irons': i.e. life-time employment (the 'iron rice bowl'), centrally administered wages (the 'iron wage'), and state-controlled appointment and promotion of managerial staff (the 'iron chair'). This was in fact the logical outcome of Deng's reforms that led to market driven people management and the introduction of market forces into the employment system under the influence of FIEs (ibid., Zhu 1992).

There is a need to understand what specific shape in terms of laws this overarching market friendliness took. With the objective of giving managers flexibility and room to adjust to market needs, labour reforms in China sought to end the system of permanent employment. To that end the State Council issued "Temporary Regulations on the Use of Labor Contracts in State-Run Enterprises" in 1986 and formally introduced labor contracts to

the labor market (Meng 2000). In layman's terms 1986 onwards employers in China were allowed to hire temporary workers on short or long term contracts (Frenkel 2001). Firms lapped up this business friendly policy and between 1985 and 1995, the share of contract workers in total employment went up from 4 per cent to as much as 39 per cent. By 1997, one hundred million employees were signed into labor contracts (Cai, Park and Zhao 2008). Until the late 1990s though, the government restricted the dismissal of workers at will (ibid).

A slew of reforms in the labour market laid the foundation for China's labour market, conducive to business. In 1992, enterprises were allowed to set their internal wage structures. Firms were then required to submit wage proposals to government for special approval (Yueh 2004). The promulgation of the Labour Law in 1994 in China marked the establishment and the institutionalisation of the labour contract system in China. It laid the foundation for market-orientated labour and applied to all enterprises (Casale and Zhu 2013).

The 1994 law represented a wholly new pro-business rhetoric by the usage of market terms such as contract employment, hiring and firing, freedom to choose career, minimum wage, collective contract, and so on (Ngok 2008). In a sign of continuing focus on reforming the labor market and codifying the policies, more than 160 labor regulations and rules were issued between 1979 and 1994. In 2007, the New Labour Contract Law was promulgated and in came into effect in 2008. This law sought to reconcile labour and capital following a spate of disputes over the years. The contract law intended to establish proper standards of labor contracts, the use of temporary workers, and mandated severance payment by employers (ibid).

India's labour laws in contrast are restrictive in nature and hurt investments in the manufacturing sector (Sahoo 2012a; Sahoo et al 2013). The Industrial Disputes Act (1947) has rigid provisions such as compulsory and prior government approval in the case of layoffs, retrenchment and closure of industrial establishments employing more than 100 workers. This clause applies even when there is a good reason to shut shop, or worker productivity is seriously low. The Contract Labour (Regulation and Abolition) Act (1970) states that if the job content or the nature of work of an employee or group of employees needs to be changed 21 days' notice must be given. While not particularly restrictive, in practice the changes also require the consent of the employees, and this can be tricky. While the right of workers to associate is important, the Trade Union Act (1926) makes provision for the creation of trade unions where even outsiders can be office bearers. This sometimes results in strikes and lockouts without any genuine grievances by the employees. In fact militant trade unionism has been rampant in many parts of India for decades. This hurts investor faith in the process and restricts economic growth, which in turn results in lack of jobs and unemployment.

Rigid labour laws discourage firms from trying to introduce a new technology that would require some workers to be retrenched. This deters FDI because of the fear that it

would not be possible to dismiss unproductive workers or to downsize during a downturn. The objective of getting FDI into export-oriented labour-intensive sectors in India has not been fully achieved partly because of rigid labour laws. By contrast, China has been hugely successful in attracting FDI into export-oriented labour-intensive manufacturing, in part because of flexible labour laws such as the contract labour system implemented in 1995. In any case, rigid labour laws in India have led employers to turn to hiring workers on contract outside the institutional and legislative ambit, resulting in informalisation of the labour market. This hampers worker well being more than anything else.

To undo the malady in India's labour market, some changes have recently been initiated in the three acts that largely govern India's labour market: Factories Act (1948), Labour Laws Act (1988) and the Apprenticeship Act (1961). Amendments to some restrictive provisions of all these acts have been cleared by the Cabinet and are set to be tabled in Parliament. Key changes proposed in the Apprenticeship Act include dropping the punitive clause that calls for the imprisonment of company directors who fail to implement the Apprenticeship Act of 1961. The government is also going to do away with a proposed amendment to the Act that would mandate employers to absorb at least half of its apprentices in regular jobs.

In order to provide flexibility to managers and employers, the amendment to the Factories Act include doubling the provision of overtime from 50 hours a quarter to 100 hours in some cases and from 75 hours to 125 hours in others involving work of public interest. This is seen by some as being anti-labour as it imposes greater working hours without ensuring their security and welfare. However, the penalty for violating the Act has been increased so as to deter exploitation. Increasing the working hours might also have to do with low worker productivity in India which requires the devotion of more hours for a given task. However, even as productivity issues should be addressed in part by bringing in quality FDI, it is important that maximum-hour protection is strictly enforced so as to prevent worker exploitation. In further relaxation, norms of female participation in certain industry segments have been relaxed (this is helpful in the Indian context). Importantly, the number of days that an employee needs to work before becoming eligible for benefits like leave with pay has been reduced to 90 from 240, a significant pro-labour step.

The amendments to Labour Laws Act 1988 meanwhile will allow companies to hire more employees without having to fulfill weighty labour law requirements as it is proposed that companies with 10-40 employees will now be exempt from provisions under labour laws that mandate them to furnish and file returns on various aspects. This is a crucial step and will help keep off unnecessary procedural delays, an inordinate feature of doing business in India.

The finance minister has also encouraged states to bring in appropriate labour reforms (in line with Chinese provinces promulgating labour reforms suited to their needs) and the

government in Rajasthan has gone the Chinese way. Reforms enacted are going to make it easier for firms to adopt hire and fire policies. China granted foreign firms explicitly the right to hire and fire on the basis of merit alone in 1999, while the 1994 Labour Law had already brought in the concept of hiring and firing. This was in order to attract FDI in manufacturing and create jobs. The Rajasthan government's labour reforms are manifold. For one, industrial establishments employing up to 300 workmen are now allowed to retrench employees without seeking prior permission of the government. In addition, the threshold of number of employees required for the purpose of applicability of the Factories Act has been increased from 10 to 20 (in electricity-powered factories) and from 20 to 40 (in factories without power) (Solanki and Shroff 2014). This will reduce bureaucratic and paper work related delays in scores of small units (Jagannathan 2014). Finally, membership of 30 per cent of the total workforce needs to be recorded for a union to obtain recognition, up from 15 per cent, a move that will halt productivity losses out of politically motivated petty strikes. As Rajasthan's Chief Minister said, these reforms will serve to establish "a habitat of job creation."

## **9 INFRASTRUCTURE DEVELOPMENT: A STUDY IN CONTRAST**

Infrastructure helps determine the success of manufacturing and agricultural activities (World Bank 2010). Infrastructure development is also a vital component in enhancing a country's productivity, and its firms' competitiveness (Graefe and Alexeenko 2008). Sahoo and Dash (2010; 2012c) find that the infrastructure development is a crucial determinant of growth in India and south Asian countries. China recognized this early on and what ensued is a spate of massive state funding of infrastructure projects since the eighties reform era. China's high competitiveness in manufacturing has in fact been underpinned by substantial state-led development of infrastructure (Sahoo, Dash and Nataraj 2010). There also exists in China a unidirectional casualty from infrastructure development to output growth (ibid).

According to Chuan (2008), China's success in export-orientated manufacturing is largely supported by infrastructure development, and contributes to the economic growth. This investment spree has continued till this date. From 2000 to 2005, China's road length increased from 250,700 km to 1,930,500 km. The length of running railway network increased at a rate of 9.9 per cent from 2000 to 2005. During the same period, electricity power generation capacity grew at an annual rate of 12.8 per cent (ibid). In fact, starting way back in the 1980s, China started building new coal mines to supply its power plants while developing modern power grids, and as a result power generation capacity in China went up by 400 per cent between 1990 and 2003 (Meredith 2008). With the growth in infrastructure spending grew the inflow of FDI and export volumes. Studies show FDI in China was more concentrated in areas which boasted superior physical infrastructure and connectivity.

The figures quoted above capture the zeal with which China prioritized its infrastructure sector. In contrast, India's physical infrastructure is grossly undersupplied, thus deterring investments in manufacturing. The magnitude of the deficit in infrastructure can be gauged from the fact that an estimated \$1 trillion of investments would be required in India's infrastructure development alone in the 12<sup>th</sup> Five Year Plan period (2012–17).

Depending on the definition of the term 'infrastructure', estimates of infrastructure investment in China as a per cent of GDP have ranged from 3.4 per cent of GDP to 28 per cent of GDP (Rutkowski 2013). Based on a standard definition of physical infrastructure however, China in year 2005 spent upwards of 9 per cent of GDP on infrastructure compared to 3.6 per cent in India. China's investment on power and gas alone accounted for 3.6 per cent of its GDP in the following year. Spending on transport infrastructure made up another 5.2 per cent of GDP (China Statistical Yearbook 2007).

Infrastructure also has an indirect role to play in China's spectacular success in manufacturing exports. For one, a good quality stock of infrastructure goes a long way in attracting FDI (Heid and Ries 1996; Sun, Tong and Yu 2002), which in turn boosts not just exports from the FIEs concerned, but also significantly adds to the domestic manufacturing capability and innovation (Zhang 2006). The recent value addition in Chinese manufacturing exports is also partly owed to FDI.

As analysed in the initial stages of this paper, decentralisation and devolution of powers to local governments has unleashed not just better designing and implementation of policies in China, but also gave rise to healthy competition among its provinces to attract FDI. This in turn led to state supported infrastructure projects across China in order to beef up their pull as an investment destination (Jun et al. 2007). Local governments in fact have been the major drivers of China's infrastructure. Municipal infrastructure constitutes a large share of China's total investments in infrastructure. These include street lighting, urban roads, sanitation, etc (Wilkins and Zurawski 2014). State owned commercial banks and policy banks hold around 80 per cent of total infrastructure loan portfolios highlighting the role of the state in strategically pushing infrastructure (Deloitte 2013).

In the World Bank's Logistics Performance Index which ranks countries on trade infrastructure, China ranked 28<sup>th</sup> globally, while the LPI Infrastructure rank was even better at 23. India in contrast had ranks of 54<sup>th</sup> and 58<sup>th</sup> respectively. Likewise in the Global Competitiveness Index, China ranked 29<sup>th</sup>, way ahead of India which was in the 60<sup>th</sup> position (World Bank 2014; WEF 2014). The GCI takes into account infrastructure as a crucial factor, among eleven other parameters. These numbers indicate the stark contrast in infrastructure performance of China and India, not only in the past, but even today. This explains both China's sustained performance, and India's poor show, in the manufacturing sector. Table 5 is

a comparative analysis of some major infrastructure indicators in China and India between 1990 and 2010, while Table 7 captures the growth rate of infrastructural assets in China and India over the last several decades.

**Table 5** Infrastructure development indicators: comparing China and India 1990-2010

	1990	2000	2005	2010	1990	2000	2005	2010
Electric power consumption (KW per capita)	511	993	1783	2774	268	387	456	590
Energy use (kg of oil equivalent)	760	867	1301	1793	362	434	471	580
Paved roads (% of total roads)			41	57	47	48	47	51
Total rail route (in 000 km)	53.3	58.6	62.2	66.2	62.3	62.7	63.4	63.9
Air freight transport (Milli.ton for km)	818	3900	7579	1744	663	548	7775	1720
Air pass. Transport (1000 population)	14.6	49	105	200	12.4	16.4	24.5	53.4
Internet users (1000 population)	0	1.8	8.5	34.3	0	0.53	2.39	7.5
Total telephones (per 1000 persons)	0.6	18.1	57	86	0.58	3.42	12.3	64.3
Labour force participation (% of total population working)	79	77	75	74	61	59.5	61	55.6

However, the ability of governments to exclusively fund infrastructure projects is increasingly limited by their resource constraints and the sheer scale of demand for both maintenance of existing infrastructure and provision of additional services (Noel and Brzeski 2005; Nataraj 2007). As a result, governments are looking to the private sector not only to finance, but also to build and operate infrastructure assets. However, implementation of infrastructure projects in India, whether private, public or PPP, is far from satisfactory. One of the major infrastructure issues in India has been the inadequacy of Public Private Partnerships in meeting the supply-demand gap in infrastructure facilities. An associated problem with infrastructure development in India has been inordinate time and cost delays in implementation of projects (see Table 6). Some changes to the governance structure and the introduction of independent regulatory mechanisms as well as a dispute resolution mechanism are necessary steps to be taken to avoid such needless hindrances.

In the current budget of the new government, major allocations have been made to shore up the country's infrastructure. These include US\$6 billion for national highway development, US\$2.4 billion for the development of roads to unconnected villages, US\$16 million for metro schemes in Ahmedabad and Lucknow and US\$827 million has been allocated to the National Bank for Agriculture and Rural Development for the development of rural infrastructure. With an emphasis on developing urban metros using public-private partnerships (PPPs) in different parts of the country, the government has signaled that the potentials of the tier II and III cities will be tapped. Civil aviation is one sector where the government is in fact likely to consider further liberalisation of FDI caps. In the budget the sector has been provided adequate sums of money for the further development of airports,

again using PPPs, in all tier 2 and tier 3 cities. US\$1.16 billion has been allocated to PPP-led development of 100 smart cities and new airports. Similarly, attention has been given to ports with US\$1.87 billion put towards the setting up of 16 new ports. This is important as currently India's trade potentials are hampered by the lack of sufficient port facilities. Together with this vital build up of infrastructure, some of the labour reforms discussed earlier will also encourage FDI into the infrastructure sector. Of course, implementation should be both speedy and efficient, as otherwise these projects will remain on paper. In any case, it is hoped that such efforts don't prove to be too late to help sort out India's myriad problems with the manufacturing sector and employment.

**Table 6** State of infrastructure implementation in India

Sector	No. of projects delayed	Delay period (in months)	Cost overrun in INR bn (per cent escalation)
Transport	78	2 – 101	22 (8 per cent)
Power	47	1 – 83	146 (12 per cent)
Oil & Gas	31	4 – 120	83 (10 per cent)
Railways	27	2 – 204	302 (137 per cent)
Urban	1	24	52 (82 per cent)
Coal	17	9 – 48	31 (27 per cent)
Shipping & ports	10	2 - 93	8 (10 per cent)

Source: Ernst and Young (2012).

**Table 7** Infrastructure development in China and India (in annual compounded growth rate, %)

	India			China		
	1950-80	1980-90	1990-05	1950-80	1980-90	1990-05
Electricity Generation	10.8	9.4	6.5	14.2	8.4	9.5
Road network length	4.6	3.4	3.8	7.2	1.7	3.4
Railway network	0.5	0.2	0.1	2.8	0.8	1.1
Telephone subscribers	10.2	8.9	28.7	6.6	13.8	40.9
Annual GDP Growth	3.7	5.7	6.4	5.2	9.8	10.2

Source: Kim and Nangia (2010)

## 10 EXPORT SOPHISTICATION IN MANUFACTURING: CHINA SHOWS THE WAY

China's exports have arguably played a very crucial, if not a defining role in the development of the manufacturing sector itself. Over 85 per cent of China's exports are in manufactured goods, and the share has been consistently that high for over two decades now, barring slight decreases between 1996 and 2001, after which the share again picked up. The performance

of exports in turn was quite dependent on FDI, and FIEs in China accounted for a large share of China's total exports. The inflows of FDI in turn were largely located in Chinese SEZs which were made attractive to foreign investors with a mixture of sops, positive locational factors and infrastructure quality. The Chinese policymakers were firmly focused on two aspects of FDI: technology transfers and capacity building in domestic manufacturing. And accordingly FDI was encouraged in strategically important sectors, for example the electronics and machinery/equipments industries. In fact, the literature widely documents the positive FDI spillovers in Chinese manufacturing. There are positive inter-industry productivity spillovers from R&D and exports while positive intra and inter-industry spillovers from FIEs to indigenous Chinese firms are also noted (Wei and Liu 2006). The relative sophistication of Chinese manufacturing exports over time not only explains the constant good performance of the Chinese manufacturing sector, but also reflects how China changed with the times, and responded well to the needs of the global economy.

**Table 8** Changing shares of different sectors in Indian Exports during 1992-2012 (per cent shares) (1 digit level)

Commodity Code	Commodity Name	1992	2005	2012
SITC 6	Manufactured goods classified chiefly by material	39.2	33.6	23.2
SITC 8	Miscellaneous manufactured articles	21.2	16.7	14.9
SITC 0	Food and live animals	14.7	8.0	9.3
SITC 7	Machinery and transport equipment	7.0	10.5	13.7
SITC 5	Chemicals and related products, n.e.s.	6.7	11.4	11.9
SITC 2	Crude materials, inedible, except fuels	5.4	7.5	6.6
SITC 3	Mineral fuels, lubricants and related materials	2.8	10.5	18.8
SITC 9	Commodities and transactions not classified elsewhere in the SITC	1.7	1.1	0.9
SITC 1	Beverages and tobacco	0.9	0.3	0.4
SITC 4	Animal and vegetable oils, fats and waxes	0.3	0.3	0.4

India's exports, like China's, have gone through some structural changes over the years, some of them of importance. While there has been a general rise in technology intensive exports in recent times from both China and India as far as broad sectors are concerned (i.e. at the SITC 1 digit level), an industry level analysis (i.e. SITC 2 digit level) will reveal major differences. The share of different categories of SITC 1 digit commodities in the total export basket in India over the period 1992-2012 is captured in Table 8. The share of SITC 6 i.e. manufactured goods classified chiefly by material (leather, rubber, cork and wood products,

textiles, metallic, and non-metallic manufactures) in India's exports went down significantly, from 39 per cent in 1992 to around 23 per cent in 2012. More importantly, in a sign of possible value addition to manufacturing exports, the shares of SITC 7, 5 and 3 went up during the given period. The share of SITC 7.i.e. Machinery and Transport equipment grew from 7 per cent during 1992 to 14 per cent during 2012. But this increase is nonetheless less rapid and noteworthy than China, as we will see next.

**Table 9** Changing shares of different sectors in Chinese exports during 1992-2012 (per cent shares) (1 digit level)

Commodity code	Commodity description	1992	2005	2012
SITC-8	Miscellaneous manufactured articles	39.9	25.5	26.1
SITC-6	Manufactured goods classified chiefly by material	19.0	16.9	16.3
SITC-7	Machinery and transport equipment	15.5	46.2	47.1
SITC-0	Food and live animals	9.8	0.30	2.5
SITC-3	Mineral fuels, lubricants and related materials	5.5	2.3	1.5
SITC-5	Chemicals and related products, n.e.s.	5.1	4.7	5.5
SITC-2	Crude materials, inedible, except fuels	3.7	1.0	0.7
SITC-1	Beverages and tobacco	0.8	0.2	0.1
SITC-9	Commodities and transactions not classified elsewhere in the SITC	0.50.2	0.2	0.1
SITC-4	Animal and vegetable oils, fats and waxes	0.2	0.0	0.0

In China, it is the machinery and transport equipment segment (SITC 7) which underwent the most rapid rise in share in China's total exports in the last three decades (Table 9), with its share going up from 16 per cent in 1992 to as much as 47 per cent two decades later. In other words, almost half of China's total manufacturing exports today reflect high value addition and greater technology content than before. The two digit level analysis will further corroborate this view. Since the mid-1990s, FDI inflows into China has concentrated on advanced and high technology oriented industries such as electronics, bioengineering, aviation, aerospace, and IT and thus the role of FDI in the sophistication of Chinese exports particularly since the early 1990s is clearly manifest. SITC 7 happens to be the only segment which has shown worthwhile increase in share of exports in China. On the other hand, decline in export shares from 1992 to 2012 has been accounted for by SITC 8, (39 per cent to 26 per cent), SITC 6 (19 per cent to 16 per cent). SITC 0 (10 per cent to 3 per cent), SITC 3 (6 per cent to 2 per cent), SITC 2 (4 per cent to 0.7 per cent).

China's export profile has undergone such high degree of sophistication relative to its stature as a developing economy that its export profile seems to draw comparisons with the EU and US who are at an advanced stage of development and where per capita incomes are

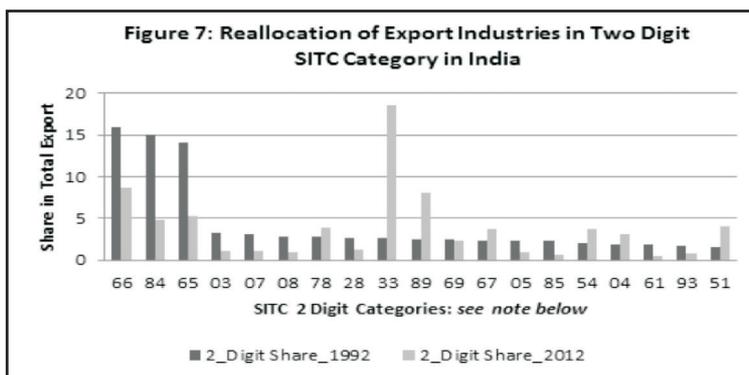
way higher than in China (Schott 2008). But the change in structure follows government policies designed to promote value addition in exports, for instance by setting up large-scale technology parks and targeted skilling of human capital.

Although some studies (notably, Amiti and Freund 2010) attribute the growing sophistication of Chinese exports to processing trade, more recent studies show that the traditional linkages between imports and exports (by way of processing trade) is weakening now and that owing to high FDI inflows, China's domestic production capability has indeed grown. As a result there is a discernible shift in China towards high-end goods exports (Cui and Syed 2007).

High tech clusters in China like the Dalian and Kunming High Tech Industrial Zones among several others, contribute towards attaining sophistication of exports by way of an orchestrated shift of focus away from labour intensive sectors. These zones attract FDI, encourage the diffusion of technology and advanced learning and promote indigenous production capabilities (Xin and Zhou 2003; Ku, Liao, and Hsing 2005).

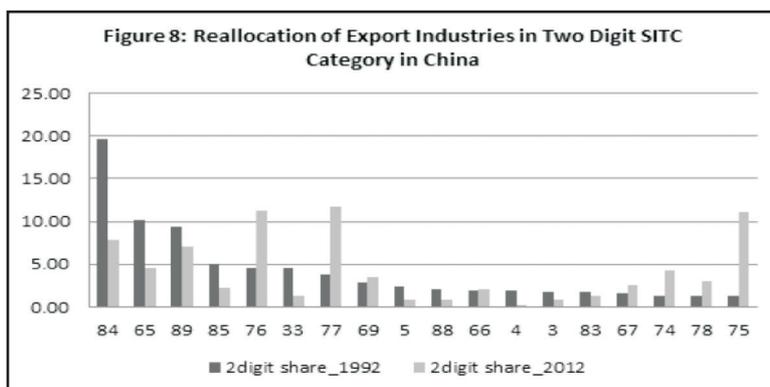
In India on the other hand the sophistication of exports has been considerably slower than China. This is partly because the manufacturing sector is not the dominant sector in India (services exports cornered 57.91 per cent of total exports during 2005-12) and a sizeable chunk of the skilled human capital is absorbed in the services sector. Meanwhile the National Skills Mission to empower and skill the existing labour force have failed to take off in a noteworthy manner. Again, a lack of FDI has meant that technology transfers of consequence have hardly taken place. Although both India and China registered growth in the skill and technology intensive SITC 7 category, India's growth pales in comparison to China's. According to Panagariya (2011), this is due to the nature of policymaking. For example, even though Indian autoparts and automobile sector performed well in the last decade, exports in the category nonetheless fall behind due to the domestic orientations of policymaking. As a result, export of road vehicles (SITC 78) from India registered a paltry growth of less than 2 per cent. SITC 7, i.e. machinery and transport equipment, in fact, is one of the major imports to India from China.

The analysis of two digit industries' share of total export throws further light on these phenomena (Figure 7). In India, decreases in the share of three sectors in particular are noted: non metallic manufactures (66), clothing and accessories (84) and textiles and fabrics (65). On the other hand, sectors which experienced increase in export are 'petroleum and petroleum products' (33), 'miscellaneous manufactured goods nes' (89) and organic chemicals (51), and to a lesser extent in 'other transport equipments' (79). All of these product segments are somewhat higher technology and skill intensive than the ones that have decreased their shares in total export over the years. However, the degree of change in China is far greater besides the fact that the industries that show large increases in share of total export in China are high technology intensive as against medium skill and technology intensive sectors in India.



Note: SITC 84: clothing and accessories; SITC 66: non-metal mineral manufactures; SITC 65: Textile yarn and fabrics etc; SITC 33: petroleum and petrol products; SITC 89: miscellaneous manufacturing articles; SITC 51: Organic chemicals

As seen in Figure 8, in China, there has been a move out of five sectors: clothing and accessories (84), textile yarn and fabrics etc (65), miscellaneous manufactured articles (89), footwear (85), and petroleum and petroleum products (33). Interestingly, all but one of the above-mentioned sectors are highly labour-intensive in nature and reflect very little skill and technology content. While China's prowess in these sectors was once talked about, the dramatic decline in shares of these sectors is striking. Apart from small increases, sectors which experienced significant increase in exports are Office machines and automatic data-processing machines (75), Electrical Machines apparatus and parts n.e.s (77) and Telecom and sound equipment etc (76) – all reflecting much greater skill and technology content than before. See Tables 10 and 11 for a detailed breakdown of the structural changes in China's and India's export basket over the past two decades.



Note: SITC 84: clothing and accessories; SITC 65: Textile yarn and fabrics etc; SITC 85: Foot wear; SITC 76: Telecom and sound equipment etc SITC 33: petroleum and petrol products; SITC 77: Electrical Machines apparatus and parts n.e.s; SITC 74: general industrial machineries nes; SITC 75: Office machines and automatic data-processing machines

More than anything else, the continuing high performance of the Chinese manufacturing industry has also to do with the continuing process of adaptation in that country. In contrast, India's adaptation has been slow, if worth noting. China's export sophistication in manufacturing sector confirms the relative stability of the Chinese manufacturing sector and also points to the possible dominance of Chinese manufacturing in the future as well. On the other hand, India's manufacturing sector suffers from not just a lack of FDI, thanks to poor infrastructure among other things, but also a concomitant lack of productivity. These result in considerably lower sophistication of the industry as a whole, thus keeping India's manufacturing sector at a low profile, as has always been the case. To play catch up with China, India has to attract FDI in manufacturing sector, enable technology transfers, smoothen out hurdles like land acquisition and even make labour laws less rigid, while not failing to protect the labour force. More importantly, the Indian labour force needs to be upskilled to instill greater productivity and efficiency. Some of the recent reforms are likely to make a dent in India's manufacturing. These have been discussed at greater length in previous sub-sections.

**Table 10** Reallocation of Export Shares in Two Digit Industries in India

Order of 1992	Commodity Code	Commodity Description	cocode_ Two Digit	2_digit share_ 1992	2_Digit Share_ 2012	Order of 2012	cocode	changes
1	66	Non-Metal.Mineral Manfct	66	15.90	8.63	2	66	7.28
2	84	Clothing And Accessories	84	14.96	4.78	5	84	10.18
3	65	Textile Yarn, Fabric, Etc.	65	14.15	5.27	4	65	8.88
4	03	Fish, Crustaceans, Mollusc	03	3.21	1.16	21	03	2.05
5	07	Coffee, Tea, Cocoa, Spices	07	3.07	1.06	23	07	2.00
6	08	Animal Feed Stuff	08	2.89	0.91	27	08	1.97
7	78	Road Vehicles	78	2.76	3.94	7	78	-1.18
8	28	Metalliferous Ore, Scrap	28	2.65	1.32	19	28	1.33
9	33	Petroleum, Petrol Product	33	2.60	18.62	1	33	-16.02
10	89	Misc Manufctrd Goods Nes	89	2.53	8.11	3	89	-5.58
11	69	Metals Manufactures, Nes	69	2.51	2.34	12	69	0.17
12	67	Iron and Steel	67	2.41	3.76	8	67	-1.35
13	05	Vegetables and Fruit	05	2.35	0.92	26	05	1.43
14	85	Footwear	85	2.28	0.68	34	85	1.60
15	54	Medicinal, Pharm Products	54	2.08	3.75	9	54	-1.67
16	04	Cereals, Cereal Preprtns	04	1.87	3.15	10	04	-1.28
17	61	Leather, Leather Goods	61	1.85	0.42	39	61	1.43
18	93	Spec Transact Not Classd	93	1.72	0.87	28	93	0.85
19	51	Organic Chemicals	51	1.55	3.99	6	51	-2.45
20	53	Dyes, Colouring Materials	53	1.45	0.70	33	53	0.75
21	62	Rubber Manufactures, Nes	62	1.13	0.87	29	62	0.26
22	29	Crude Animal, Veg.Materl.	29	1.05	2.43	11	29	-1.38
23	83	Travel Goods, Handbgs Etc	83	1.04	0.35	41	83	0.69
24	68	Non-Ferrous Metals	68	1.01	1.51	17	68	-0.50
25	77	Elec Mch Appar, Parts, Nes	77	0.96	1.84	14	77	-0.88

Contd.

**Table 10** Reallocation of Export Shares in Two Digit Industries in India (contd.)

Order of 1992	Commodity Code	Commodity Description	ccode_ Two Digit	2_digit share_ 1992	2_Digit Share_ 2012	Order of 2012	ccode	changes
26	27	Crude Fertilizer, Mineral	27	0.89	0.61	35	27	0.28
27	12	Tobacco, Tobacco Manufact	12	0.88	0.32	42	12	0.56
28	72	Special. Indust. Machinery	72	0.88	1.20	20	72	-0.32
29	74	General Industl. Mach. Nes	74	0.77	1.79	15	74	-1.02
30	71	Power Generatng. Machines	71	0.75	0.97	25	71	-0.22
31	06	Sugar, Sugr. Preptns, Honey	06	0.67	0.78	31	06	-0.10
32	59	Chemical Materials Nes	59	0.52	0.98	24	59	-0.45
33	55	Essentl. Oils, Perfume, Etc	55	0.51	0.72	32	55	-0.21
34	26	Textile Fibres	26	0.50	1.58	16	26	-1.08
35	01	Meat, Meat Preparations	01	0.48	1.09	22	01	-0.61
36	75	Office Machines, Adp Mach	75	0.37	0.25	46	75	0.12
37	52	Inorganic Chemicals	52	0.36	0.48	37	52	-0.13
38	73	Metalworking Machinery	73	0.24	0.18	47	73	0.06
39	22	Oil Seed,Oleaginus Fruit	22	0.24	0.53	36	22	-0.29
40	42	Fixed Veg. Fats and Oils	42	0.22	0.29	44	42	-0.06
41	76	Telecomm. Sound Equip Etc	76	0.21	1.48	18	76	-1.28
42	58	Plastic, Non-Primary Form	58	0.17	0.42	40	58	-0.25
43	88	Photo. Appar. Nes; Clocks	88	0.16	0.15	48	88	0.01
44	87	Scientific Equipment Nes	87	0.16	0.47	38	87	-0.32
45	64	Paper, Paperboard, Etc.	64	0.14	0.31	43	64	-0.17
46	34	Gas, Natural, Manufactured	34	0.14	0.08	53	34	0.06
47	09	Misc. Edible Products Etc.	09	0.11	0.10	49	09	0.01
48	32	Coal, Coke, Briquettes	32	0.09	0.09	52	32	0.01
49	79	Othr. Transport Equipment	79	0.09	2.08	13	79	-1.99
50	57	Plastics in Primary Form	57	0.08				
51	63	Cork, Wood Manufactures	63	0.07				
52	43	Animal, Veg. Fats, Oils, Nes	43	0.05				
53	11	Beverages	11	0.05				
54	81	Prefab Buildgs, Ftng Etc	81	0.05				
55	02	Dairy Products, Bird Eggs	02	0.05				
56	82	Furniture, Bedding, Etc.	82	0.04				
57	23	Crude Rubber	23	0.04				
58	56	Fertilizer, Except Grp272	56	0.01				
59	00	Live Animals	00	0.00				
60	21	Hides, Skins, Furskins, Raw	21	0.00				
61	41	Animal Oils and Fats	41	0.00				
62	25	Pulp and Waste Paper	25	0.00				
63	24	Cork and Wood	24	0.00				
64	96	Coin Nongold Noncurrent	96	0.00				

**Table 11** Reallocation of export share in two digit industries in China

Order of 1992	Commodity code	Commodity description	2 digit share_1992	2 digit share_2012	Commodity code	order of 2012	Changes
1	84	CLOTHING AND ACCESSORIES	19.67	7.79	84	4	11.87
2	65	TEXTILE YARN, FABRIC, ETC.	10.10	4.66	65	6	5.45
3	89	MISC MANUFCTRD GOODS NES	9.36	7.13	89	5	2.23
4	85	FOOTWEAR	4.99	2.28	85	13	2.71
5	76	TELECOMM.SOUND EQUIP ETC	4.57	11.20	76	2	-6.63
6	33	PETROLEUM, PETROL PRODUCT	4.52	1.25	33	19	3.27
7	77	ELEC MCH APPAR, PARTS, NES	3.87	11.77	77	1	-7.90
8	69	METALS MANUFACTURES, NES	2.81	3.57	69	8	-0.76
9	5	VEGETABLES AND FRUIT	2.43	0.90	5	24	1.53
10	88	PHOTO APPARAT NES; CLOCKS	2.17	0.82	88	26	1.34
11	66	NON-METAL.MINERAL MANFCT	2.01	2.05	66	15	-0.04
12	4	CEREALS, CEREAL PREPRNTS.	1.90	0.07	4	49	1.82
13	3	FISH, CRUSTACEANS, MOLLUSC	1.83	0.88	3	25	0.95
14	83	TRAVEL GOODS, HANDBGS ETC	1.74	1.25	83	20	0.49
15	67	IRON AND STEEL	1.56	2.63	67	12	-1.07
16	74	GENERAL INDUSTL MACH.NES	1.40	4.22	74	7	-2.83
17	78	ROAD VEHICLES	1.37	3.02	78	9	-1.66
18	75	OFFICE MACHINES, ADP MACH	1.33	11.13	75	3	-9.79
19	52	INORGANIC CHEMICALS	1.23	0.68	52	29	0.55
20	51	ORGANIC CHEMICALS	1.20	1.69	51	16	-0.49
21	26	TEXTILE FIBRES	1.06	0.16	26	39	0.90
22	54	MEDICINAL, PHARM.PRODUCTS	1.05	0.58	54	30	0.47
23	79	OTHR. TRANSPORT EQUIPMENT	1.02	2.19	79	14	-1.17
24	32	COAL, COKE, BRIQUETTES	0.99	0.10	32	46	0.89
25	82	FURNITURE, BEDDING,ETC.	0.97	2.74	82	11	-1.77
26	29	CRUDE ANIMAL, VEG.MATERL.	0.93	0.22	29	38	0.71
27	6	SUGAR, SUGR.PREPTNS, HONEY	0.93	0.08	6	48	0.85
28	71	POWER GENERATNG MACHINES	0.89	1.56	71	18	-0.67
29	68	NON-FERROUS METALS	0.86	1.06	68	22	-0.20
30	72	SPECIAL INDUST MACHINERY	0.79	1.68	72	17	-0.89
31	1	MEAT, MEAT PREPARATIONS	0.68	0.15	1	40	0.53
32	27	CRUDE FERTILIZER, MINERAL	0.67	0.14	27	42	0.53
33	59	CHEMICAL MATERIALS NES	0.59	0.68	59	28	-0.08
34	8	ANIMAL FEED STUFF	0.59	0.14	8	41	0.45
35	63	CORK, WOOD MANUFACTURES	0.59	0.55	63	31	0.04
36	7	COFFEE, TEA, COCOA, SPICES	0.59	0.12	7	44	0.47
37	0	LIVE ANIMALS	0.56	0.03	0	57	0.54
38	22	OIL SEED, OLEAGINUS FRUIT	0.55	0.05	22	55	0.50
39	12	TOBACCO, TOBACCO MANUFACT	0.52	0.06	12	52	0.46

**Table 11** Reallocation of export share in two digit industries in China (contd.)

Order of 1992	Commodity code	Commodity description	2 digit share_1992	2 digit share_2012	Commodity code	order of 2012	Changes
40	64	PAPER, PAPERBOARD, ETC.	0.51	0.69	64	27	-0.19
41	81	PREFAB BUILDGS, FTTNG ETC	0.49	1.17	81	21	-0.68
42	93	SPEC TRANSACT. NOT CLASSD	0.48	0.07	93	50	0.41
43	87	SCIENTIFIC EQUIPMENT NES	0.47	2.86	87	10	-2.40
44	53	DYES, COLOURING MATERIALS	0.42	0.26	53	37	0.16
45	11	BEVERAGES	0.33	0.06	11	51	0.26
46	62	RUBBER MANUFACTURES, NES	0.31	1.01	62	23	-0.70
47	73	METALWORKING MACHINERY	0.31	0.34	73	35	-0.03
48	55	ESSENTL OILS, PERFUME, ETC	0.28	0.26	55	36	0.02
49	24	CORK AND WOOD	0.25	0.05	24	54	0.19
50	61	LEATHER, LEATHER GOODS	0.24	0.09	61	47	0.15
51	9	MISC. EDIBLE PRODUCTS ETC	0.19	0.14	9	43	0.05
52	28	METALLIFEROUS ORE, SCRAP	0.16	0.02	28	58	0.14
53	58	PLASTIC, NON-PRIMARY FORM	0.16	0.49	58	33	-0.33
54	42	FIXED VEG. FATS AND OILS	0.15	0.01	42	60	0.14
55	57	PLASTICS IN PRIMARY FORM	0.15	0.55	57	32	-0.39
56	2	DAIRY PRODUCTS, BIRD EGGS	0.07	0.01	2	59	0.06
57	21	HIDES, SKINS, FUR SKINS, RAW	0.05	0.00	21	64	0.05
58	56	FERTILIZER, EXCEPT GRP272	0.03	0.35	56	34	-0.32
59	23	CRUDE RUBBER	0.02	0.04	23	56	-0.02
60	43	ANIMAL, VEG.FATS, OILS, NES	0.01	0.01	43	62	0.00
61	35	ELECTRIC CURRENT	0.01	0.06	35	53	-0.05
62	34	GAS, NATURAL, MANUFACTURED	0.01	0.10	34	45	-0.09
63	25	PULP AND WASTE PAPER	0.00	0.01	25	63	0.00
64	41	ANIMAL OILS AND FATS	0.00	0.01	41	61	-0.01
65	96	COIN NON-GOLD NONCURRENT	0.00	0.00	96	66	0.00
66	97	GOLD, NON-MONETARY EXCL ORES		0.00	97	65	0.00
67	TOTAL	All Commodities	100.00	100.00	TOTAL	67	

## 10 CONCLUSIONS

China's impressive performance in the manufacturing sector has stunned the world even as it increased its cheaply produced exports across the world. Over time, China's indigenous manufacturing sector was substantially beefed up on the back of rising FDI into the sector. As Rodrik (2012) asserts, much of China's performance on the exports front had to do with specific government policies geared towards broadening and modernizing China's manufacturing base. China followed the ideal stage wise development theory as it became an enormous industrial economy from being an agrarian one, only later to be followed by both

the emergence of the service sector and a parallel sophistication of manufacturing production. India in contrast seemed to have skipped the industrial phase as its manufacturing sector is lurking in the shadows with minimal investment, shoddy policy formation and implementation, bad infrastructure and a lack of FDI.

Important policy measures that drove China's rise as a manufacturing powerhouse includes firstly the careful transfer of its rural labour surplus into the town and village enterprises. This happened with the introduction of agriculture sector reforms like the household responsibility system and the dual pricing system, which increased farm incomes and productivity and left the labour surplus to be absorbed in industries across China. Once the stage was set, China brought in a SEZ policy which was hugely favorable to foreign investors and was strategically build around ports to enable exports. What came in handy was China's massive labour pool which was governed by flexible labour laws. China brought in flexibility to its labour markets and handed in much freedom to the management. Foreign investors saw an opportunity in this and poured in capital in China's SEZs. Meanwhile it was FDI that in turn not only provided jobs, increased productivity and boosted the manufacturing sector output, but also shored up China's domestic manufacturing base. Alongside these policies, China followed a currency policy which artificially pegged the Chinese yuan considerably lower than what floating exchange rates would have it at. This acted as a subsidy and helped Chinese goods flood markets worldwide. The role of trade in China's economy, and specifically in the manufacturing sector is vital. A somewhat less watched feature of China's manufacturing miracle is the massive state-sponsored infrastructure development projects which apart from boosting economic growth by themselves also attracted FDI in large numbers as investors base their decision on the availability of quality infrastructure. This FDI also helped China's manufacturing sector gradually move up the value chain, as the share of high technology and value added manufacturing goods in China's total manufacturing exports increased over the last decade. During this time, the importance of labour intensive products have somewhat come down. This again points to the very transitory nature of Chinese economic policy focus.

In contrast, India performed below par in almost all of the aspects discussed in this paper. For one, FDI in the manufacturing sector just didn't pick up as major hindrances by way of lack of infrastructure and rigid labour laws remained. Its labour laws intended to be labour friendly but instead blocked investments and made creation of jobs less probable, while leading to the informalization of labour force. Again, land acquisition was problematic and political considerations made it difficult for policymakers to engage in reforms for a long time. Infrastructure development was poor, and strains on the exchequer made it difficult for the government to fund large projects by itself. PPP projects suffered from time and cost delays and also corruption. Also, while China adapted to the needs of the ever changing global economy and undertook sophistication/value addition via FDI, India, partly due to the

lack of FDI in the sector, did not manage to catch up. Its share of world manufacturing remains low and stagnant. India's manufacturing sector value addition was also moderate and in sectors that reflect medium technology and skills intensity, whereas in China the high technology and skill intensive SITC 7 (machinery and transport equipment) reflected highest growth.

This paper has looked into all of the above factors in detail and found out what came in way of India's manufacturing sector growth. What it found was that in the precise aspects where China did well, India did not. These include everything from infrastructure support to successful SEZs. The paper also accounts for recent changes in Indian legislations that hold the potential to undo some of the historical wrongs that have plagued India's manufacturing sector. These include reforms in land acquisition and FDI policies and labour laws, and a thrust on infrastructure development.

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