RESEARCH REPORT

AN INQUIRY INTO THE INDIA-CHINA INDUSTRIAL DIFFERENTIAL

About the Report

This study has been undertaken to analogously examine the historical trends of the manufacturing sector in India and China and to expound the causes behind the manufacturing differential in both countries. The report begins with a comprehensive account of the history of manufacturing in India and China, post which it renders an in-depth dissection of various causes adding to the variance in the manufacturing sector in both the nations. We have identified four major concerned reasons, particularly - 'Demography', 'Natural Resources', 'Foreign Direct Investment' and 'Institutions and Infrastructure'. We have also incorporated a case study based on the smartphones sector to substantiate our study with a specific case consideration.

Importantly, our study is constrained by the availability of the concerned data in the public domain. Therefore, the data used in the study may pertain to the pre-COVID scenario. The objective of this report is not to encourage any predictive analysis, but to provide a detailed account of the historical trends of the manufacturing sector in the concerned nations. This report aims to provide a narrative way of analysis for simplicity and hence differs from conventional research literature already available in this domain. We have undertaken this format so that we can further the cause of research at the undergraduate level in simpler and effective ways.

Acknowledgement

Dr. Prabir De
Professor and Coordinator for the ASEAN-India Centre at RIS

Dr. Prabir De is a Professor at the Research and Information System for Developing Countries (RIS). He is also the Coordinator of ASEAN-India Centre at RIS. He has worked in the field of global economics and has research interests in international trade and development, regional integration, cooperation trade, transport facilitation and services trading. Given his expertise and knowledge in the field his valuable perspicacity was very pertinent and relevant for our report.

We are extremely grateful to Dr. Prabir De for his valuable insights regarding our research. We thank him for promoting the cause of research at the undergraduate level. His efforts have been very instrumental in helping us shape this report. We are particularly thankful to him for his suggestions pertaining to the usage of data. His recommendations helped us give this report a suitable direction. We reiterate our gratitude, on behalf of the entire Society, for his time and consideration.

Review

Dr. N. Chandra Mohan
Well-known business & economics commentator

The Dragon Trumps The Elephant

The Economics Society of Shri Ram College of Commerce's well-written and argued research report, "Inquiry into the India-China industrial differential" is required reading not just for students but also practitioners of the so-called dismal science of economics. This inquiry seeks to identify and explain the various factors behind this difference in the industrial sector that exists between India and China. Such an investigation is warranted as the economic trajectory of these two neighbours has sharply diverged from parity in gross domestic product (GDP) in 1980 to a five-fold difference in favour of China today. This is true in terms of per capita income as well.

China's manufacturing sector is currently 10-times larger than India's. The former is also a world leader in manufacturing and its exports drive much of its GDP growth. For instance, China is the biggest exporter of car parts. It is also the largest exporter of electrical and electronic components, accounting for 30 per cent of exports globally according to the United Nations Conference on Trade and Development. Besides the differential in the size of the industrial sector, India's dependence on China is high for ingredients of essential drugs, components for automobiles, smartphones and other electrical goods. India has a huge trade deficit with China.

China's rise as a global industrial power is not independent of its demographic structure, productivity of its workforce, high base-line of human development, its ability to strategically attract foreign direct investments since the late 1970s to further export-led growth, the quality of its infrastructure and institutions. It could achieve rapid rates of growth for long periods of time as it had unlimited supplies of labour willing to work at subsistence wages. There were huge investments by a socialist State that improved literacy, schooling and healthcare. India doesn't have the threshold levels of human development to attempt this trajectory.

The superior industrial performance of China versus India is exemplified in the smartphone differential. Eight years ago, China became the largest market for smartphones in the world. The factors responsible according to the report are low labour costs, robust raw material supplies, advanced infrastructure, increased R&D expenditures among others. Although India has the potential to also become a huge market for smartphones, the sector faces the lack of a level playing field vis-a-vis competing nations. It is handicapped by a cost disability due to inadequate infrastructure including power, limited design capabilities and low R&D expenditures etc.

Although the Indian government is making amends with recent policy interventions to encourage import substitution, the smartphone differential forcefully illustrates how far it has to go. According to research done at the Centre for Development Studies in Thiruvananthapuram, India's smartphone industry is dependent on foreign technology and imported parts. In contrast, China built up its innovation capability. So when domestic and foreign demand boomed, China's telecom companies could scale up to cater to this demand and become global players. The report ends on an optimistic note that if the right steps are taken, India can follow this trajectory.

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1. INTRODUCTION

The manufacturing sector is considered to be a highly essential factor for the growth and development of an economy. The industrialisation of economies, since the 19th century, has helped various nations such as the UK, Germany and France followed by the US, USSR and Japan to become prosperous and dominate the world economy. Various Asian economies have also embarked upon the path of industrialisation. These nations are slowly emerging as alternate centres of manufacturing and trade. Various East Asian economies, even with limited resources, have performed extremely well since the last few decades. This rise in modern manufacturing in various parts of the world, coupled with innovations, has led to various structural changes in the world

economy, improving labour productivity and raising economic welfare. Industrialisation began in European countries, most prominently in Great Britain, Belgium and France. While many nations followed the British model of industrialisation focusing on coal mining, engineering goods and textiles, the US chose a different path of industrialisation, based on primary exports, an abundance of land and capital intensive techniques.[1] Towards the end of the 19th century, Latin American countries and Asian economies like India and China started their journey towards industrialisation. However, these were largely based on primary activities like agriculture and mining. India and China were able to accelerate their manufacturing activities only in the second half of the 20th century.

1.1 History of Manufacturing in India

India has had a long history of manufacturing and industry. Indians dominated world trade a few centuries ago. Around 1750, India produced about 25 per cent of the world's industrial output.[2] The products produced in India were valued highly across the world. This included cotton and silk textiles, steel, wood, stone and ivory carvings, pottery, metal works etc. But, this glory began to fade away with the advent of the Industrial Revolution in various European nations. Large scale mechanisation and technological innovations made mass production of various goods possible. As the British established colonial rule in India, the Indian industry suffered badly. The effect of Europe's industrialisation could be felt in India, but the pace with which modern industries replaced traditional industries was quite low. Hence, while the existing traditional industries faced a setback, the gap that was created was not filled up on time by the modern industries, leading to the fall of the Indian manufacturing sector.

While there was revival of some Indian industries, due to infrastructural development and the advent of railway transport in the late 19th century, this did not cause any major shift in the contemporary development in manufacturing. A major impetus came at the time of the First World War, due to the rise in demand for industrial goods.[3] This period largely favoured the growth of the textile industry, especially cotton textile.

The Second World War, however, created some problems for the Indian industry, since India was a participant in the war under the aegis of the British. However, this shock was short-lived and India was able to quickly recover and exploited the opportunities provided by the war. While some industries like diesel engines, pumps, sewing machines etc. suffered a setback, a few others, like ammunition, chemical industries and engineering goods flourished largely.

The Partition of erstwhile India into India and Pakistan in 1947 severely affected the Indian industry. The situation improved slightly within the next few years, especially due to factors like tax concessions and the setting up of Industrial Finance Corporation. [4] The nation needed rapid industrialisation, something which was largely agreed upon by policymakers. Therefore, industrial development received special attention in the Five Year Plans, especially in the second and third Five Year Plans.[5] However, the targets could not be met, due to various factors including untimely monsoons, India's war with China and Pakistan, non-availability of foreign credit, administrative and bureaucratic impediments, etc.

Although the situation improved in the early 1970s with the fourth Five Year Plan, yet the growth rates showed wide yearly fluctuations across years. Though the economy grew at considerable growth rates, there was not much attention given to the quality and cost competitiveness. There was huge scope for modernisation. For the purpose of making India industrially competitive, some level of liberalisation was initiated in the 1980s.[6] In the backdrop of the Balance of Payments (BoP) crisis of 1991, the government, in continuation of the measures announced in the 1980s, announced the 'New Industrial Policy', which, in other words, termed as India's globalisation journey in 1990s..[7] This included various pro-business and pro-competition measures. Various structural changes, most prominently the deregulation of most industries, were aimed at correcting existing market distortions, raising employment and establishing global competitiveness of the Indian industries.

Various other steps have been taken to promote the manufacturing sector. One of them is the 'National Manufacturing Policy' of 2011, which envisaged that the share of manufacturing in India's GDP shall increase to 25 per cent by 2022.[8] Yet another important measure aimed at providing an impetus to manufacturing is the 'Make in India' campaign, launched on September 25, 2015. This programme aims to make India a 'manufacturing hub' by promoting India as a destination for the production of manufacturing goods.[9]

Although measures have been taken in order to improve the manufacturing sector of the country, the success of its economy is largely dependent on the service sector. Therefore, India has largely failed to provide employment to a large population.

There is a serious need to further develop the Indian manufacturing industries and to make them technologically equipped and globally competitive.

1.2 History of Manufacturing in China

China's professional manufacturing history dates as far back as 100 BCE. In this era, trade took place across the route called the Silk Road. It consisted of a large-scale network of transport routes, the purpose of which was to connect China with India, Persia and the Roman Empire. The Silk Road facilitated trade in many commodities, including porcelain and spice, but it was most famously used to export silk to Europe. Although China had trade connections with several countries, it largely focused on meeting the domestic demand. Foreign trade constituted a small fraction of its total economy.[10]

Chinese economy was largely based on technological advancements, including inventions like compass, paper, cast iron and steel, porcelain, silk, the stirrup, the wheelbarrow, etc. However, it fell behind the West during the Industrial Revolution. It was not able to cope with the increasing need of experiment based innovations that were needed to steer large scale manufacturing.[11] Yet, China was considered to be the world's largest manufacturer till the 1850s.[10] However, in the late 19th century, China's manufacturing glory gradually faded away. China's manufacturing began to fall after the first Opium War in 1840 when its manufacturing output was at its peak. This was mainly due to the victory of the British in the war and the domination of British over China thereafter.[10] One outcome of the British actions was that as late as 1870, around the end of the Industrial Revolution, almost half of China's import consisted of opium.[12] What followed was a vicious cycle, whereby lower manufacturing output led to lower incomes, further leading to lower purchasing power and demand for manufactured goods, and again, lowered manufacturing output.[10]

The Chinese economy was further disrupted due to the Japanese attack and two civil wars (between 1927 and 1949). But, after the second World War, European countries and Japan were faced with huge destructions, thereby allowing China to eliminate external influence.

The People's Republic of China was formed in 1949. The communist transition of China was followed by a period of struggle, especially when the US barred trade with China after the Korean War.[13] The real foundations of China as a powerhouse of manufacturing were laid in 1971, when then U.S. Secretary of State, Henry Kissinger secretly visited China for a meeting that would subsequently result in opening up of trade between China and the US.[14] Trade ties with the West developed rapidly in the following years. Since 1978, Chinese economy grew manifold. It also moved from its initial focus on producing low value-added products like apparel and accessories, to manufacturing more sophisticated products such as computers, electronic components and automobiles.

The Chinese government undertook various reforms to make exports more competitive, which also accelerated the growth off manufacturing in the country. It also tried to establish itself as a prominent part of the international trade system. In 1991, China joined the Asia-Pacific Economic Cooperation (APEC) group and after a long period of negotiations, China joined the World Trade Organization (WTO) in 2001. In just a matter of few decades, China became the leader in manufacturing by officially overtaking the US. Since then, it has continued to dominate manufacturing and has been able to maintain its position [15]

2. FACTOR WISE ANALYSIS

Why does a difference exist between the manufacturing sector of two neighbouring countries? Both the nations were extremely important some centuries ago and dominated the world economy.

Both of them, for fairly long periods, faced colonial domination and external influence. Both the nations became independent at almost the same time. Both then modernised themselves and raised their involvement in the international trade. Then why do the differences exist? Well, there are various factors contributing to this, we have focused on some important factors that have largely been responsible for the difference in manufacturing between India and China.

2.1 Demographics

The demographic structure of a nation plays an extremely important role in its productive capacity. As we shall see, it can be considered an important reason behind the manufacturing differential between India and China.

2.1.1 Population

As the two most populous countries in the world, India and China together account for 36 per cent of the world population and 67 per cent of Asia's population. Although China's population exceeds India's by 59 million in 2020, it is anticipated that India will have a larger population by 2027 with approximately 1.47 billion people. [16] High population growth is actually detrimental to a country's economic development. Studies suggest that it leads to overuse of natural resources, reduction of per capita income, fall in capital formation, increase in unemployment and exacerbation of environmental degradation.[17]

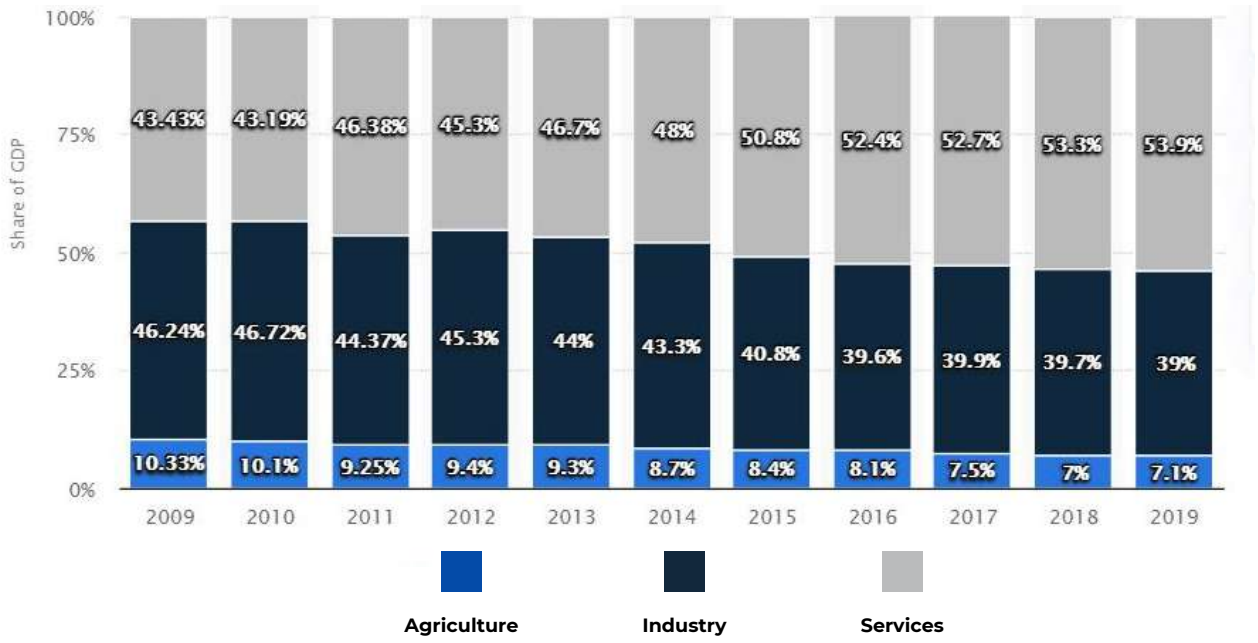


Figure 1. China's GDP by Sector
Image Source: Statista

Over-exploitation of natural resources is an especially worrying issue in countries like India, where a major part of the population depends upon agriculture for their livelihood. As the population keeps on growing exponentially, the landholdings per capita fall which eventually lead to a decline in productivity. This is an extremely common phenomenon in rural India. As a result, 15.6 per cent of all domestic migrants moved from rural to urban areas, in a desperate search for employment.[18] This further strains urban cities' resources and leads to the formation of slums.

All these factors have a tremendous bearing on India's productivity levels, especially in the manufacturing sector.

China's GDP per capita is about 5 times to that of India's and its manufacturing sector is 10 times bigger.[19] Hence, China has become a world leader in terms of manufacturing and exports, the largest contributor to its GDP.[20]

2.1.2 Labour

2.1.2.1 Productivity of the Workforce

Productivity is commonly defined as the ratio of the volume of outputs to inputs. It is an important determinant of a country's economic growth since it measures how efficiently the goods are produced in the economy. The factors affecting productivity include access to new technology, improved infrastructure, quality healthcare and high levels of training and education. As a result, it is no surprise that an average Chinese worker produces 1.6 times more output than that of an average Indian worker. This reveals that China's productivity rate is about 60 per cent higher than India's.[21] Moreover, the median Chinese firm is 156 per cent more productive than a median Indian firm. Firstly, India experiences a severe dearth of infrastructure facilities. As a proxy for the scarcity of infrastructure, researchers compared the proportion of annual sales lost due to power shortages. Indian firms reported a 9 per cent loss in sales compared to a 2 per cent loss in China.[22] Moreover, an average Chinese worker receives a greater degree of training in fields like information technology and finance. For example, 22.2 per cent of Chinese workers work on a computer regularly compared to 16.7 per cent of Indian workers. However, India outperforms China in access to finance . A major roadblock in India's productivity lies in regulatory hassles and stringent labour laws.[23]

2.1.2.2 Labour Force Participation Rate

The labour force is the supply of labour available for producing goods and services in an economy. This is one of the most important factors to consider while reviewing the industrial differential. China has readily available cheap labour which attracts various companies. Both the countries have a population growing at a very high rate, However, the trends in labour force participation are very different in both the countries. In general, the trend is that there is a significant difference in the labour force gap that has always remained parallel.

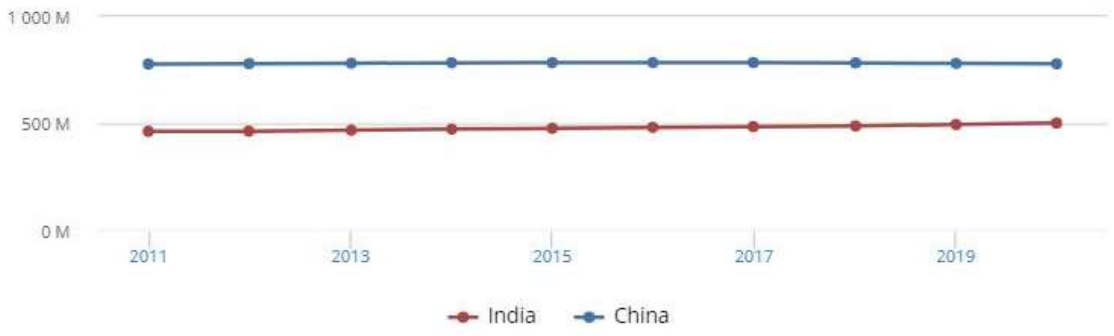


Figure 2. Labour Force, Total
Source: World Bank Indicators

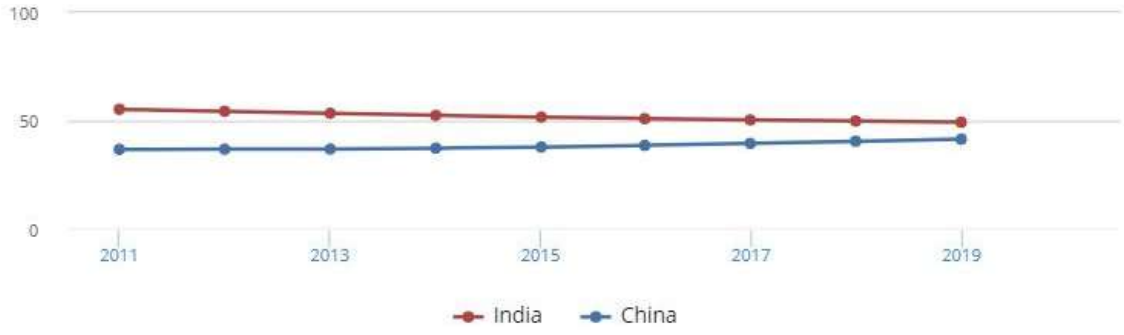


Figure 3. Age Dependency Ratio (% of Working Population)
Source: World Bank Indicators

2.1.3 Human Development Index

The Human Development Index (HDI) is an important measure of the overall well-being of a country's population. As of 2015, China is classified in the "High Human Development" category whereas India falls under the "Medium Human Development" category.With a value of 0.758 in the Human Development Index, China ranks 85 out of 189 countries and territories. On the other hand, India has a score of 0.647, placing it at a rank of 129.21 It holistically measures the following components:

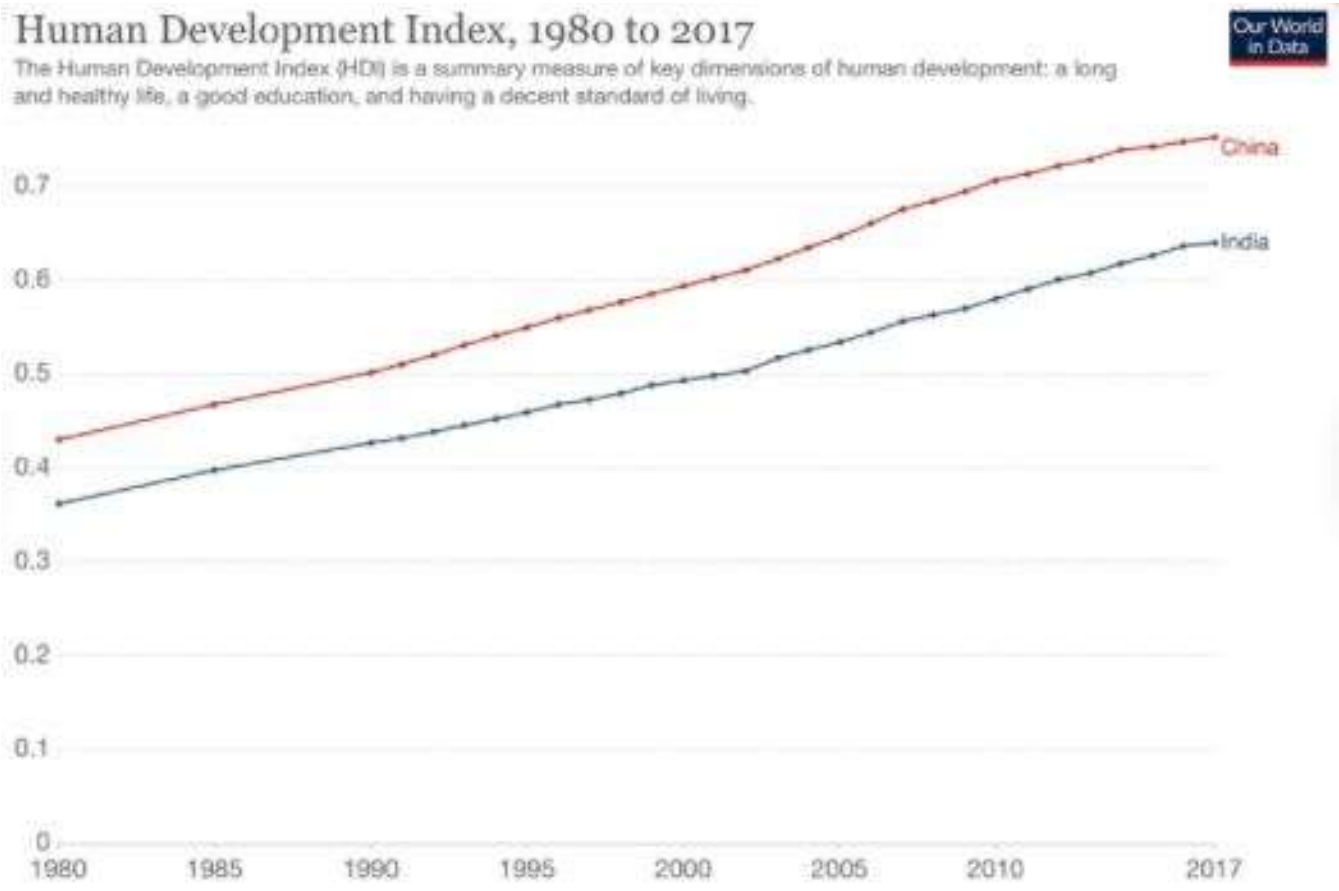


Figure 4. Human Developmennt Index
Source: Our World in Data (2018)

2.1.3.1 Quality of Healthcare

Life expectancy at birth refers to the average number of years a newborn is expected to live if mortality patterns at the time of its birth remain constant. It reflects the overall mortality level of a population and summarizes the mortality trend that prevails across all age groups in a given year. Calculated in a period life table, it provides a summary of a population's mortality pattern at a given point of time. It, therefore, does not reflect the mortality pattern that a person actually experiences during his/her life, which can be calculated in a cohort life table. High mortality in young age groups significantly lowers the life expectancy at birth. In terms of life expectancy at birth, China enjoys an estimated 76 years whereas India approximately has 69 years.[24] There's a simple relationship between economic prosperity and life expectancy.

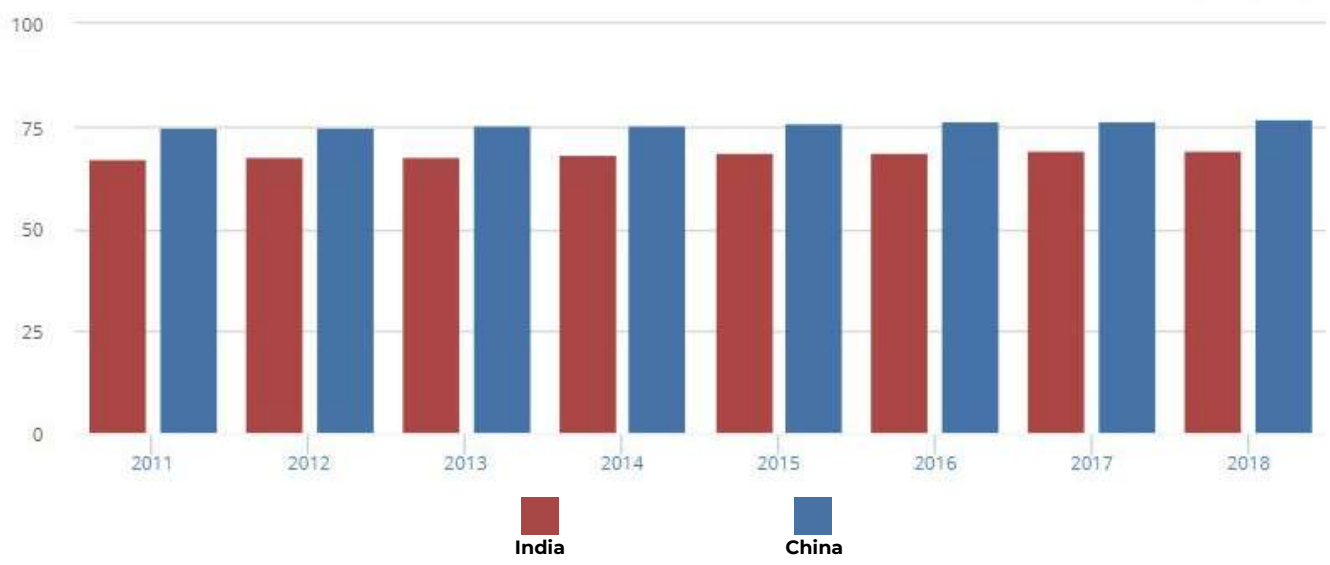


Figure 5. Life Expectancy at Birth (Years)
Source: World Development Indicators

Life expectancy is a measure used to identify the quality of healthcare in an economy. Higher the life expectancy, higher is the quality of health. This in turns leads to elevated rates of productivity. For instance, improvement in life expectancy and a fall in fertility rates in China led to an increase in the ratio of workers to dependents from under 1.5 in 1975 to 2.5 in 2010. Government expenditure on healthcare has been monumental in improving the productivity rates in China. On average, China spends 5 times more than in India on healthcare. Statistically speaking, higher-income has had a positive impact on food supply, housing and education. It is important to note that this positive relationship lasts only to a certain extent beyond which economic growth could lead to a fall in life expectancy. [24] However, within the ambit of this comparison, the Preston Curve, an empirical relationship between life expectancy and real per capita income, suggests that people born in wealthier countries can, on average, expect higher life expectancy.

2.1.3.2 Access to Education

Access to education is measured by expected years of schooling of children at school-entry age and mean years of schooling of the adult population. China and India host the world's first and second-largest education systems respectively. The East Asian growth "miracle" that preceded the development of China and India was built on the foundation of solid educational achievements. Research has shown that human capital acquired through education, influences economic growth by increasing adoption of new technologies and the productivity of the labour force.

Education flows, measured by enrollment and intake rates, build up the "stock" of education, which is measured by indicators such as literacy rate, years of education attained and percentage of educated adult population.[25] There exists a high degree of correlation between income and enrollment rates. In both countries, geographic disparities parallel income disparities. Overall, the higher the income rates, the higher are the enrollment rates too. For instance, the low-enrollment interior regions of China and the north-central states of India are poorer than their high-enrollment counterparts.

2.1.3.3 A decent standard of living

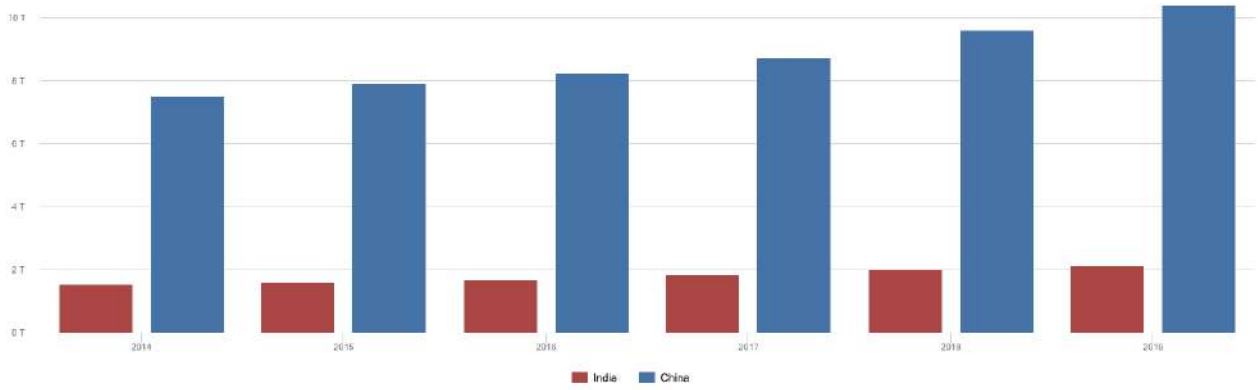


Figure 6. GNI Per Capita, Atlas Method (Current US$)
Source: World Development Indicators

GNI per capita (formerly GNP per capita) is defined as the gross national income, converted to US dollars using the World Bank Atlas method and divided by the mid-year population. It is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income from abroad.

GINI INDEX

Gini index measures the extent to which income distribution among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus, a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. As of 2016, China's Gini Index was about 38.5 whereas India's was 37.8 as of 2011.

Source: World Development Indicators

2.2 Natural Resources

This segment strives to present a comprehensive dissection on the usage of natural resources by the two neighbours. Natural resources of a nation are a meaningful determinant because they ultimately decide the percentage of raw materials that a country needs to import/export. An abundance of such resources could lead to reduced prices of raw material in a country or alternatively could increase the national income—if these resources are exported.

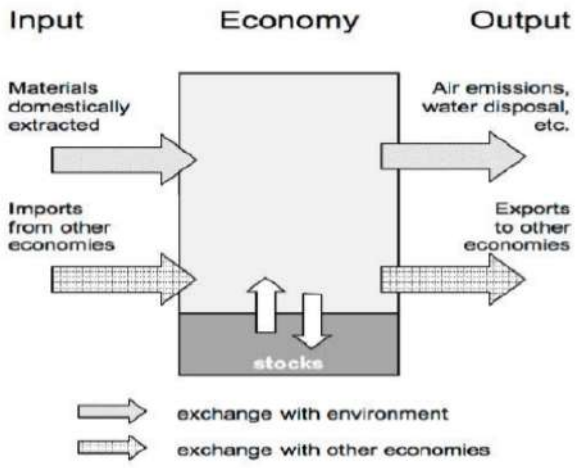


Figure 7. Natural Resources and the Economy
Source: Eurostat, 2009, p.8

India exported more than US $300 billion worth of goods in 2018. Meanwhile, China exported goods valued at nearly eight times as much. In China's mineral resources poor-quality mines outnumber the high-quality ones. The grades of Chinese manganese, lead, and zinc is also inferior. Nevertheless, even after possessing inferior quality resources in hand, China retains the baton in mining gold, zinc, lead, molybdenum, iron ore, coal, tin, tungsten, graphite, vanadium, antimony and phosphate. The only two major produced commodities of which China is out of the top 10 are gem diamonds and chromium.

This remarkable accomplishment by China's mining industry raises questions regarding its ability to maintain its leading position in the long run, keeping in mind that China's growing economy remains thirsty for sustainable supplies of raw materials, In this case, we have to consider another important indicator, which is the reserves-to-production (R/P) ratio that represents the "burn rate" of proven reserves of mineral commodities in-situ when applying current levels of domestic mine production.[26]

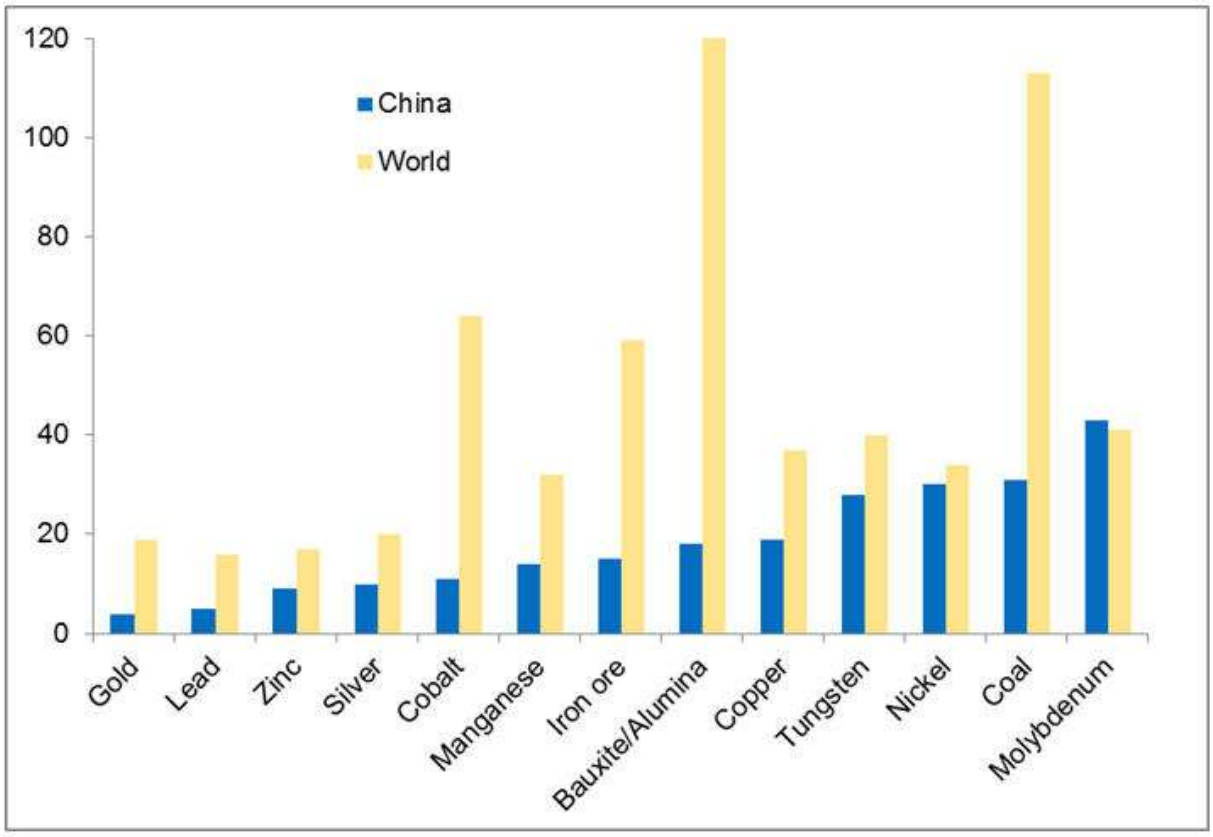


Figure 8. R/P Ratio for China in Comparison to World Average R/P, Years
Source: Mining.com

Therefore, as shown in the figure, the pace at which China is using/mining its natural resources is intense as opposed to the average rates of the world. This gives them a head start as compared to other countries but this policy might as well prove to be a fatal strategy in the long run. But eventually, we can also decode this policy. If China gets a head start right now, this may allow it to boost its economy now but in the long run it will resort to imports of such raw materials. India, on the other hand, has abundant resources but the mining industry is underdeveloped. It was formerly a part of the Gondwana super-continent, along with the landmasses that now make up Africa and Australasia, and also has a similar abundance of natural resources — including oil, gas, iron ore, coal, gold and silver. But its resource industry is extremely under-developed.

Mining contributes just 2.2 per cent of the GDP compared with 8.2 per cent in Australia and 7.3 per cent in South Africa. India unnecessarily imports over US $250 billion of oil, minerals and metals annually and sector employment is far lower than it should be. If it fulfills its potential, the mining industry could grow to 10 per cent of GDP and the country could meet half of its oil demand and almost the entire mineral requirement through domestic sources — diversifying global supply and boosting national security. This would mean more jobs, more taxes collected, a stronger balance of payments and the creation of an ecosystem of businesses that support more inclusive economic development.[27]

Natural Resources Rents

The estimates of natural resources rents are calculated as the difference between the price of a commodity and the average cost of producing it. This is done by estimating the world price of units of specific commodities and subtracting estimates of average unit costs of extraction or harvesting costs (including a normal return on capital). These unit rents are then multiplied by the physical quantities countries extract or harvest to determine the rents for each commodity as a share of gross domestic product (GDP). Accounting for the contribution of natural resources to economic output is important in building an analytical framework for sustainable development. In some countries earnings from natural resources, especially from fossil fuels and minerals, account for a sizable share of GDP, and much of these earnings come in the form of economic rents - revenues above the cost of extracting the resources. Natural

China's Industrial Geography

Over 75 per cent of China's land is on hills or mountains over 500 m tall. Half of its total land space is arid or semi-arid. Two-thirds of cultivated fields produce low or medium yields. However, it is the eastern part of China that overcomes these issues. The majority of the production activity thrives in the eastern provinces of China. Natural resources give rise to economic rents because they are not produced.

resources give rise to economic rents because they are not produced.For produced goods and services competitive forces expand supply until economic profits are driven to zero, but natural resources in fixed supply often command returns well in excess of their cost of production. Rents from nonrenewable resources - fossil fuels and minerals - as well as rents from overharvesting of forests indicate the liquidation of a country's capital stock. When countries use such rents to support current consumption rather than to invest in new capital to replace what is being used up, they are, in effect, borrowing against their future.

Source: World Development Indicators

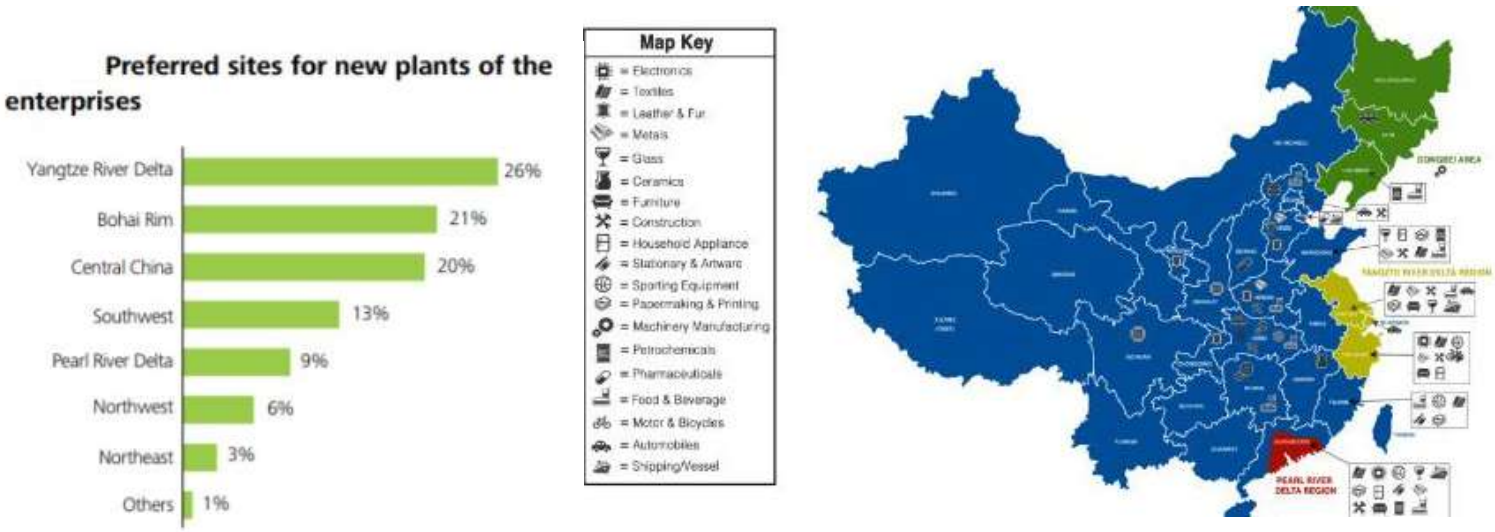


Figure 9. Preferred Sites for New Plants in China
Source: Deloitte China Manufacturing Competitiveness Study 2011

2.3 Foreign Direct Investment

2.3.1 Foreign Direct Investment in China

From staunch proponents of highly State-controlled and closed economic systems to initiators of crucial reforms aimed at transforming the communist economy into a market-oriented economy, the Chinese government has successfully managed to establish the Chinese economy as one of the most favourable investment destinations in the world. Deng Xiaoping, successor of China's communist leader Mao, hesitated little in initiating transformative changes to the economic regime beginning from 1978, unlike leaders of other countries such as India, who favoured a more gradual transformation of the economy so as to minimise short-term disruptions.[28] In the initial years, Deng paid little heed to ensuring equitable growth for all citizens and a balanced regional development. He focussed more on the development of those locations that had greater economic significance, such as the southern coastlines: to develop an export-oriented economy, coastlines were the best place to start as they provided convenient transport routes to the rest of the world through ports.[29] Such a strategy helped in the quick and resilient growth of the Chinese economy after the reforms. China was quick to develop all the requisites of a conducive business environment in the form of a majorly stable regulatory environment, financial incentives by the government, high research and development spending and world-class infrastructural facilities, augmented by China's favourable demographics (cheap labour supply, large domestic market.[30]

China's robust growth rates share a strong correlation with rising FDI's flowing into the country. Post opening up, FDI flows into China skyrocketed from a mere US$19 billion in 1990 to US$300 billion in 1999. Today, China identifies itself as the second largest recipient of FDI in the world, having received FDIs to the tune of a record US$137 billion in 2019.[31] China's FDI inflows are majorly greenfield investments rather than those for acquisition or takeover of existing firms.

One major factor to consider while analysing FDI flows into China is the fact that most of these funds are routed into China via Hong Kong.[32] Most of the time, it is often the Chinese capital that is 'round-tripped' through Hong Kong to avail of the various tax concessions and other benefits offered by this semi-autonomous region. Hence, there is enough conjecture surrounding the legitimacy of China's FDI numbers since there are no records available that examine how much FDI attributed to Hong Kong is actually from domestic Chinese or western nations.[33] Moreover, while the past trend has been in favour of foreign companies entering into Joint Ventures with Chinese companies, more recently (specifically, since 1992), affiliates of foreign companies operating in China are increasingly witnessing foreign companies hold the majority stake. Additionally, while during the initial years, FDI inflows were majorly from other developing Asian nations that wished to capitalise upon the export-oriented nature of China's economy. Presently, FDI inflows from developed countries like Japan, North America and Europe that aim at profiting from the emerging domestic market have become dominant figures.[34] A quick analysis of the FDIs flowing into China goes on to show that most of these funds are directed towards manufacturing activities and specifically, those that are labour-intensive.[35]

This further goes on to reveal how companies wish to reduce their production costs while at the same time hoping to leverage advanced high-tech skills of people by tapping China's cheap labour market. FDI that first started flowing into the Special Economic Zones (SEZs) designated along the southern coasts have only recently begun flowing to all provinces following the pursuance of broader economic policies by the government. Over the past few years, China has caught the eye of the world's investors and garnered so much attention that 'scale effect' now keeps attracting even more investors to China, regardless of its macroeconomic forecasts since the presence of a lot of global investors instils confidence. FDIs flowing into the economy have helped fuel competition, increasing efficiency, and hence, it is often cited as one of the major reasons behind China's economic growth.

2.3.2 Foreign Direct Investment in India

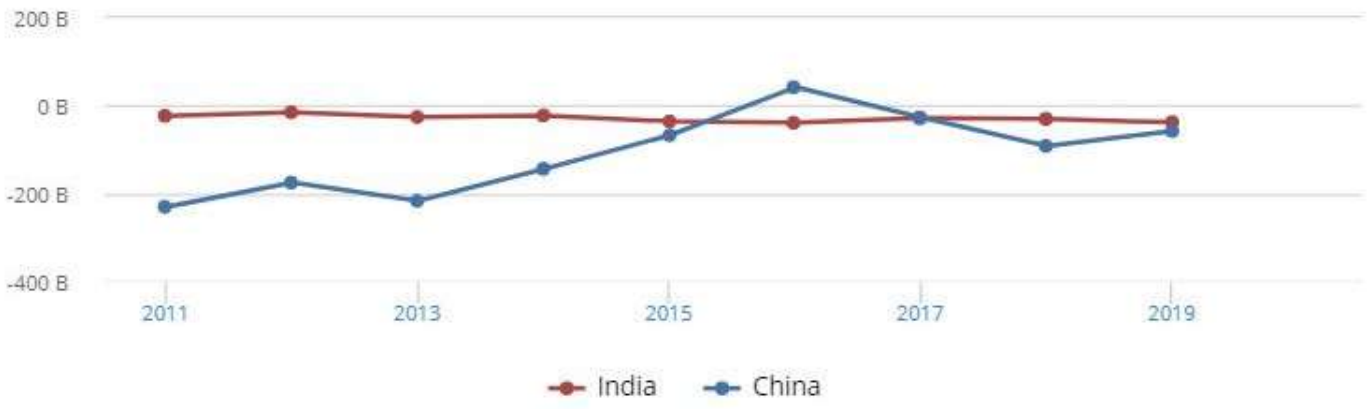
The Indian government acknowledged the importance of FDIs and opening up the economy in the year 1991. While the Chinese government opened up its borders in an attempt to boost the nation's economy, the Indian government was more guided by the need arising from India's foreign exchange crisis. Unlike an instantaneous move, the Indian government decided to open the country's borders in gradual and phased manner, taking a few subsections of the economy at a time. While India does have an attractive demographic to offer foreign multinationals wishing to invest in India, in the form of cheap labour supply and a huge market with rising per capita income, FDI has been shying away from India because of the bureaucratic hassle, unstable and

unpredictable policy changes etc. In the initial years, FDI policy in India imposed severe constraints in the form of mandatory and complex approval system, FDI limits etc. More bottlenecks in India's FDI landscape in the form of greater focus on the service sector, lack of power accessibility, sub-optimal infrastructural policies, political incentives of closing borders in favour of domestic businesses, lack of proper transport facilities, etc exist. [36]

These restrictions have been gradually relaxed by the Indian government. The automatic route that does not require non-resident to seek approval as well as the opening up of more and more sectors to foreign investment have helped India improve its position. From 1994 to the present, it has been observed that positive spillovers from FDI- competition, imitation, technological and productivity- have helped improve India's manufacturing units.[37] It is India's service and computer software sectors that have been attracting a major share of FDI. Mauritius and Singapore have emerged as the top investing countries in India, primarily because of congenial treaties between Mauritius and India (that also facilitate nationals of these countries to avoid taxes).

2.3.3 FDI and Productivity: Drawing Comparisons Between India and China

While some view FDI as a means by which resourceful countries seek to control the economic assets of a developing nation, there is no denying the fact that if the balance between regulation and enterprise freedom is struck well by policymakers, FDI can help trigger technological transfers, generate employment opportunities, raise living standards, and boost growth of developing countries without adding to their piling debts. Both India and China seem to have realised FDI's relative importance and are presently engaged in a tussle to attract the most FDI from the developed nations. However, their approaches are greatly contrasting. While in the 1950s, the conditions in both China and India were fairly similar with regards to FDI, the tables have turned today. China opened up its borders approximately two decades before India and has managed to integrate itself with the world's supply chain. As per the 2020 World Investment Report by UNCTAD, FDI inflows in China increased from US$ 138 billion in 2018 to US$ 141 billion in 2019. Whereas, India attracted an estimated FDI of US$ 49 billion in 2019, as compared to US$42 billion in 2018.[38] Over the past decades, both China and India have grown their economies impressively. However, while India's growth can be attributed more to the growing population, growing market, political incentive for domestic businesses, China's growth can be more attributed to a congenial and open business environment in the form of tax incentives, creation of Special Economic Zones (SEZs), flexible labour laws, etc.



Figuree 10. Foreign Direct Investment, Net (BoP, Current US$)
Source: World Development Indicators

However, it can be observed that China's growth has stabilised recently as the Chinese government begins to shift its attention from boosting the economy to ensuring social welfare in the form of minimum wages etc. Much of the past boom in China was facilitated by a mass migration of surplus labourers from villages to cities/SEZs to secure manufacturing jobs. Now, the migration has finally stabilised and not much surplus farm labour remains in villages. On the contrary, there is still surplus labour in Indian villages, waiting for opportunities to prop up in cities so that they can migrate and contribute to growth. According to an estimate, over 20 per cent of the agricultural labour force in India is surplus (if the minimum farm scale is taken to be 20 acres).[39] Hence, the future holds immense opportunities for India, if the policymakers are to provide businesses, both national and international, to leverage these favourable demographics.

2.4 Institutions and Infrastructure

Institutional Policies perform a significant function in the promotion of businesses across the world. Consider India's judiciary—relatively independent, however, lacking adequate resources. Its low-level adoption of technology has impaired in helping businesses seek justice, or execute projects and contracts on time. Good governance and policy are associated with higher economic growth, which should attract more FDI inflows. The high sunk cost of FDI makes investors highly sensitive to uncertainty, including the political uncertainty that arises from institutions. [40] India has adopted several policies that have tried to ease the regulatory framework for businesses in India but as evident from the above figure, its ease of business doing score has been beneath China for the past five years. This index is crucial and its score signifies the distance of an economy to the "frontier" which represents the best performance observed on each Doing Business topic across all economies. For example, a score of 70 in 2019 means an economy was 30 percentage points away from the frontier constructed from the best performances across all economies and across time. This clearly shows that India has still a long way to go ahead.

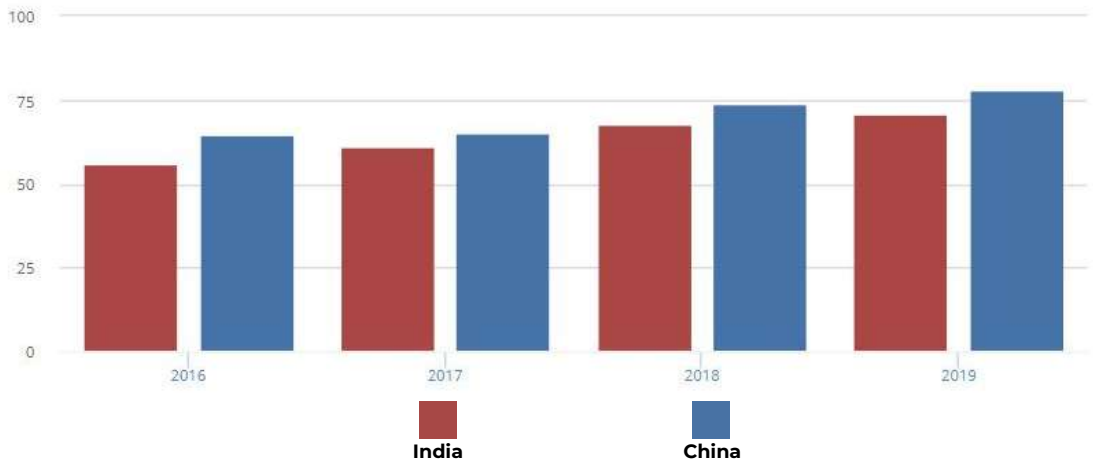


Figure 11. Ease of Doing Business Score
Source: World Development Indicators

2.4.1 Analysing the Business Ecosystem Differential

2.4.1.1 The Quantitative Differential

The businesses in states depend on a number of factors. The efficacy of laws and regulation can encourage/discourage new businesses. If the laws are too stringent, new businesses might as well be discouraged to enter the market. However, these laws and measures might as well add more to the quality of the market. If the laws are stringent then it might restrict some firms entries but on the other hand, it can lead to a better quality of firms in the market, that is- if the government check the status of each firm willing to enter then it may allow only potential forms to operate in the market, ergo leading to a quality market. Considering the other strategy, that is, if the laws and regulations are not very stringent, in this case, there are minimal restrictions on the entry of the firms. This strategy motivates people to participate in the market. Thus it allows the government to expand the industries by increasing the number of players. In this scenario, if the government has to ensure some level of restrictions so that the strategy does not backfire. In India, it is the first strategy spectrum that is being used. However, the strategy followed in India lacks both quantitative and qualitative aspects. In India, it takes more time and cost to set up a start-up business in comparison to China. We can analyse the time and cost required by startups in both countries in the figure:

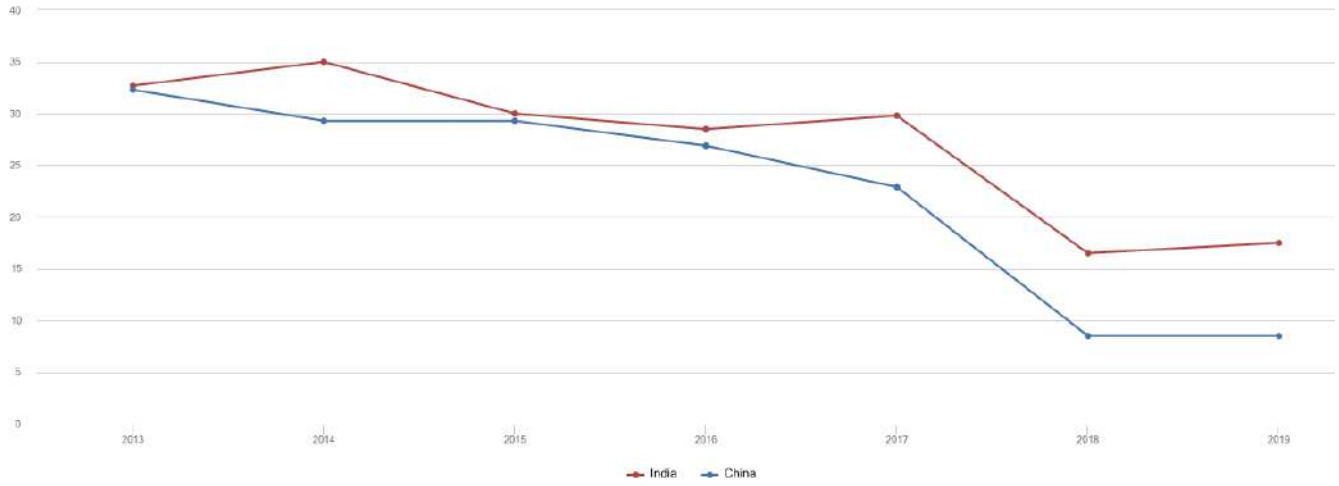


Figure 12. Time Required to Start a Business (Days)
Source: World Development Indicators

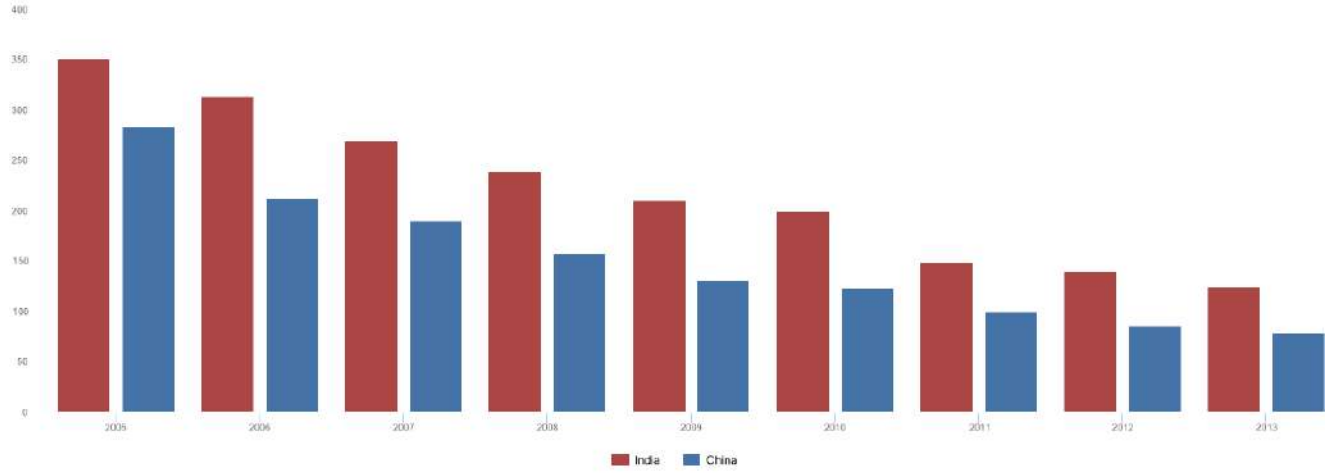


Figure 13
Cost of Business Start-Up Procedures (% of GNI Per Capita)
Source: World Development Indicators

2.4.1.2 The Qualitative Differential

This segment encompasses the infrastructural and logistical support provided by the government to the corporates and new businesses. The development of cost-efficient railways, roadways and communication channels has become crucial for countries to attract more investments and to promote the business culture. Efficient communication and logistical systems enhance the productivity of the industries and reduce their time and cost. Thus, the prevalence of efficient systems is very vital for a strong foundation of the business ecosystem.India has one of the largest railway systems in India. However, the system's inability to evolve with time has been a challenging task for India.

As of 2018, India's road channels traversed 5.5 million kilometres. The difficulty with Indian roads is that 40 per cent are unpaved. National highways make up less than 3 per cent of total roads, as opposed to 40 per cent in China. Similar limitations influence India's railways. By 2018, China boasted 2/3rd of the world's total high-speed railway lines with a labyrinth spanning 29,000 kilometres and supporting trains competent to reach speeds of 250km/hour. Meanwhile, the average speed of passenger and freight trains in India is limited to 60km/hour and 25km/hour, respectively. [41]

These factors greatly limit the flow of traffic and the capacity of India's roads and railways to support commercial trade. The following graph shows the Indo-China Infrastructural differential.

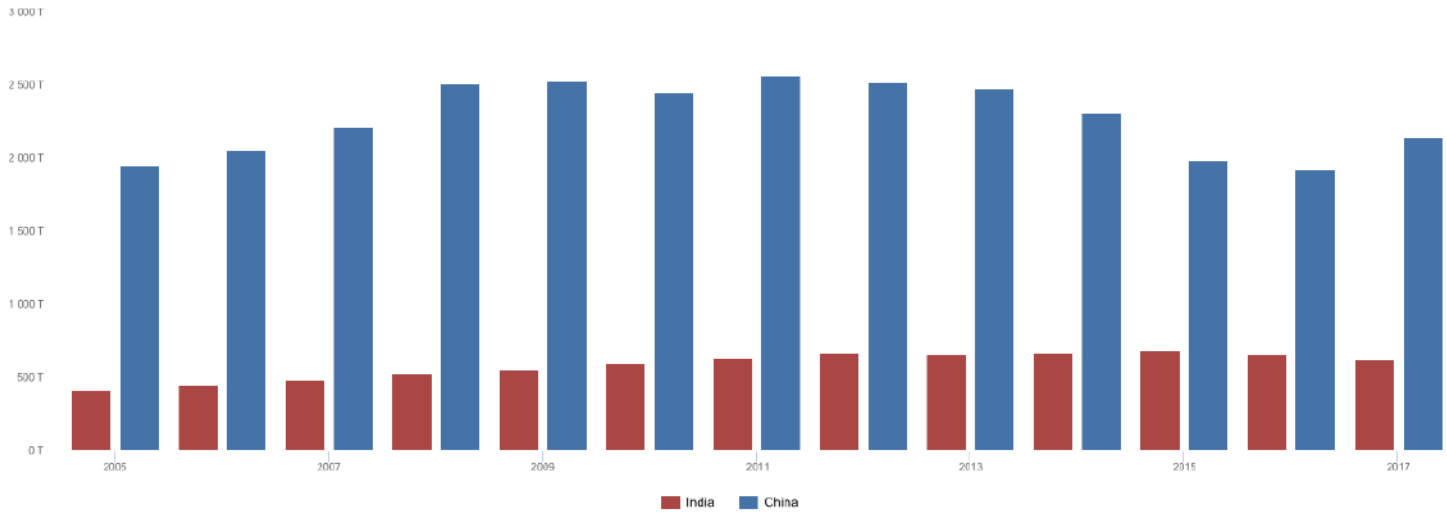


Figure 14. Railways, Goods Transported (million ton-km)
Source: World Development Indicators

CASE STUDY

3. CASE STUDY: THE SMARTPHONE DIFFERENTIAL

Smartphones have lately become an inseparable part of modern life. Countries across the world have been involved in a race to dominate the smartphone market. Hence, smartphone manufacturing can serve as a good case to analyse and compare the difference between the manufacturing sector of both countries. China, in this case as in various other cases, has emerged as a major player. In 2012, China became the largest market for smartphones in the world surpassing the US.[42] As of 2012, China produced a staggering 1.18 billion mobile phones, which accounts for more than 50 per cent of all the handsets sold worldwide and this number is increasing every year.[43] Various factors, most discussed above, have contributed to the success of the Chinese smartphone industry. These include low labour costs, robust raw material supplies, low finance cost, government support, advanced infrastructure, increased R&D expenditure and a few more.[44] Moreover, the rapid increase in the global consumer base with the growth of middle class has largely contributed to the international demand for cheaply available Chinese smartphones. Strong commitment by the Chinese government to improve network infrastructure and to relax policies, the industry has benefited hugely. In 2005, the Chinese government abolished the licensing requirements for the manufacturers of smartphones and introduced a new registration process that eased the rules and regulation to be fulfilled to start a smartphone manufacturing

business. India has also, lately, established itself as a large market for smartphones. A huge customer base, along with an adequate presence of skilled labour, exponential growth of IT companies in recent years, and a proactive government, have contributed towards establishing the Indian smartphone industry. However, the sector faces a lack of a level playing field vis-à-vis competing nations. According to the Ministry of Electronics & Information Technology (MEITY) website, the sector suffers disability of around 8.5 per cent to 11 per cent on account of lack of adequate infrastructure, domestic supply chain and logistics; high cost of finance; inadequate availability of quality power; limited design capabilities and focus on R&D by the industry; and inadequacies in skill development.[45] On a comparative note, expenditure on R&D per capita and percentage of GDP is very low in India as compared to China. Moreover, comparatively low production of primary energy in India results in high utility cost required for the setup of the manufacturing units.[44] India's dependency on other nations for the supply of key components of smartphones faces India as a real challenge. Almost all the major components for manufacturing a smartphone are sourced from China and are only assembled in India.[46] Recently, the Indian government has undertaken an important and potentially beneficial step to assist Indian smartphone manufacturers to gain back some ground and revive themselves. Production Linked Incentive Scheme (PLI) for Large Scale Electronics Manufacturing offers a production linked incentive to boost domestic manufacturing and attract large investments in mobile phone manufacturing and specified electronic components, including

Assembly, Testing, Marking and Packaging (ATMP) units. The Scheme is expected to tremendously boost the electronics manufacturing landscape and establish India at the global level. {45} However, the influence of Chinese smartphones, not only in Indian markets, but the markets around the world is huge. At least as of now, China has a clear upper hand in smartphone manufacturing as compared to India.

Apple Products and China

Despite a trade war between the United States and China, Apple is unlikely to bring its manufacturing closer to home. The Chinese factories provide really cheap labour to companies like Apple. The following portion from The New York Times Report [47] shows an interesting case:

In 2012, Apple's chief executive, Timothy D. Cook, announced that Apple would make a Mac computer in the United States. It would be the first Apple product in years to be manufactured by American workers. But when Apple began making the $3,000 computer in Austin, Tex., it struggled to find enough screws. In China, Apple relied on factories that can produce vast quantities of custom screws on short notice. In Texas, where they say everything is bigger, it turned out the screw suppliers were not. The screw shortage was one of several problems that postponed sales of the computer for months, the people who worked on the project said. By the time the computer was ready for mass production, Apple had ordered screws from China.

4. CONCLUSION

India and China, both, until the mid 18th century, were global leaders in manufacturing. But, rapid industrial expansion and innovations in technologies of mass production improved the productive capacities of various European nations, especially Britain, as a result of which, the share of both Asian countries in global manufacturing declined drastically. Britain emerged as the leader, and rapidly prospered. Embracing experiment based technological innovations, Britain was able to propagate colonial rule. India and China, both were subjected to such domination, although its impact may have been varied. In this period of colonial domination, tremendous transfer of wealth took place that further impoverished both the countries. However, it was the early 20th century, that these nations saw some revival in their manufacturing sector. Major global events, including the World Wars, and the internal revolutions in both the countries played a key role in freeing them of foreign domination. Initially, there was not much difference in the productivity of both of them. Yet, by the turn of the century, things changed drastically. China surpassed India to a huge extent, in manufacturing. Today, China dominates global manufacturing. Various factors have contributed to the rise of China. Here, four major factors causing such a difference between India and China have been identified. Both the nations have been compared with respect to these factors, and the case study of smartphones

provides a nice example of how these factors come to play. Currently, of course, India lies behind China in manufacturing global output. While there might have been certain controversial aspects to the Chinese 'leap', China has undertaken various right measures to establish its dominance, something which the comparison made above helps us understand. India has recently been seen as picking pace in manufacturing, yet there is a long way to go. We believe that India has a huge potential, and if the right steps are taken, India could establish itself as a global leader in manufacturing.

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