Has India achieved its Potential Efficiency in Merchandise Exports?

Raghuvir Kelkar and Kaliappa Kalirajan
Crawford School of Public Policy
The Australian National University

Abstract

India transformed itself from an agricultural to a services economy skipping the intermediate industrial-manufacturing stage. It is argued that the industrial and manufacturing sectors got neglected and most of the human capital was concentrated in the services sector. Recently Varghese (2018), in his report submitted to the Department of Foreign Affairs and Trade of the Commonwealth of Australia, remarked that till 2035 India will be in the list of top three economies and will be in Asia's top three trading partners for Australia. Accordingly, India needs to improve its performance of the manufacturing sector to realise the potential noted by Varghese and to make use of its demographic dividend. In this context, the research questions addressed in this paper are: What is the current efficiency level of India in exporting the merchandises; What constraints does India have to overcome to improve its export efficiency; and Has the governance structure of the 'majority government' played an effective role in rigorous opening up to improve its export efficiency. The empirical analysis will use the database of the World Bank, Reserve Bank of India archives, World Integrated Trade Solution (WITS hereafter), the Heritage Foundation data set, and Statista covering the period from 2001 to 2019. The results indicate that the gap between India's actual Merchandise exports and potential Merchandise exports is still quite large, around 20% on average. The empirical analysis has identified lack of human capital in the form of weak tertiary enrolment, lack of physical capital in the form of poor infrastructure along with lack of effective opening up of the economy for attracting Foreign Direct Investment (FDI hereafter), and a committed

governance structure in the form of a 'majority government' to implement policies effectively, as important factors to close the gap between the actual and potential exports.

1. Introduction

India, which had been primarily an agricultural economy, skipped the intermediate industrial-manufacturing sector and transformed itself directly from agriculture to services economy with most of the human capital being allocated for the growth of the services sector (Gupta 2019). This shift started from the early 1980s when the government started establishing joint ventures and took an active role in the Information and Communication Technology (ICT hereafter). India domestically produced the Supercomputer, named PARAM or PARAllel Machine, due to a rigorous government support in the field of informatics (Evans 1992). After 1991, this shift from agriculture to services was clearly seen through the lens of contribution to the GDP. The industrial growth remained stagnant as seen in Figure 1.

In the services sector, India has performed very well. Murthy (2004) showed how the reforms of Initial Public Offerings (IPOs hereafter) allowed companies to decide their own IPOs, and along with government assistance, there was an Information Technology (IT hereafter) boom in India. The major exports of India emanate from the services sector. As of 2019, India's biggest exports are in its services sector. India has a total export share of 18.7% of its GDP, and services occupy almost 12% of the total export share. Of the total services exports, the IT services consists of over 42% (World Bank 2020). Shortly after the 1991 reforms, India's IT boom witnessed many IT giants like Oracle, Infosys, and TCS opening up their backend offices in India. This was predominantly possible due to the Indian government's role in promoting the services' technology sector; growth in personal computers and software advancements.

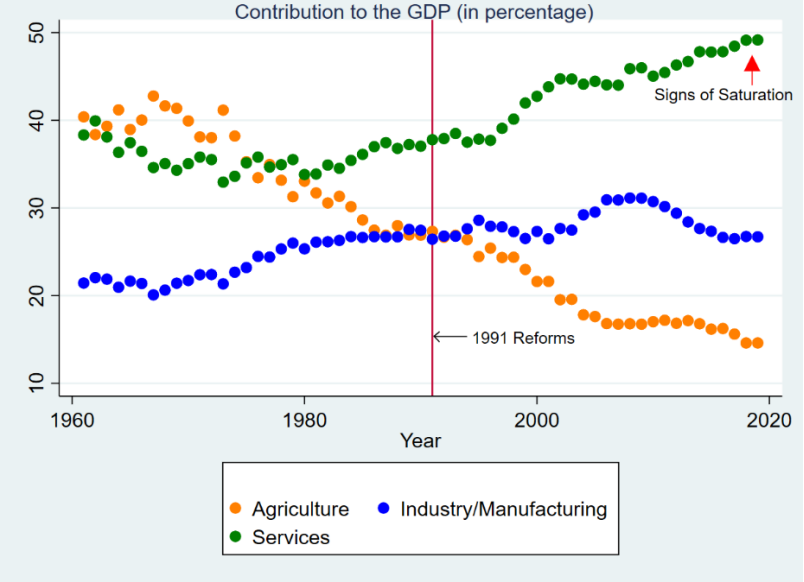

Figure 1- Sectoral Contribution to the GDP

This IT boom also helped in setting up of IT hubs and Economic Zones in places like Hyderabad and Pune (Kapur 2002). It is also one of the largest employers for India's skilled and educated workforce in the formalised sector, employing around 31.45% (Statista 2020). Currently, as of 2019, India has a world export share of 3.5% in the World Commercial Services' Exports. The Services sector had recorded a high growth rate in the financial year 2016 of 9.2% (Deloitte 2017).

Despite a reasonable growth rate, the Indian IT sector is slowly becoming saturated and its future is unpredictable due to oversupply of graduates, underpaid jobs, cuts in salaries, lack of promotions and unproductive employees (Alawadhi & Mendonca 2017). In figure 1, the signs of saturation are seen since the curve of the contribution of services to India's GDP is becoming flatter. This is worrisome, since services are one of the main sources of employment in India. Thus, India needs to find a different sector for growth, the sector which is far away from the steady state growth trajectory. India's average population is young at the age of 28 years (Statista 2020). This demographic dividend is only an opportunity, not a boon. The working population needs to be employed, and employed with reasonable earnings. In 2019, the rate of unemployment in India was at a 45-year record high at 7.8% (Economic Times 2019).

The unemployment rate cannot be reduced by focusing on the agricultural sector. In figure 1, the agricultural sector's contribution to the GDP has been decreasing over time, which is expected with the process of economic development. There has been a big drop since the 1991 reforms. The agricultural sector of India is mainly subsistence based due to small land size

holdings, which is characterised with improper crop rotation, lack of modern technologies and non-productive seeds (Bisht et.al 2014). The authors also argued that the economic development of farmers is not linked with their land size holdings due to wide variations in the farming incomes. So, it is very difficult to carve out a proper plan to develop agriculture and measure the agricultural developments in India. The agricultural sector cannot absorb skilled labour. Furthermore, the populist policies for winning elections like loan waivers for farmers make the agricultural sector more unproductive (Nand & Omar 2019).

In the case of industrial sector, India's industries are mostly state-owned. These are known as Public Sector Undertakings (PSUs hereafter). Companies like Bharat Heavy Electricals, Coal India, and Steel Authority of India have been entering in joint ventures with private players; and *sick*[1] or loss-making PSUs are being disinvested, becoming privatised or being successfully closed down (Economic Times 2017). In figure 1, it can be seen that the industry-manufacturing sector is not the largest contributor to the GDP. However, India's characteristics like land area, demographic dividend, improved ease of doing business rank and a high world rank of 48 in Global Innovation Index have made India a reasonable destination for FDI in manufacturing (Make in India 2020). China initiated its economic reforms in 1978. It set up structural reforms and policies like 100% FDI in manufacturing, creating skilled productive labour along with allowing independent levels of output, lower tax rates and quota removals. These policies created a manufacturing friendly environment and made China a leading manufacturing centre and leading merchandise exporter (Yao 2006). The strongly incorporated reforms in the institutions, the proper allocations of resources to specializations, specifically in textile and garment industry, resulted in increased wages of the employees, employment and the productivity; these improved the standard of living and reduced poverty to a significant extent in China (Khandelwal et.al 2013). They further argued that these reforms increased the total exports of China and efficiency of Chinese exporters.

India, compared with the case of China, has the potential to become a manufacturing hub and can perform well in merchandise exports. It is decisive for India to expand its exports to achieve a higher economic growth (Pal & Ashwani 2011). India needs inward FDI; but FDI will be attracted if India is efficient in its existing merchandise exports. Kalirajan and Paudel (2015) argued that India has not achieved its full potential in exporting merchandise exports to its trading partners due to India's lack of structural reforms or India's domestic constraints.

[1] Loss making PSUs of India are called sick PSUs in India

With this purview, the objectives of this paper are to analyse India's merchandise exports efficiency and to identify the domestic constraints that are preventing India from achieving its export potential. The following section provides the literature review to develop the specific research questions to be examined in this study. The theoretical framework and methodology are explained in the next section. Empirical model along with the data sources are discussed in the fourth section. The results of the empirical model that reveal India's achievements of its manufacturing export potential with its selected partners is explained in the fifth section; along with identification of factors for India's domestic constraints and their influence on India's Average Export Efficiency of its merchandise exports, also given in fifth section. The final sixth section provides the overall conclusions of these study, along with policy suggestions for addressing the India's domestic constraints that hinder India from achieving its export potential, so as to improve India's manufacturing export efficiency.

2. Literature Review:

India was the fastest growing economy in the financial year 2017-2018 with a healthy growth rate of over 7% (Economic Times 2018). However, the unemployment level also reached a 45-year old high of 7.8% in 2019 (Economic Times 2019). As a result, in the Indian State of Uttar Pradesh, around 3,700 PhD holders applied for a low paid office boy's job (Economic Times 2018). There is economic growth, but without jobs.

Drawing on Dani Rodrik's (2013) Theory of Structural Change, it can be explained why FDI is important to India in manufacturing. Rodrik makes the comparison of the labour productivity of the working population. Rodrik explains that the gap in the labour productivity comes in with the skills that the labour is equipped with. The labour productivity in the IT services will be thirty times higher than the labour working in the agricultural sector. However, labour has higher skills in the services sector. If a comparison is to be made with a wheat farmer and an IT engineer, it would not make any sense, since both have different skills and there can be no labour shift. Since India skipped the intermediate manufacturing stage and directly transformed into a services hub, a lot of labour that might have been left out of agricultural sector can be easily absorbed by the manufacturing sector.

Alternatively, a study carried out by McCaig and Pavcnik (2013) showed that the labour in manufacturing is four times more productive than the labour working in agriculture, which is a major contributor to the GDP. Literature reveals that with appropriate government policies a

labourer working in a farm can more easily transform, shift and adapt himself into a textile or garment factory worker. This shift enhances his productivity, grows his wages and thereby raises his standard of living. A low paid IT engineer can shift himself in the production sector since assembling of high-end technological products, setting up the capital in the industrial units requires highly skilled human capital. The manufacturing sector is one sector that can absorb both the low skilled and high skilled human capital.

On the other hand, Hasan et.al (2013) have argued that the complex labour laws and restrictions of retrenching workers are a major bottleneck for growth of the manufacturing investment in India. Drawing on the Heckscher-Ohlin theory of Comparative Advantage, it is logical to argue that India holds a comparative advantage in labour intensive merchandise manufactures since India is a labour abundant country. However, India is using capital intensive machinery, which is depleting the existing stock of capital. Furthermore, Hasan et.al have argued that there is a large gap in explaining the actual and predicted values of capital intensities used in the existing Indian manufacturing structure due to a very rigid structure of labour laws. India is still following the Trade Union Act of 1926, which requires the companies to take permission from powerful trade unions and government to remove or layoff unproductive workers from work (ILO Natlex 2020). The Industrial Disputes Act 1947 makes the industries mandatory to pay full salaries of the suspended employees and requires government's consent while laying off the labourers (Govt of India 1947). While making a comparison with China, the authors find that unlike in India, China's labour employment regulations support the employers rather than the employees. There is no requirement of any third-party approval for laying-off workers. Unproductive workers can easily be terminated in China, so it can be said that for job security, workers become more productive. It is puzzling to note that even after the 1991 reforms, the Indian government incentivised to import capital intensive machineries by lowering the customs duty for importing export- oriented manufacturing machineries. Along with a very rigid labour market, these cheap imports further boosted the act of replacing labour with capital. Nevertheless, India due to other bottlenecks in the infrastructure suffered productivity loss in merchandise manufactures.

Furthermore, on the technological front, Pohit and Basu (2012) argued that India's manufacturing and exports of high technology merchandise goods are not at all impressive. India has not focused on exporting the products, which have very low Non-Tariff Barriers (NTBs hereafter). Their study suggested that China and India both started at relatively similar level of manufacturing of the high-end products, but China concentrated on developing the

products having low NTBs like electronics, scientific instruments and chemicals. India's lack of concentration on R&D and low-incentives for domestic technological progress had made India's exports of technology products very weak. Taking a specific example of computer machines, the authors showed that India has a very liberal import regime for high-end technology products. The exported products' NTBs are 124 for India in contrast to China's 244. The authors have argued that there might not be many domestic computer producers in India. However, a study by Sharma et.al (2015) shows that the government has lowered customs duty for the imports of high-end machines. This has made the R&D in manufacturing less productive, since the lowered customs duty served indirectly as an incentive for cheaper priced imports. Pohit and Basu insisted that government needs to play a positive and supportive role in promoting innovation and technology for merchandise manufacturers; and Indian government has been very weak in this context. The authors demonstrated that India has not been giving any support to innovation and R&D mechanisms in merchandise manufacturers. They concluded that India should concentrate on merchandise, which have very low NTBs, so that the exports can increase.

On the other hand, Chakraborty et.al (2017) carried out the study of the FDI inflow into India and its impact on the overall export performance of India. They argued that in recent times the speed of globalisation has facilitated the growth of the international Integrated Production Networks (IPN hereafter) across the globe. Though India's merchandise trade increased substantially after the 1991 economic reforms, India's world share in the merchandise exports grew slowly from 0.51 to 1.16% during the period of 1989 to 2015. The authors explained empirically that the increase in exports have increased the FDI inflows, as in the countries like China and Vietnam. These FDI inflows have made China a manufacturing hub and as a result, China's exports grew substantially. As of 2019, China's merchandise world export share is 13.2% (Statista 2020). The authors argued that India did not experience such an increase in exports with the increasing FDI between 1989 and 2015. The authors argued that FDI was focused on the domestic growing sectors of India like chemicals, petroleum and technological products. So, FDI coming through Multinational Corporations had very less pressure on the sales of the manufactured goods. The FDI did not use the domestic resources of India for taking India into the World market through exports. Instead these FDIs sold their manufactured products to the huge domestic market of India.

In contrast to the above FDI hypothesis, Sultan (2013) in his study on India's FDI inflows and its causal relationship with the exports, supported the positive causality between FDI inflow

and export growth. He argued that the FDI inflows would bring in with its newer technology, skills of management and hierarchy, and give an easier way for the host country to integrate with international markets.

Taking a different approach, Veeramani (2008) conducted a study of Real Effective Exchange Rate (REER hereafter) of the Indian National Rupee (INR hereafter) to the US$ and its impact on the export performance of India. In the 1991 reforms, the INR was devalued to boost the exports. He concluded that if the REER increased, the dollar value of India's exports decreased. He found a directly disproportional relationship between the REER and the exchange rate. He holds the view that the exchange rate will only provide short-term benefits. Since India's GDP growth is directly connected to India's export performance, the author suggested that the government should focus on the export policies that would increase India's overall economic performance. He said that long run development of India's export performance will improve India's economic growth.

Using a comparative approach, Kalirajan and Singh (2010) carried out a comparative study of the merchandise export performances of China and India. Using the stochastic frontier gravity model approach, the authors measured the overall impact of the 'behind the border' constraints of both the countries on their export performances. These constraints are domestic policies, which hindered the exports from reaching its potential. The authors argued that in an efficient and effective way of reforms, China opened up its economy, created Special Economic Zones and implemented structural institutional changes. China improved its production environment significantly through inward FDI, which brought in technological transfer and employment. Efficient tax distributional policies, development of infrastructure and efficient ports of China boosted the export performance of China. This study concluded that China's export efficiency was better than that of India during the period of analysis. Going on further, the authors argued that since China received large amounts of FDI, it created a lot of jobs and the poverty in China was reduced by a huge extent. Comparing the policy regime of China, Kalirajan and Singh hold the opinion that had India initiated market reforms effectively and been a manufacturing hub, India might have outperformed China in reducing unemployment and poverty.

All this salient research, more or less, have concluded that the merchandise export performance of India has not reached its fullest potential. This indicates a gap between what India is actually exporting and what India should have been potentially exporting. The literature thus indicates that India has not realised its fullest export potential in manufacturing and merchandises due

to its lack of structural, institutional and policy reforms. It is in this context that it is worth noting a recent remark made by Varghese (2018) in his report submitted to the Department of Foreign Affairs and Trade of the Commonwealth of Australia. The report suggested that India should be in the list of top three economies and top three trading partners for Australia of Asia till 2035.

Hence, the objective of this paper is to precisely gauge India's merchandise goods export efficiency using the latest available export data. Specifically, the above cited comparative studies have indicated that factors like FDI inflow, GDP growth rate, and government macroeconomic policies would play a crucial role in influencing the export performance of any country. This paper discusses the factors that are impeding India to export merchandise goods to its fullest potential; and will conclude with policy recommendations and measures that are needed to be implemented so that India realises and achieves its fullest merchandise export potential.

3. Theoretical Framework and Methodology:

This paper has applied the Stochastic Frontier Gravity Model approach developed by Kalirajan (2007) on data from various sources, which are discussed in Table 1 in the next section, to estimate India's manufacturing export potential with its top 25 trading partners over the period 2001 to 2019. The conventional gravity model has been successful and popular in explaining the bilateral trade flows between countries using secondary data (Yotov et.al 2016) due to the following reasons:

i. The theoretical intuitive framework is derived from the Newton's law of Gravity. It explains the factors which affect international trade between countries, both positively and negatively. Using those factors, it gives an estimate of the potential trade.
ii. It facilitates quantifying the counterfactual effects of policies, such as tariffs framed for international trade.
iii. This model follows the general equilibrium approach and explains how any changes in the national trade policies of large countries will have implications in the international markets.
iv. This model's flexibility allows incorporating the impact of the variables that are country specific, such as the 'behind the border' constraints on international trade.
v. This model has a strong power of predictability of trade flows between countries.

The conventional gravity model, first used in the international trade arena by Isard (1954), argues that the higher GDP and lower distance between countries will increase the flow of bilateral trade. His model (p. 263) was:

$$E_{ij}=\alpha_0.Y_i^{\alpha 1}.\ Y_j^{\alpha 2}.\ D_{ij}^{\alpha 3} \qquad \ldots\ldots. (1)$$

Where the export from i to j is the explained variable E_{ij}, the GDP of country i and j are represented by Y_i and Y_j, the transportation costs or the distance between i and j is represented by D_{ij}.

The above model was augmented by Anderson (1979), Bergstrand (1985), Deardorff (1984), and Frankel (1997) among others by adding variables like population of the trading countries, complimentary variables like a mutual trade agreement and exchange rate of country i to the internationally accepted payment currency. Though these studies recognized the influence of the 'behind the border' constraints emanating from the infrastructural and institutional rigidities of the exporting countries on trade flows between countries, the impact was not formally introduced into the gravity model until recently. Kalirajan (2007) drawing on the 'error decomposition' analysis, introduced the stochastic frontier gravity model to incorporate the overall impact of the 'behind the border' constraints in the augmented conventional gravity model to estimate export potential. The ratio of the actual exports to the estimated potential exports is named as the export efficiency of the exporting country with respect to the concerned trading partner. His model (p. 93-94) is as follows:

$$\ln X_{ij}=\ln f(Z_i, \beta) \exp(v_i, u_i) \ldots\ldots\ldots (2)$$

Where ln is natural logarithm; X_{ij} represents the total merchandise exports from country i to its partner country j; $f(Z_i, \beta)$ is a function of Z_i which includes all the factors that can influence the exports of the country i to its partner country j; the unknown parameters to be estimated is represented by the vector β; v_i is the 'statistical' error term that is caused by some omitted variables and measurement errors. This random error term follows a 'normal' distribution with a mean zero and variance σ^2_v. The interesting variable is the u_i term, which explicitly captures the overall impact of the 'behind the border' constraints. It is a non-negative term and captures the domestic factors of the exporting country that hinder the exporting country's actual exports reaching from its fullest predicted potential exports. This term has a truncated (at zero) normal distribution, $N(\mu, \sigma^2_u)$. Its value is greater than zero (non-negative). If the actual export of the exporting country i is the same as the predicted potential exports, then there are no domestic constraints and the μ takes the value of zero. The μ term takes the values other than zero means

that there exist domestic constraints that impede the actual exports of country i to reach its potential exports. This term cannot be a negative value.

Now, the exporting country i's export efficiency with its concerned trading partner, which varies between 0 and 1 can be calculated as:

$$\text{Export Efficiency}_{it} = \ln \text{actual exports}_{it} \div \ln \text{potential exports}_{it} \quad \ldots\ldots (3)$$

After calculating the year-specific export efficiencies, the average export efficiency is calculated. This term is then regressed on the explanatory variables that influence the 'behind the border' domestic constraints that impede the exporting country's actual exports from reaching its potential exports.

The assumptions of the stochastic frontier gravity model are as follows:

a. The exporting country has not achieved its export potential due to its explicit domestic identifiable factors that are hindering the actual exports from reaching potential exports;
b. There are several implicit constraining factors present in the partner country j's domestic environment, but these factors, that are common with all exporting countries, are non-identifiable. These are included in the statistical error term 'v'.

This approach identifies the areas that need to be focused by the exporting country.

4. Empirical Model for Measuring the Potential Exports:

The empirical analysis is done by following the stochastic frontier gravity model developed by Kalirajan (2007) in a panel data framework by using India's manufacturing exports with its top 25 exporting partners. The period of analysis is from 2001 to 2019. The assumptions are:

a) The hierarchy of top exporting partners of India in 2019 is assumed for the whole panel.
b) The trading price of exports is assumed to be in US$.
c) This is a time-varying decay model, which means the efficiency would be changing over time.

The empirical model to measure the potential manufacturing exports of India with its selected trading partners is:

$\ln E_{ijt} = \alpha_0 + \alpha_1 \ln \text{per capita GDP}_{jt} + \alpha_2 \ln \text{per capita GDP}_{it} + \alpha_3 \ln \text{Distance}_{ij} + \alpha_4 \ln \text{Rate of Exchange}_{ijt} + \alpha_5 \text{Tariff}_{jt} + \alpha_6 \ln \text{FDI}_{it-1} + \alpha_7 \text{GFC}_{it} + (v_{it} - u_{it})$ ..... (4)

The subscripts of i, j and t represent India, India's export partner country and time in years respectively. The ln represents natural logarithm. The model was estimated using the software Stata with the command of 'xtfrontier'. The model used the time-varying decay estimation method.

Table 1. Data Description: variable's definition, unit of measurement, source of data, and expected sign of the estimate.

VARIABLE	DEFINITION	UNIT OF MEASUREMENT	SOURCE OF DATA	EXPECTED VALUE
E_{ij}	The actual total Merchandise exports of India to 25 partner countries	US$ (current prices)	WITS, World Bank	> 0
Per Capita GDP_{jt}	The per capita Gross Domestic Product of India's export partner country	US$ (current prices)	World Bank	> 0 < 0
Per Capita GDP_{it}	Exporting country India's per capita Gross Domestic Product	US$ (current prices)	World Bank	> 0 < 0
$Distance_{ij}$	The geographical distance from India's capital	Kilometres	CEPII Database, Flight Tracker	< 0

	to India's exporting partner-country's capital			
Rate of Exchange$_{ijt}$	The official rate of conversion of US$ to INR	INR	World Bank	< 0
Tariff$_{jt}$	The Weighted Average tariff rate that is levied by India's exporting partner country on the merchandise exports of India	% (percentage)	WITS	< 0
FDI$_{it-1}$	The FDI inflow in India specifically for Manufacture of the lag year	US$ (Current prices)	Reserve Bank of India Annual Reports, World Bank	> 0
GFC$_{it}$	The dummy variable to estimate whether the GFC years impacted India's exports	Years 2008, 2009 =1 Other years=0	-	< 0

v_{it}	Randomly distributed error term having mean value of zero and random variance σ^2	-	-	> 0 < 0 = 0
u_{it}	The non-negative term, which has a truncated normal distribution capturing the domestic merchandise exports constraints of India	-	-	> 0

5.1 Estimates of Potential Exports and Exports Efficiency

The estimates of the empirical model are shown in Table 2.

Table 2- Results of the Coefficient Estimates, Standard Errors, Statistical level of Significance. (Rounded off to nearest 3 decimals)

NAME OF THE VARIABLE	COEFFICIENT ESTIMATE
Constant	36.342*** (8.587)
Per Capita GDP_{jt}	0.358*** (0.084)

Per Capita GDP_{it}	-1.366* (0.758)
$Distance_{ij}$	-0.509*** (0.133)
$Rate\ of\ Exchange_{ijt}$	-2.072*** (0.542)
$Tariff_{jt}$	0.015 (0.014)
FDI_{it-1}	0.165** (0.074)
GFC_{it}	-0.105 (0.097)
Gamma term (γ)	0.512*** (0.083)
Mu Term (μ)	4.223*** (1.495)
Eta term (ŋ)	0.039*** (0.005)
No of Total Observations	475

Notes: Figures in brackets are standard errors of the estimates.

*** refers to significant at the 1% level; ** refers to significant at the 5% level; and * refers to significant at the 10% level.

The total merchandise exports, which include about 70% of manufactures, yielded statistically significant results (WITS 2018). The estimates that confirm the suitability of using the stochastic frontier gravity model for the current data set used in this paper are 'gamma' (γ), 'mu' (μ) and 'eta' (η) coefficients. The 'gamma' coefficient is positive and statistically significant at the 1% level.

The γ term explains the ratio of the variation caused by the India-specific 'behind the border' domestic constraints to the total variation in exports. The statistically significant value of γ indicates that India's domestic constraints are impacting on India's merchandise exports to a great extent. There is a large gap between India's actual merchandise exports and its export

potential with respect to the selected trading partners. Significant γ also indicates that the stochastic frontier model is best suited to the dataset. The μ term is positive and significant at the 1 % level. The μ term describes India's total distribution of the 'behind the border' constraints at the mean level. This value, which is positive and significant at the 1% level, confirms the assumption of the truncated normal distribution of the 'behind the border' constraints. The coefficient of η is statistically significant at the 1% level. η indicates whether the domestic constraints that hinder the country from reaching its export potential increases, decreases or remains constant over time. A positive, negative and 0 value shows that the u_{it} is decreasing, increasing and constant over time respectively. The η value of this model is positive. This means that during the period of analysis of 2001 to 2019, India's domestic constraints have been decreasing over time, and the gap between the potential exports and actual exports is gradually narrowing.

The estimate of the coefficient of per capita GDP of India's exporting partner country is significant at 1% level. It has an expected positive value showing that India's merchandise exports will increase with the increase in the per capita GDP of the partner country. Hence, it is important for India to keep itself updated with the liking and tastes of the partner country's population. The estimate of the coefficient of per capita GDP of India has an unexpected negative value that is significant at the 10% level. This implies that with the increase in India's per capita GDP the possibility of increase in the domestic demand within India for varieties of merchandise may not be ruled out. As of 2019, the current per capita GDP of India is approximately US$2104, which is well below the world average of US$11428 (World Bank 2020). Though the Indian policymakers are tailoring macroeconomic policies for increasing the per capita GDP, it is important that it should not be at the cost of reducing India's potential exports.

The estimate of the coefficient of distance has an expected negative value that supports the gravity model framework. The implication is that transport costs need to be carefully minimised. For example, Malik and Mir (2014) argued that lack of efficient transportation hindered India's exports with Central Asia and also delayed or was delaying the Turkmenistan-Afghanistan-Pakistan-India gas pipeline project.

The estimate of the coefficient of exchange rate has an expected negative value. This supports the literature, which emphasises that the depreciation of INR would boost India's exports. For example, Cheung and Sengupta (2013) advocated that INR appreciation against the US$ had a

negative effect on the exports of India during the years of 2000 to 2010. The coefficient estimate of FDI in manufacturing is likely to increase the total merchandise exports of India as the manufacturing exports take almost 70% share in the total merchandise exports (WITS 2018). This result is contradicting the major existing literature that the FDI in India only comes with the intention of supplying to the large domestic market and not for efficiently increasing India's exports.

The coefficient estimates of Tariff and GFC are not statistically significant. Nevertheless, these are important variables in both the gravity model framework and in the literature. The tariff structure of most of India's exporting partners is relatively smaller than that of India. India's major trading partners include, for example, Japan, USA, Hong Kong, Singapore, and Germany, which all have low tariff rates on imports from India. If India lowers its tariff rates, India's export partner countries will benefit more since they can export more products to India. The GFC component had no significant impact on India's exports. It is acknowledged in the literature that China and India were some of the few countries, which did not experience any significant negative impacts on their GDP, exports and economic growth due to GFC (Kshetri 2011).

Potential exports give an indication of how much India should be exporting to its partner countries, had there not been any 'behind the border' constraints within India. The larger the gap between actual realised exports and potential exports, the greater is the impact of the u_{it}. Export efficiency of India with respect to its each trading partners is calculated using equation (3). The year wise overall average merchandise export efficiency of India with respect to all the selected trading partners is shown in figure 2.

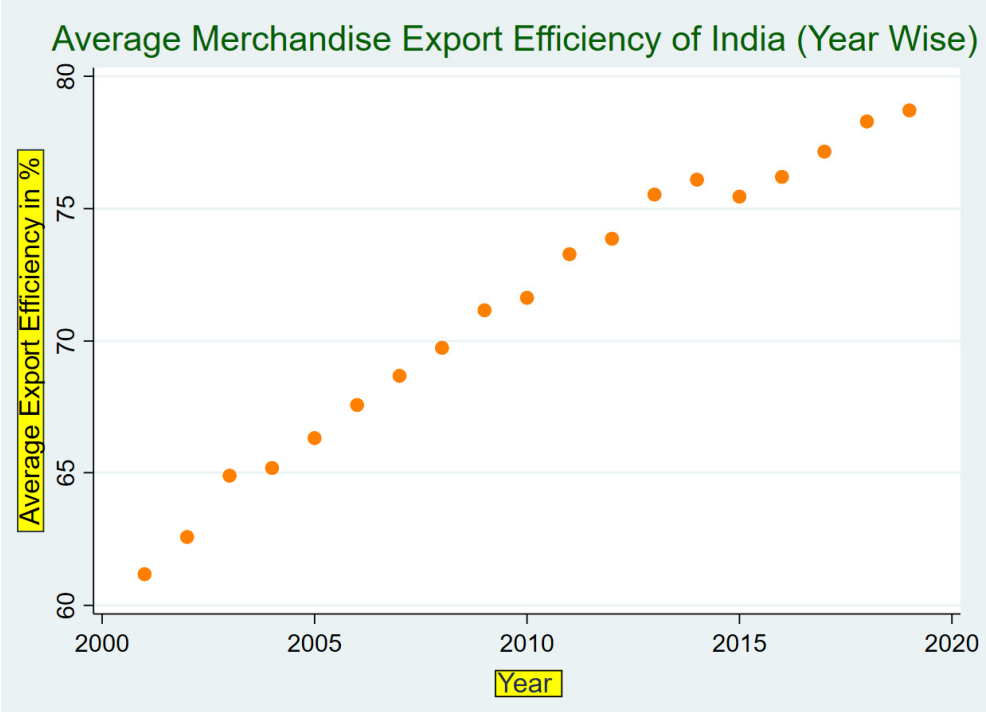

Figure 2. Year wise overall average merchandise export efficiency of India, 2001-2019

Figure 2 reveals that India's overall average merchandise export efficiency with respect to the selected top 25 trading partner countries has grown steadily except for the year 2014, in which national election was held to select a new federal government. Table 3 shows India's export efficiency, which is calculated as the average over the years 2001 to 2019, with its top 25 partner countries.

Table 3. India's Export Efficiency (average over 2001-2019) with its Selected Trading Partners (Rounded off to nearest 3 decimals)

NO.	INDIA'S EXPORTING PARTNER COUNTRIES	ACTUAL AVERAGE EXPORTS OF INDIA	POTENTIAL AVERAGE EXPORTS OF INDIA	AVERAGE EXPORT EFFICIENCY OF INDIA	% AVERAGE EXPORT EFFICIENCY
1.	USA	17.638	21.217	0.831	83.132
2.	UAE	16.617	22.002	0.755	75.525
3.	China	15.918	21.128	0.753	75.341
4.	Hong Kong	15.827	21.714	0.729	72.889
5.	Singapore	15.665	21.805	0.718	71.84

6.	UK	15.639	21.437	0.73	72.952
7.	Germany	15.46	21.485	0.72	71.955
8.	Bangladesh	14.979	21.157	0.708	70.798
9.	Netherlands	15.242	21.516	0.708	70.84
10.	Nepal	14.367	21.169	0.679	67.864
11.	Belgium	15.216	21.462	0.709	70.897
12.	Vietnam	14.499	20.679	0.701	70.117
13.	Malaysia	14.781	21.165	0.698	69.839
14.	Italy	15.064	21.432	0.703	70.288
15.	Saudi Arabia	15.11	21.553	0.701	70.107
16.	Turkey	14.454	21.14	0.684	68.37
17.	Indonesia	14.758	20.598	0.717	71.65
18.	France	14.953	21.417	0.698	69.818
19.	Japan	15.084	21.52	0.701	70.093
20.	Sri Lanka	14.812	21.261	0.697	69.668
21.	South Korea	14.739	21.56	0.684	68.363
22.	Thailand	14.498	21.262	0.682	68.187
23.	Spain	14.593	21.264	0.686	68.627
24.	South Africa	14.617	20.752	0.704	70.436
25.	Mexico	13.825	20.685	0.668	66.835

India appears to have realised, on average, about 83% of its export's potential with the US during the period of analysis. However, this can be due to the special status accorded by the US to India's merchandise exports. The US has accorded the Generalised System of Preference (GSP) to India, which allowed India to export to the US merchandises either tariff-free or with subsidised tariffs. It should be noted that the GSP has been terminated by the US in 2019, which will affect over US$5.6 billion of India's exports to the US (Suneja 2019). This GSP should not end as a case of Dutch disease for the efficiency of India's merchandise exports. The most affected merchandise of India is the exports of high technology Crystalline Silicon Photovoltaic Cells and washers, to which the US has imposed an increased safety quota and tariff of 25% (Haidar & Raghavan 2018). Collinson (2019) praised India for not engaging in a trade war and not imposing retaliatory tariff. India currently has been carefully deciding on its tariff policies.

The second largest export efficiency of India has been realised on average 75% with the UAE. The Abu Dhabi crown prince Mohammad Bin Zayed Al Nahyan and the Indian Prime Minister Modi have good working relationship and both the leaders are very keen to improve trade and cultural ties (Economic Times 2019). UAE has a large Indian diaspora and this is one of the reasons for a high efficiency in India's exports to UAE, investments, and FDI inflow from UAE to India (Goyal & Vajid 2017).

India's export potential can be increased with the East and South-East Asian Belt. Indian merchandise exports enjoy a 0% tariff in Hong Kong (WITS 2018). Having an excellent infrastructure, Hong Kong stands as a transit and free port for Indian ships; Hong Kong has an excellent port with minimal fees for services like parking, efficient customs clearance, free port status refuelling and other services for ships (Zhang et.al 2013). With a historical point of view, Kumar and Steenkamp (2013) have argued that India's cultural, language, religious and historic relations with Hong Kong, China and other South East Asian countries like Vietnam, Indonesia, Singapore, Thailand, and Malaysia have given India a unique advantage to increase their trade and exports with these countries. Table 3 shows that India has achieved roughly over 70% export efficiency with the South East Asian countries. India has a merchandise goods export efficiency approximately 68% -70% with other trading partners.

5.2 Determinants of the 'behind the border' constraints

The gap between actual exports and potential exports of India is due to the presence of the 'behind the border' constraints within India. These constraints originate from India's institutional and infrastructural bottlenecks, which need to be addressed by the policymakers effectively. This section concerns the identification of the crucial factors creating the institutional and infrastructural constraints, which hinder India from achieving its 100% merchandise export efficiency with its trading partner countries

The year-wise average merchandise export efficiency is calculated. For having consistent estimates with equation (4), instead of using the linear regression with Ordinary Least Squares estimates, this paper has used the Structural Equation Modelling (SEM). Just like the stochastic frontier model, the SEM also uses the maximum likelihood estimation for a more accurate estimation.

The empirical model used for estimating the determinants of the 'behind the border' constraints is:

$$\text{Average Export Efficiency}_{it} = \beta_0 + \beta_1 \text{ Freedom of Trade}_{it} + \beta_2 \text{ Freedom of Investment}_{it} + \beta_3 \text{ Education (Tertiary)}_{it} + \beta_4 \text{ Port Quality}_{it} + \beta_5 \text{ Majority Party}_{it} + \xi_i \quad \ldots\ldots\ldots\ldots\ldots (5)$$

Where,

the subscripts i and t stand for India and time (in years) respectively.

The scores of the explanatory variables are greater than 0, but less than 1 except for the 'majority government' variable (Table 4). The port quality score, which is between 1 and 7, is converted to 0 to 1 to have consistency with the rest of the variables' scores. The mean value of the explanatory variables is taken. The SEM is estimated by the maximum likelihood method. The average of the explanatory variables will be taken from 2001-2019.

Table 4- Definition of all variables, units of measurement, sources of data, and the expected sign of the estimate.

VARIABLE	DEFINITION	UNIT OF MEASUREMENT	SOURCE OF DATA	EXPECTED VALUE
Freedom of Trade	Flexibility, easiness and comfortability in doing Export-Import Operations and Decisions	0 < 1	The Heritage Foundation	> 0
Freedom of Investment	Flexibility, easiness and comfortability in doing Investment	0 < 1	The Heritage Foundation	> 0

Education (Tertiary)	The education enrolment after the secondary schooling that imbibes skills and technical training	0 < 1	World Bank Indicators for Development	> 0
Port Quality	The infrastructure, efficiency and logistics of the port according to the International Standards	0 < 1	World Bank LPI Index	> 0
Majority Party	A Dummy Variable which takes the value of 1 and 0 for majority government and coalition government respectively	Majority govt=1 Coalition govt=0 1 for years 2014-2019 0 for years 2001-2013	-	> 0
ξ_i	The random error term due to omitted variables and measurement errors	-	-	> 0 < 0 = 0

The estimates of the coefficients of the important variables that influence the 'behind the border' constraints and thereby India's export efficiency is shown in Table 5

Table 5: Identification of the Determinants of Export Efficiency (Rounded off to nearest 3 decimals)

NAME OF THE VARIABLE	MEAN COEFFICIENT ESTIMATE (MEAN STANDARD ERROR)
Freedom of Trade	0.521*** (0.044)
Freedom of Investment	0.397*** (0.016)
Education (tertiary)	0.189*** (0.016)
Port Quality	0.516*** (0.025)
Majority Party	0.316*** (0.107)
Number of Total Observations	19

Notes: Figures in brackets are standard errors of the estimates.

*** refers to significant at the 1% level; ** refers to significant at the 5% level; and * refers to significant at the 10% level.

Coefficients of all the selected variables are significant at the 1% level. Of these, 'trade freedom' and 'port quality' appear to be the significant variables that exert a large impact on export efficiency. After the 1991 reforms, the license system for exports and imports was abolished. Trade was liberalised and quotas were removed. A study by Topalova (2010) revealed that in specific areas of India, which were open to competitiveness from foreign firms, trade liberalization had helped to reduce poverty to a great extent due to increases in employment, productivity and wages that improved living standards of the people. The study further advocated that there should be more institutional reforms to distribute the gains from

the trade liberalization among all the areas and sections to reduce poverty and increase economic growth in India.

Arguing that investment liberalization is a necessary condition for attracting FDI in India, Kumar (2005) has shown that FDI in India even reached sectors where there were no capabilities in capital, technology and labour after the 1991 reforms. He further stressed that investment freedom and FDI transferred the much-needed knowledge, competitiveness and technology, which helped India attract investors to invest in technology and knowledge-based sectors. In the ease of doing business rankings, the 2020 report released by the World Bank indicates that India improved its position from 77th to 63rd, but failed in its mission to reach the 50th rank (Sharma 2019). China is at the 31st position, and Singapore at the 2nd and South Korea at the 5th position (World Bank 2020). India needs to develop its investment regulation to be more business-investor friendly, so that FDI comes to India, which would facilitate it becoming a manufacturing hub. This would increase India's export and subsequently India's merchandise export efficiency.

Alternatively, in terms of R&D, technology learning and skills intake, the variable of Tertiary Education is necessary as industries and manufacturing require technical skills and necessary capabilities. Saini (2015) argued that India needs a massive skills upgrade to become globally competitive and to achieve higher economic growth. He emphasised improving market relevant skills, such as technology and R&D, so that the demographic dividend of India can be properly utilised. Romer (1989) in his theory of Endogenous Growth emphasized the importance of developing human capital to achieve technological progress consistently. Le et.al (2019) showed that Vietnam invested in human capital and that resulted in increased labour productivity, which increased FDI inflows into Vietnam. Just like Vietnam, India needs to invest in tertiary education, attract FDI in manufactures, and increase its merchandise exports, which would improve the export efficiency of India.

Other examples show that evidence-based research reveals that Hong Kong and Singapore have provided excellent port infrastructure, which has helped them to enjoy the status of a valuable transit port for global merchandise exports and imports. A study carried out by Munim and Schramm (2018) found that efficient logistics and smooth port quality would bring benefits to the economy of the concerned country through increased employment and overall growth. The port quality of India is not up to the mark, which makes it one of the major domestic constraints

due to which India's actual exports is not matching with the predicted potential exports. India has a vast coastline of about 7500-7600 kms, with over 12 large ports and about 200 minor ones; of these 212 ports, only 139-140 ports are in operation, which create heavy traffic, inefficiency and congested logistics performance (Economic Times 2019). Over 95% of the trade done by India is through these ports (IBEF 2020). With significant improvement of India's ports, the possibility of increasing India's export efficiency is very high.

In terms of the State's role, India follows a parliamentary quasi-federal form of government with a multi-party system. India, after every 5 years, elects 543 members to the lower house of the parliament called Lok Sabha. The party, which crosses the halfway mark of 272 forms the government. Since India is a large country with different societies, classes, languages, caste and creeds, it becomes very difficult for a single party to form the government on its own. So many parties with more or less similar ideologies come together or just for the lust for power to form the government in coalition. From 1991 to 2014, there were a series of coalition governments. From 2014, India has obtained a full majority government under the Prime Minister Narendra Modi. Figure 3 shows the progress of India's GDP under different forms of governments.

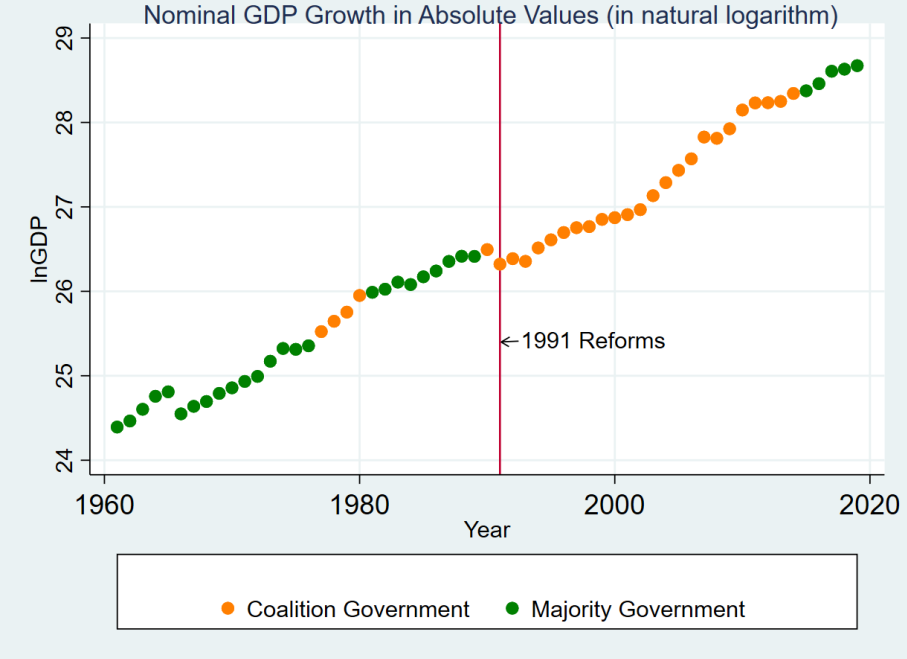

Figure 3. Nominal GDP growth under different government structures, India

The coalition government makes it difficult to pass major reforms. Each party has its own distinct ideologies and goals. Instead of passing major reforms, they end up in passing useless populist policies like farm loan waivers. From 1991 till 1999, India witnessed a series of different coalition governments and due to this shaky political environment, the opening up of India's economy was not effective and rigorous (Saez & Sinha 2010). India's growth rate in services saw an upward trend from 1999 to 2004 under the Vajpayee government. Though his government was in coalition, it was a stable coalition government (Gupta 2019). Nevertheless, this government also failed to have major institutional reforms.

In 2004, a new coalition government was formed under the Prime Ministership of Dr Manmohan Singh. He was the person, who created the blueprint for the 1991 reforms and passed them under the capacity of the Finance Minister. There were expectations from the public and the businesses that Dr. Singh in his capacity as the Prime Minister would rigorously open up the economy with major reforms. However, this was not the case. Panagariya (2008) showed how the coalition partners, especially the Communist party of India, stalled all the efforts of the government to extend exports and trade relations with western countries. Ironically, in 2011, in a press conference, Dr. Singh gave an affirmation in the form of a statement, "Some Compromises have to be made in a coalition" (Hindustan Times 2011).

In 2014, with a stable government, Prime Minister Modi reinvigorated the 'Look East Policy' into 'Act East Policy' with a vision to extend political and trade relations with the East Asian economies. For attracting FDI and increasing exports, Prime Minister Modi launched programmes, such as the 'Make in India', and 'Skills India'. Policies to give major boost to exports, like subsidies for exporters and eased land rights for inward FDI investments were implemented (Rothacher 2016). The positive and highly significant variable of the majority party at the 1% level implies that the majority government, since 2014, has indeed improved India's merchandise export efficiency. Hence, the remark made by Varghese (2018) that till 2035 India would be in the list of top three economies and be in Asia's top three trading partners for Australia might not be overemphasised.

6. Conclusions and Policy Suggestions

The empirical results from this paper indicate that India achieved reasonable growth in merchandise export efficiency during the period 2001 to 2019. Nevertheless, the gap between India's actual merchandise exports and potential merchandise exports is still quite large, at

around 20% on average. This means that India needs to pay serious attention to improving its export efficiency. In this context, attention should be focused on reducing, if not eliminating, the domestic constraints that are hindering India from realizing its export potential. The Indian government should prioritise the exporting sector as a national priority sector, so that increased attention is given to improving export efficiency by the bureaucracy. Rigid and complex bureaucratic hurdles should be removed and made easier by digitalization. There should be better communication across different ministries related to exports. This will increase exports and its efficiency, and in the coming years India can be a leader in world exporters.

The empirical analysis has identified a lack of human capital in the form of weak tertiary enrolment, lack of physical capital in the form of poor infrastructure along with lack of effective opening up of the economy in attracting FDI and a committed governance structure in the form of a 'majority government' to implement policies effectively. These important factors are needed to close the gap between the actual and potential exports. Drawing on the above identification, the following policy suggestions can be made.

With respect to improving the physical infrastructure, small and large ports should be developed, so that the congestion at large ports are minimised and logistics operation are smoothed out with modern facilities. For example, a study by Iyer and Nanyam (2020) concluded that Jawaharlal Nehru Port is the most efficient container terminal of India due to proper digitization, lower tariff rates and efficient taxi system. Upgrades like the Nehru Port should be followed in each of India's major ports. Accordingly, the government should play an active role to increase funds allocations for the development of ports. The state governments should promote, with proper supervision, any possible chances of Public-Private partnerships in managing the ports as recommended by the Rakesh Mohan Committee's report for Infrastructure development of India of 1996 (Monteiro 2010).

On the taxing procedures, literature has shown that the Custom duties have been lowered for imported machineries, technology and essential raw materials. This system reflects the inverted duty structure that causes harm to India's domestically manufactured merchandises. This trade policy seems to encourage the industries to import machineries instead of indigenously developing their own machineries. This tendency in turn will make the manufactured goods of India much less competitive against the finished imported manufactured goods in India's domestic market itself. This effect will carry on in the international market, which will have an

adverse effect on India's merchandise export efficiency. Imports of manufactured products like chemicals, high-end electronics, and steel have fewer custom duties; instead these products should be indigenously manufactured taking care of the quality to make it competitive in Indian domestic market and international export markets (FICCI 2016).

Lastly, on the financial front, subsidised credits in internationally accepted currencies should be made available for the exporters at lower interest rates. The government should take an active role in this. The Nationalised banks should take the lead so that the private banks can follow the fray. The government can make the credit system for export sector as a Priority Sector Lending, and can include this sector under Corporate Social Responsibility. This will instil a sense of security and confidence in the exporters, which in turn will facilitate improving export efficiency.

References

Alawadhi, N & Mendonca, J. (2017, March 7). Mid-level employees in Indian IT sector facing an uncertain future. *The Economic Times*. Retrieved from https://economictimes.indiatimes.com/tech/ites/mid-level-employees-in-indian-it-sector-facing-an-uncertain-future/articleshow/57503104.cms?from=mdr

Anderson, J. E. (1979). 'A Theoretical Foundation for the Gravity Equation', *American Economic Review* 69 (March): 106-16.

Bergstrand, JH 1985, 'The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence', *The Review of Economics and Statistics*, vol. 67, no. 3, pp.474-481.

Bisht, IS, Pandravada, SR, Rana JC, Malik, SK, Singh, A, Singh PB, Ahmed F & Bansal, KC 2014, 'Subsistence Farming, Agrobiodiversity, and Sustainable Agriculture: A Case Study', *Agroecology and Sustainable Food Systems*, vol 38, no. 8, pp. 890-912.

Chakraborty, D, Mukherjee, J & Lee, J 2017, 'FDI Inflows Influence Merchandise Exports? Causality Analysis for India over 1991-2016', *Global Economy Journal*, vol. 17, no. 3, p. 20170020.

Cheung, YW & Sengupta, R 2013, 'Impact of exchange rate movements on exports: an analysis of Indian non-financial sector firms', *Journal of International Money and Finance*, vol. 39, pp. 231-245.

Collinson, NB 2019, 'India Terminated from GSP and Newly Subject to Import Limits on Solar Cells and Washers', *Sandler Travis & Rosenberg PA*, viewed 21 September 2020, https://www.strtrade.com/trade-news-resources/str-trade-report/trade-report/india-terminated-from-gsp-and-newly-subject-to-import-limits-on-solar-cells-and-washers

Deardorff, A. V. (1984). 'Testing Trade Theories and Predicting Trade Flows' in Ronald Jones and Peter Kenen, (eds.), *Handbook of International Economics*, 1 :467-5 17. New York: North-Holland.

Economic Times 2018, 'Over 93,000 candidates, including 3,700 PhD holders apply for peon job in UP', *The Economic Times*, viewed 22 September 2020, https://economictimes.indiatimes.com/news/politics-and-nation/over-93000-candidates-including-3700-phd-holders-apply-for-peon-job-in-up/articleshow/65604396.cms

Economic Times Bureau 2019, 'Is the job scene in India bad? Depends on how you see it, says govt', *The Economic Times*, viewed 24 August 2020, https://economictimes.indiatimes.com/jobs/indias-unemployment-rate-hit-6-1-in-2017-18/articleshow/69598640.cms

Economic Times PTI 2019, 'PM Modi, Abu Dhabi crown prince discuss ways to improve India-UAE trade, cultural ties', *The Economic Times*, viewed 23 September 2020, https://economictimes.indiatimes.com/news/politics-and-nation/pm-modi-abu-dhabi-crown-prince-discuss-ways-to-improve-india-uae-trade-cultural-ties/articleshow/70817592.cms?from=mdr

Economic Times PTI Bureau 2017, 'Sick PSUs closure have gone 'very well': Arvind Panagariya', *The Economic Times*, viewed 29 August 2020, https://economictimes.indiatimes.com/news/economy/policy/sick-psus-closure-have-gone-very-well-arvind-panagariya/articleshow/60069878.cms?from=mdr

Economic Times PTI Bureau 2018, 'Ahead of China, India to remain fastest growing economy in FY19 & FY20: ADB', *The Economic Times*, viewed 20 September 2020, https://economictimes.indiatimes.com/news/economy/finance/india-fastest-growing-economy-in-asia-on-track-to-meet-fy18-target-adb/articleshow/65049353.cms

Evans, PB 1992, 'Indian informatics in the 1980s: The changing character of state involvement', *World Development*, vol. 20, no. 1, pp. 1-18.

FICCI- Federation of Indian Chambers of Commerce and Industry 2016, *FICCI Survey on Inverted Duty Structure in Indian Manufacturing Sector*, viewed 28 September 2020, http://ficci.in/Sedocument/20375/FICCI-INVERTED-DUTY-Report-2016.pdf

Frankel, J. A. (1997). *Regional Trading Blocs: In the World Economic System*. Washington, DC: Institute of International Economics.

Goyal, KA & Vajid, A 2017, 'The Role of Diaspora in Strengthening Relations between Host and Home Country (A Case Study of Indian Diaspora in UAE)', *Pacific Business Review International*, vol. 10, no. 1, pp. 114-120.

Gupta, B. 2019. "Falling behind and catching up: India's transition from a colonial economy". The Economic History Review 72 (3): 803-827. Doi: 10.1111/ehr. 12849

Haidar, S & Raghavan, TC 2018, 'India hits back at the US with tariffs', *The Hindu*, viewed 20 September 2020, https://www.thehindu.com/business/Economy/india-ups-trade-war-ante-with-us-imposes-import-tariffs-on-30-items/article24181592.ece

Hasan, R, Mitra, D & Sundaram, A 2013, 'What explains high capital intensity of Indian Manufacturing?', *Indian Growth and Development Review*, vol. 6, no. 2, pp. 212-241.

Heritage Foundation 2020, *2020 Index of Economic Freedom*, viewed 27 August, 2020, https://www.heritage.org/index/visualize

Indian Brand Equity Foundation 2020, *Services Sector in India*, viewed 29 August 2020, https://www.ibef.org/industry/services.aspx

International Labour Organization Natlex 2020, *India: Trade Unions Act 1926*, viewed 21 September 2020, https://www.ilo.org/dyn/natlex/docs/WEBTEXT/32075/64876/E26IND01.htm

Isard, Walter (1954). "Location Theory and Trade Theory: Short-Run Analysis". *Quarterly Journal of Economics*. 68(2): 305–320.

Iyer, KC & Nanyam, VP 2020, 'Technical efficiency analysis of container terminals in India', *The Asian Journal of Shipping and Logistics*, pp. 1-12.

Kalirajan, K & Paudel R 2015, 'India's Trade Deficit with China: Will Free Trade Agreement (FTA) Work for India?', *Global Economy Journal*, vol. 15, no. 4, pp. 485-505.

Kalirajan, K 2007, 'Regional Cooperation and Bilateral Trade Flows: An Empirical Measurement of Resistance', *The International Trade Journal*, vol. 21, no. 2, pp. 85-107.

Kapur, D 2002, 'The causes and consequences of India's IT boom', *Indian Review*, vol. 1, no. 2, pp. 91-110.

Khandelwal, A, Schott, P & Wei SJ 2013, 'Trade Liberalization and Embedded Institutional Reform: Evidence from Chinese Exporters', *American Economic Review*, vol. 103, no. 6, pp. 2169-2195.

Kshetri, N 2011, 'Emerging economies and the global financial crisis: Evidence from China and India', *Thunderbird International Business Review*, vol. 53, no. 2, pp. 247-262.

Kumar, N & Steenkamp JB 2013, 'Diaspora Marketing', *Harvard Business Review*, vol. 91, no. 10, pp. 127-131.

Kumar, N 2005, 'Liberalisation, Foreign Direct Investment Flows and Development: Indian Experience in the 1990s', *Economic and Political Weekly*, vol. 40, no. 14, pp. 1459-1469.

Le, N, Duy, L & Ngoc B 2019, 'Effects of Foreign Direct Investment and Human Capital on Labour Productivity: Evidence from Vietnam', *Journal of Asian Finance, Economics and Business*, vol. 6, no. 3, pp. 123-130.

Make in India 2020, *Make in India Spotlight Report- Government of India Initiative*, viewed 20 September 2020, https://www.makeinindia.com/home

Malik, AI & Mir, MA 2014, 'India's Trade Potential with Central Asia: An Application of Gravity Model Analysis', *International Journal of World Peace*, vol. 31, no. 3, pp. 53-69.

McCaig, B & Pavcnik, N 2013, 'Moving Out of Agriculture: Structural Change in Vietnam (no. w19616)', *National Bureau of Economic Research Working Paper*.

Monteiro, JG 2010, 'Measuring Productivity and Efficiency of Major Ports of India', *Economic and Political Weekly*, vol. 45, no. 26/27, pp. 325-331.

Munim, ZH & Schramm, HJ 2018, 'The impacts of port infrastructure and logistics performance on economic growth: the mediating role of seaborne trade', *Journal of Shipping and Trade*, vol. 3, no.1, pp. 1-19.

Murthy, N 2004, 'The Impact of Economic Reforms on Industry in India: A Case Study of the Software Industry', in B Kaushik (ed.), *India's Emerging Economy: Performance and Prospects in the 1990s and Beyond*, MIT Press, Massachusetts, pp. 217-222.

Nand, R & Omar, MI 2019, 'Farmer Loan Waivers in India and their effect on the trend of Farmer Suicides in India', *Policy and Governance Journal*, vol. 1, no.1, pp. 35-44.

Pal, V & Ashwani B 2011, 'Exports and Economic Growth in India: Co-Integration and Causality Approach', *International Journal of Economics*, vol. 5, no. 2, pp. 181-191.

Panagariya, A 2008, *India: The Emerging Giant*, Oxford University Press, New York USA.

Pohit, S & Basu, S 2012, 'High Technology Merchandise Exports: Where does India Stand?', *South Asia Economic Journal*, vol. 13, no. 2, pp. 183-206.

Reserve Bank of India 2020, *Reserve Bank of India Annual Reports*, viewed 29 August 2020, https://www.rbi.org.in/Scripts/AnnualReportMainDisplay.aspx

Rodrik, D 2013, 'Structural change, fundamentals, and growth: an overview', *Institute for Advanced Study Working Paper*

Romer, P.M., 1989, 'Human capital and growth: theory and evidence (No. w3173)', *National Bureau of Economic Research Working Paper*.

Rothacher, JU 2016, 'The ambivalent influence of the domestic industries on India's meandering foreign economic policies', *India Review Journal*, vol. 15, no. 1, pp. 61-97.

Saez, L & Sinha, A 2010, 'Political Cycles, Political Institutions and Public Expenditure in India, 1980-2000', *British Journal of Political Science*, vol. 40, no. 1, pp. 91-113.

Saini, V 2015, 'Skill Development in India: Needs, challenges and Ways Forward', *Abhinav National Monthly Refereed Journal of Research in Arts and Education*, vol. 4, no. 4, pp. 1-9.

Sharma, V, Dixit, AR & Qadri, M 2015, 'Impact of lean practices on performance measures in context to Indian machine tool industry', *Journal of Manufacturing Technology Management*, vol. 26, no. 8, pp. 1218-1242.

Sharma, YS 2019, 'India jumps to 63rd position in World Bank's Ease of Doing Business 2020 report', *The Economic Times*, viewed 21 September 2020, https://economictimes.indiatimes.com/news/economy/indicators/india-jumps-to-63rd-position-in-world-banks-doing-business-2020-report/articleshow/71731589.cms

Statista 2020, *China's share of merchandise and commercial service exports in global exports in 2019*, viewed 20 September 2020, https://www.statista.com/statistics/256604/share-of-chinas-exports-in-global-exports/#:~:text=Share%20of%20China's%20exports%20in%20global%20exports%202019&text=This%20statistic%20shows%20the%20share,percent%20of%20the%20global%20total.

Statista 2020, *Employment of India*, viewed 23 August 2020, https://www.statista.com/topics/6583/employment-in-india/

Statista 2020, *India: Average age of the population from 1950 to 2050*, viewed 25 August 2020, https://www.statista.com/statistics/254469/median-age-of-the-population-in-india/#:~:text=The%20median%20age%20in%20India,38.1%20years%20old%20by%202050

Sultan, ZA 2013, 'A Causal Relationship between FDI Inflows and Export: The Case of India', *Journal of Economic and Sustainable Development*, vol. 4, no. 2, pp. 1-9.

Suneja, K 2019, 'Donald Trump terminates preferential trade status for India under GSP', *The Economic Times*, viewed 20 September 2020, https://economictimes.indiatimes.com/news/economy/foreign-trade/donald-trump-terminates-preferential-trade-status-for-india-under-gsp/articleshow/69606703.cms

Topalova, P 2010, 'Factor Immobility and Regional Impacts of Trade Liberalization: Evidence on Poverty from India', *American Economic Journal: Applied Economics*, vol. 2, no. 4, pp. 1-41.

Varghese, P 2018, An Indian Economic Strategy to 2035: report to the Australian Government Department of Foreign Affairs and Trade, viewed 12 August 2020, https://www.dfat.gov.au/geo/india/ies/overview.html

Veeramani, C 2008, 'Impact of Exchange Rate Appreciation on India's Exports', *Economic and Political Weekly*, vol. 43, no. 22, pp. 10-14.

WITS (World Integrated Trade Solution) 2018, *India Exports by Country and Region 2018*, viewed 25 August 2020, https://wits.worldbank.org/CountryProfile/en/Country/IND/Year/LTST/TradeFlow/Export/Partner/all/

WITS (World Integrated Trade Solution) 2018, *India Trade Summary 2018 Data*, viewed 25 August 2020, https://wits.worldbank.org/CountryProfile/en/Country/IND/Year/LTST/Summary

World Bank 2020, *Ease of doing business index (1= most business-friendly regulations)*, viewed 20 September 2020, https://data.worldbank.org/indicator/IC.BUS.EASE.XQ

World Bank 2020, *Exports of goods and services (% of GDP)- India*, viewed 12 August 2020, https://data.worldbank.org/indicator/NE.EXP.GNFS.ZS?locations=IN.

World Bank 2020, *Exports of Goods and Services*, viewed 26 August 2020, https://data.worldbank.org/indicator/NE.EXP.GNFS.ZS

World Bank 2020, *GDP Growth (annual %)*, viewed 27 August 2020, https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG

World Bank 2020, *GDP per capita (current US$)*, viewed 26 August 2020, https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

World Bank 2020, *ICT service exports (% of service exports, BoP)- India*, viewed 12 August 2020, https://data.worldbank.org/indicator/BX.GSR.CCIS.ZS?locations=IN

World Bank 2020, *Quality of Port Infrastructure*, viewed 26 September, 2020, https://data.worldbank.org/indicator/IQ.WEF.PORT.XQ

Yao, S 2006, 'On economic growth, FDI and exports in China', *Applied Economics*, vol. 38, no. 3, pp. 339-351.

Yotov, Y, Piermartini, R, Monteiro, JA, Larch, M 2016, *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model Online Revised Version*, e-book, World Trade Organization Publications, Geneva, viewed 12 September 2020, https://d1wqtxts1xzle7.cloudfront.net/54807240/2._TRADE_POLICY_ANALYSIS.pdf?1508861441=&response-content-disposition=inline%3B+filename%3DAn_Advanced_Guide_to_Trade_Policy_Analys.pdf&Expires=1601537447&Signature=FIt388-wJ3JONp7jo1PzGEdnmo-nspPWSmqXRV7gozCK-

uYJdEcPy7~hAoLyGuSqV1Lk39dnTlQm8Ty4YogjGy01xMijp6~5yryLYCH~IF~4waYQL5EgeVyMQ2KcJjkVqXefjuB9laKpxTNtVI~t61fEle4PREbdBR8C~~Ot-KPWfXpshgpWSYMQwI00TMAfs9LEiWZa4HMlqoweKmojVWR905zlj695fZaUKsMA-k8deKk8puETGNgRysf-rZCZK~EVxvxC05Nw1iMmCSkU3kUYeDiy~R8KMVZLxen4MTR1GYaqXQbPwBCKTkNJJUfpAL8Bd4gtEKK0vzzeoubMjw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Zhang, A, Lam, JSL & Huang, GQ 2013, 'Port strategy in the era of supply chain management: the case of Hong Kong', *Maritime Policy and Management*, vol. 41, no. 4, pp. 367- 383.