

INDIA-EUROPEAN UNION GLOBAL VALUE CHAIN INTEGRATION: AN ECONOMYWIDE ANALYSIS

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ABSTRACT

The COVID-19 pandemic has significantly impacted global businesses with operations or suppliers in China. Against such a backdrop, this paper analyses the opportunity of India as the counterpart to China to establish and control global value chains (GVCs) in the pandemic of COVID-19 using a global trade analysis project framework. We begin by identifying sectors that are becoming more and more integrated into EU global value chains and have been negatively impacted by Chinese company closures. Of all the affected industries, we concentrate on those sectors in which India enjoys a comparative advantage over China and examine the effects of an EU-India free trade agreement on these sectors as well as India's overall macroeconomic indices. The study reveals that both India and the European Union stand to benefit from a free trade agreement. However, despite the gains, India's trade balance is also expected to reduce due to increased imports as a result of reduction in the import duty.

Keywords: International trade, global trade analysis project, trade deficit, free trade, global Value chains.

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INTRODUCTION

Since the 1990s, trading in intermediary products and services has grown to represent a significant component of global trade. The production of goods and services is becoming more and more fragmented as a result of the creation of global value chains (GVC). In terms of value added, global value chains account for more than half of exports from developing nations.

According to OECD data, global value chains (GVCs), which comprise the frequent cross-border movement of services, raw materials, parts, and components, account for at least 70% of all international trade. According to estimates from the Asian Development Bank (ADB, 2018), out of the \$21.7 trillion in commodities and services exported globally in 2018, \$15.7 trillion was exchanged along global value chains.

Importance of Global Value Chain

A Global Value Chain (GVC) is a chain of separate but interlinked activities. These activities are generally undertaken in different geographical locations by a single firm or divided among multiple firms. It is a series of actions taken in the production of a good or service offered for sale to consumers. There are multiple production stages that take place in various nations, and each one adds value to the final product.

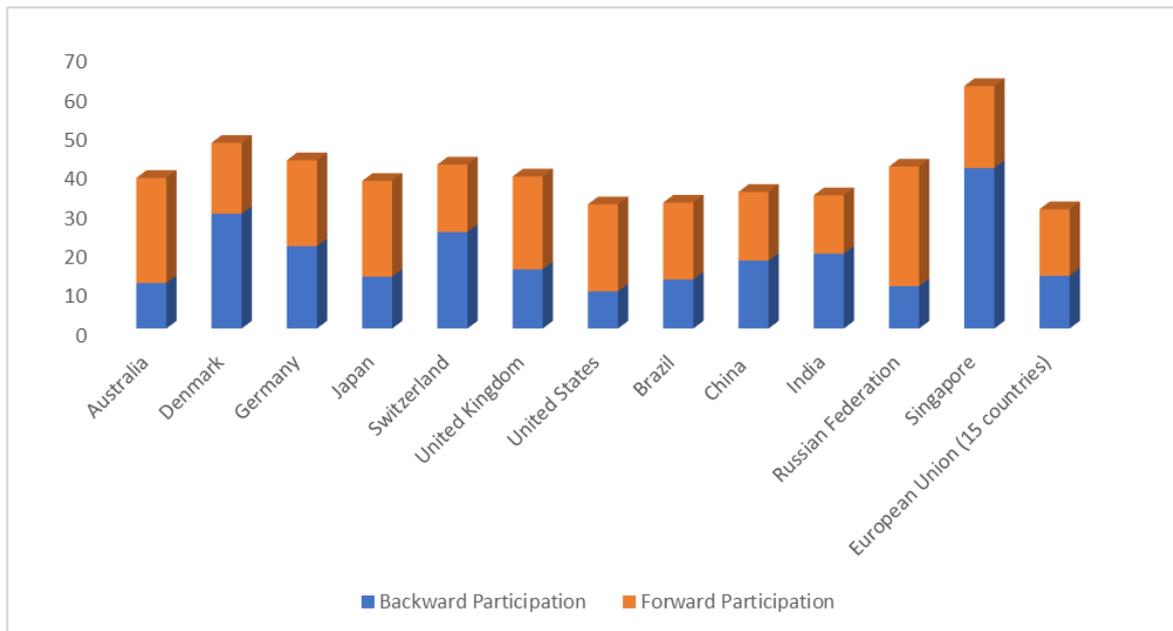
A global value chain (GVC) has the capacity to increase economic growth, generate employment, and lower poverty. Higher participation in global value chains helps generate growth by shifting from lower-value-added tasks to higher-value-added tasks. It provides countries with an opportunity to leap-frog their development process by bringing in more technology and knowledge, thereby facilitating both physical and human capital development. Apart from poverty reduction, there has been a significant rise in productivity and income levels in countries that have become integral to global value chains. According to estimates from different countries, a 1% increase in global value chain engagement can raise per-capita income by more than 1%. Additionally, a 1 percentage point increase in global value chain participation results in a 0.1 percent increase in the manufacturing sector's proportion of GDP.

1. LITERATURE REVIEW

Countries usually participate in global value chains either through forward or backward linkages. In a forward connection, the nation contributes to the exports of other nations by providing inputs required for production. Backward connections, on the other hand, involve the country importing intermediate goods to be used in its exports. Higher involvement in global value chains doesn't certainly guarantee higher gains. One can better comprehend the benefits of taking part in global value chains by breaking down the forward and backward linkages.

Increased participation in global value chains can result in significant gains and welfare increases. Global value chains have created a large number of opportunities for smaller firms. Through cross-border transfer of information, investment, management, and other international best practices, it can assist local businesses in increasing their capacity. The ability to specialize in only one stage of production, as opposed to all the complex stages of production, has allowed smaller businesses from underdeveloped and developing countries to take part in global value chains. Global value chains enable emerging economies to increase their manufacturing exports by participating in particular value chain segments and delivering niche outputs.

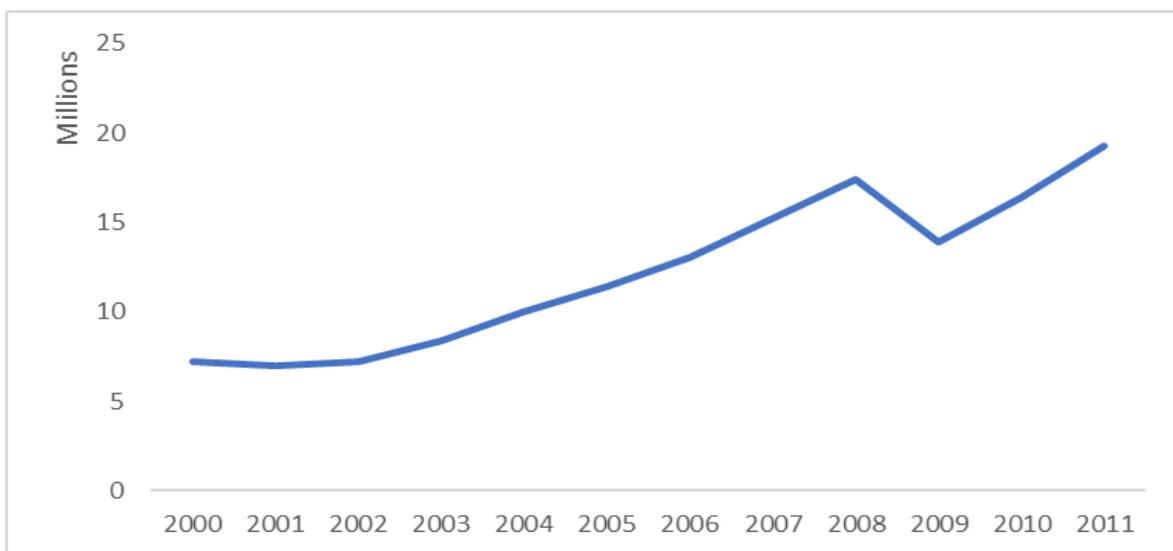
Figure 1: Forward and backward participation



Source: OECD Stat and OECD-WTO TiVA

In the past few years, global value chains have been one of the major reasons for the expansion of network trade. In terms of value added, global value chains make up more than half of the exports from developing nations. Global network commerce of all manufacturing exports increased by at least 7% from around US \$985 billion in 1990–1991 to US \$4.5 trillion in 2009–2010, and more than 50% of this increase in manufacturing exports can be attributed to global value chains. Furthermore, in the last two and a half decades, the percentage of parts and components traded between developing countries has increased by more than four times (WTO, 2014). Between 1995 and 2009, China saw a six-fold growth in global value chain (GVC)-related trade income, while India saw a five-fold increase.

Figure 2: Trade value added (total)



Source: OECD TiVA Database

2.1. Slobalisation

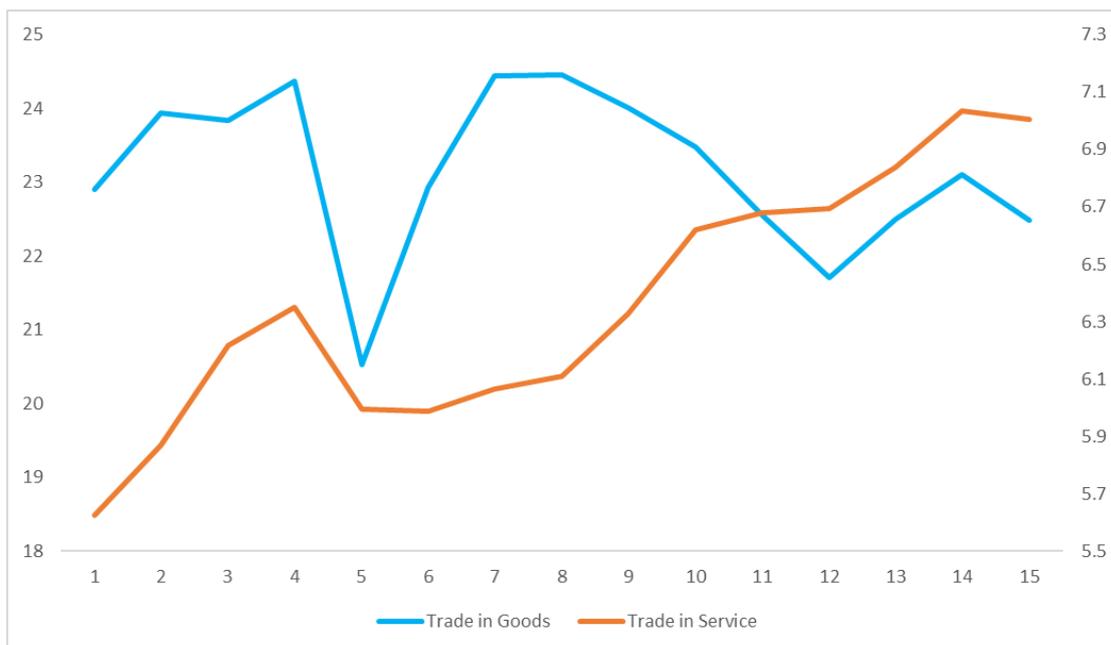
The expansion of exports in a post-covid world is anticipated to be much slower, keeping in mind the 10% decline in global export growth since the Global Financial Crisis. Countries across the globe have started implementing import substitution policies for a variety of necessities, including food and medicine, to reduce import dependence. There has been a significant decline in world trade openness since the global financial crisis. Although the world trade to world GDP ratio has increased by at least 15% between 1970 and 2018 (from 13.7% to 29.7%), there has been a decline in the world trade to world GDP ratio. The ratio is expected to decline even further due to the ongoing covid-19 pandemic. Additionally, the measure of the global value chain's trade provided by Borin and Mancini (2019) also states that the share of the global value chain's trade in the total world trade has either declined or remained constant since the great recession.

Figure 3: GVC Trade as a percentage of world trade



Source: Borin and Mancini (2019), as reported in World Development Report (2020)

Figure 4: Percent share of world's exports of goods and services, respectively in global GDP



Source: World Bank Database

Furthermore, there has been a significant decline in the merchandise trade, foreign direct investment, and international airline passengers in 2020. While merchandise trade declined by at least 22%, the decline in foreign direct investment and international airline passengers was 35% and 62%, respectively.

India stands to gain from such structural shifts in international commerce because it has a revealed comparative advantage in the export of services. Additionally, India's services exports have increased annually by an aggregate of 9 basis points faster than worldwide exports, significantly increasing the country's share of the global market.

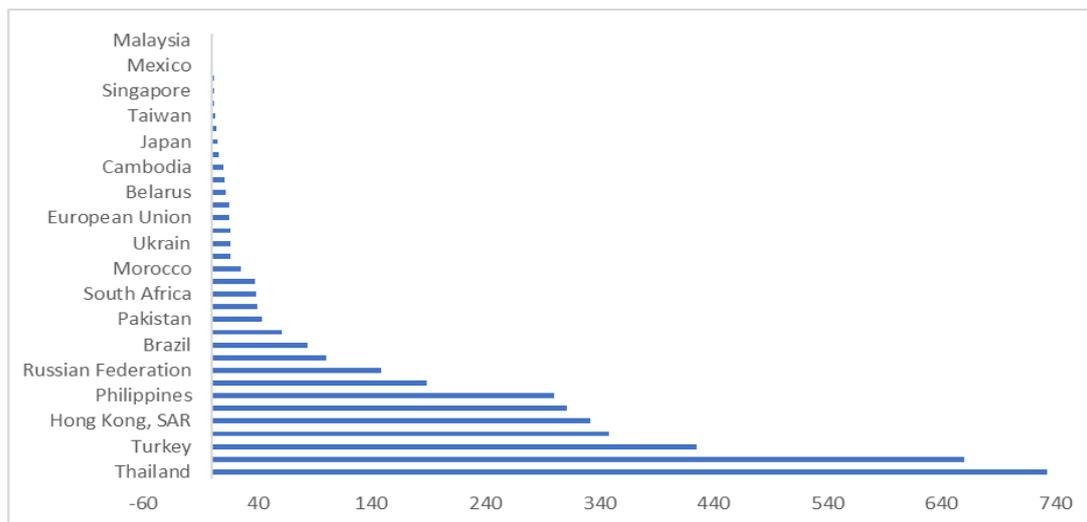
2.2. Impact of COVID-19 Pandemic on GVCs

The supply chains for a select few key items were significantly hampered by the COVID-19 outbreak. Exports of products and services were delayed or even decreased as a result of the global lockdowns imposed to stop the coronavirus's spread. According to IMF estimates, the volume of global trade declined at a rate of 10% in 2020, which is at the same pace as in 2009. However, the COVID-19 pandemic could potentially amplify trends already seen during the financial crisis, such as the rise of protectionism, technological development, and environmental issues. Therefore, factors such as increasing digitalization, protectionist pressures, and environmental concerns are going to play a massive role in determining the growth of global value chains in the coming years.

2.2.1 Impact of COVID-19 Pandemic on China's Supply Chain

In recent years, China has significantly increased its economic contribution to the world economy. China's dominance over the global economy is demonstrated by the fact that it accounts for more than 50% of global manufacturing exports and at least 60% of global supply and demand (Baldwin and di Mauro, 2020).

Figure 5: Export effect on countries due to a 2% reduction in Chinese exports



Source: direct

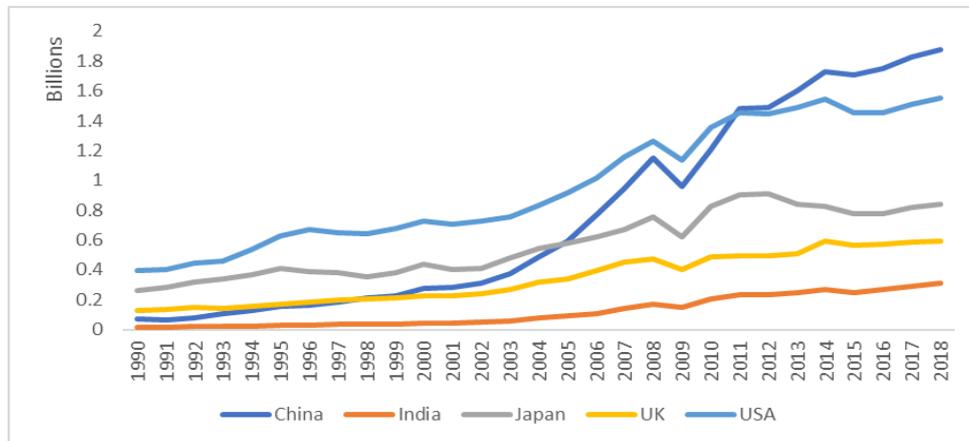
Furthermore, China now accounts for at least 15% more of the global trade in manufacturing intermediate goods than it did in 2002 and accounts for nearly 2% of global commerce in manufacturing intermediate goods. Additionally, a study claims that a 2% drop in Chinese exports might result in an enormously negative export effect that would cost around \$4 billion.

The fact that China is home to direct or Tier 1 suppliers of at least 51,000 (163 Fortune 1000) companies and Tier 2 suppliers of at least 5 million enterprises from around the world serves as another evidence of the global economy's dependence on Chinese exports. This issue is made worse by the fact that 90% of these operating enterprises in China are situated in some of the most severely affected areas, including Shandong, Beijing, Jiangsu, Zhejiang, and Guangdong. This has a negative impact on China's ability to export. For instance, in January and February 2020, Chinese exports and imports fell by 17.2% and 4%, respectively. Goods of all categories, such as furniture, organic chemicals, medical appliances, electric equipment, and many more, saw a major decline in Chinese exports. Similar trends can be observed for reverse trade flows to China. For instance, export demand to China is lower for the US and New Zealand.

3. GLOBAL VALUE CHAIN TREND IN INDIA

There have been tremendous advancements in India's global value chain participation during the past few years. India's global value chain exports have increased in the majority of the product categories. For instance, India today represents at least 2.7% of all agricultural exports with value added worldwide. Over the past few years, India's global value chain exports of coal, petroleum, and textiles have also increased. The global value chain exports of textiles climbed by 30% in the last decade, while the global value chain exports of coke and petroleum increased by more than 10% during the same period. The US is the biggest importer of India's global value chain exports (around 10%), followed by Singapore, PRC, Turkey, the Republic of Korea, France, Brazil, Germany, and the United Kingdom. However, despite the country's significant expansion in commerce over the past 20 years, India's integration into global value chains is still weak.

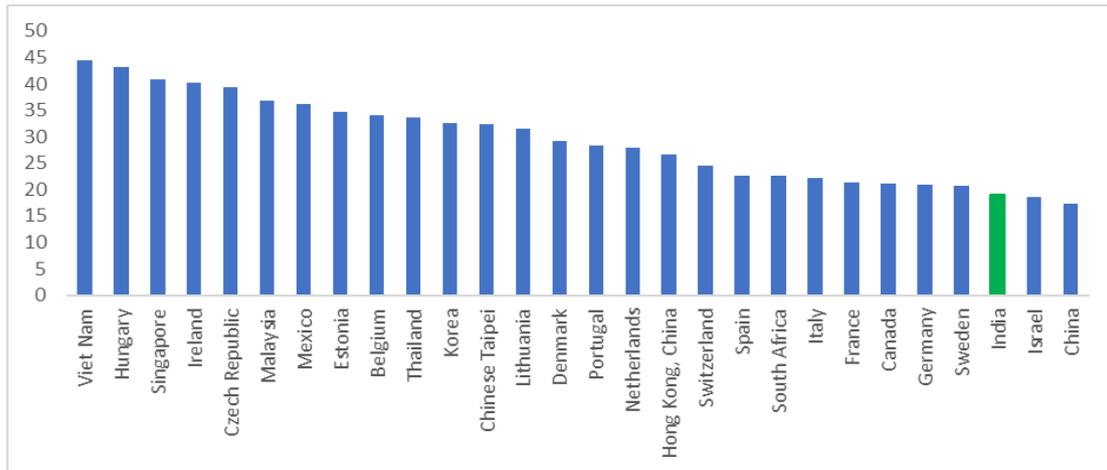
Figure 6: Domestic value added



Source: UNCTAD-Eora Database

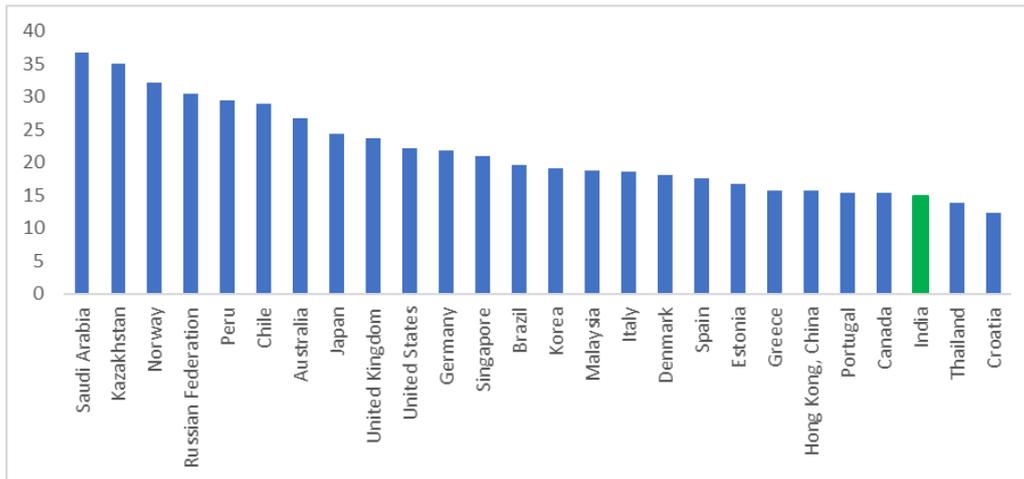
India's involvement in global value chains peaked in 2008 at 41.6% but has since declined, reaching a low of 34% in 2015. For instance, India's global value chain's exports in 2017 were around \$240 billion dollars, which accounted for only 1.5% of the global value chain exports. Furthermore, India's global value chain growth rate has lagged behind that of most of the emerging countries, such as Vietnam, Cambodia, and Bangladesh.

Figure 7: Backward participation



Source: World Integrated Trade Solution (WITS)

Figure 8: Forward participation



Source: World Integrated Trade Solution (WITS)

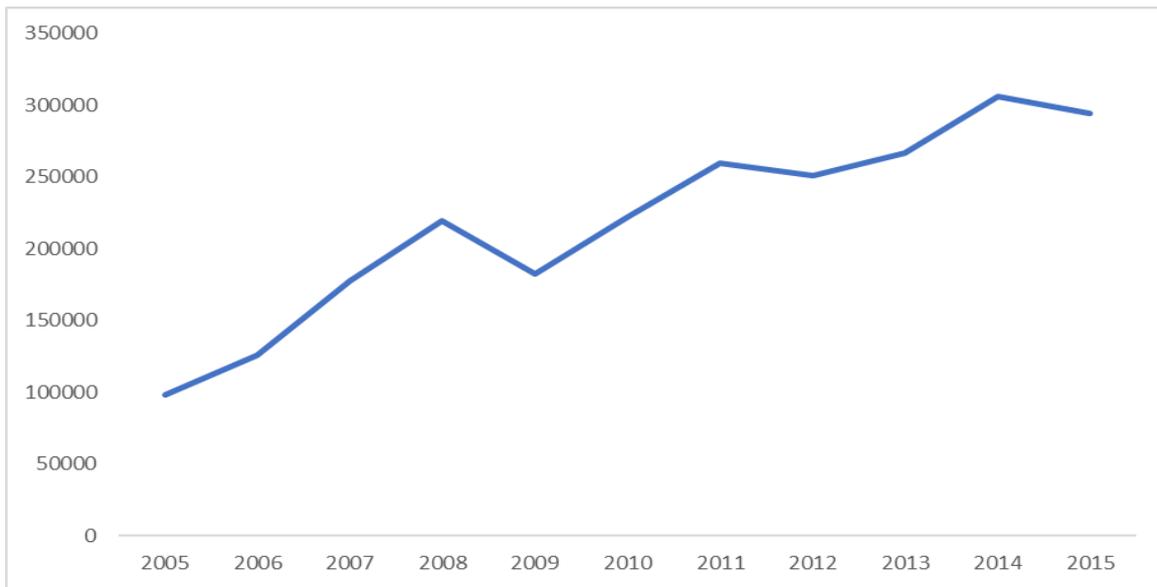
Participation in global value chains is determined by a country's involvement in a specific stage of production, namely trade in intermediate commodities and services (Banga, 2016). These interactions are referred to as forward and backward linkages. India falls behind in terms of foreign value added in Indian exports (backward participation) even when compared with the 20% average observed in emerging markets and developing economies. Compounding this problem, the foreign value-added content of India's exports has been declining rapidly. For instance, Indian exports' foreign value-added content stood at 16.1% in 2016 as compared to 25.1% in 2011. The rise in service exports, which rely on comparatively fewer foreign inputs, can be credited with this decline in the proportion of foreign value-added content in Indian exports.

India's forward participation in the global value chains has been modest as compared to most of the economies. For example, in 2015, India's forward integration into global value chains stood at just 14.9% in 2015, indicating poor integration into global value chains. In addition, India experienced the greatest decline in global value chain membership between 2010 and 2017, which stands in stark contrast to many other Asian nations, including Vietnam, the Philippines, Taiwan, the Republic of Korea, and China, all of which saw increases in participation.

4. CHINA-EUROPEAN UNION GLOBAL VALUE CHAIN

China is the European Union's biggest trading partner. It is the second-largest market for exports to and the largest importer of goods into the European Union and accounts for at least 16.9% of all trade in commerce. International production ties between China and the EU have become stronger in recent years. From 2006 to 2016, the amount of trade between China and the EU expanded at an average pace of 7.64 percent per year.

Figure 9: China - European Union trade in value added (millions)



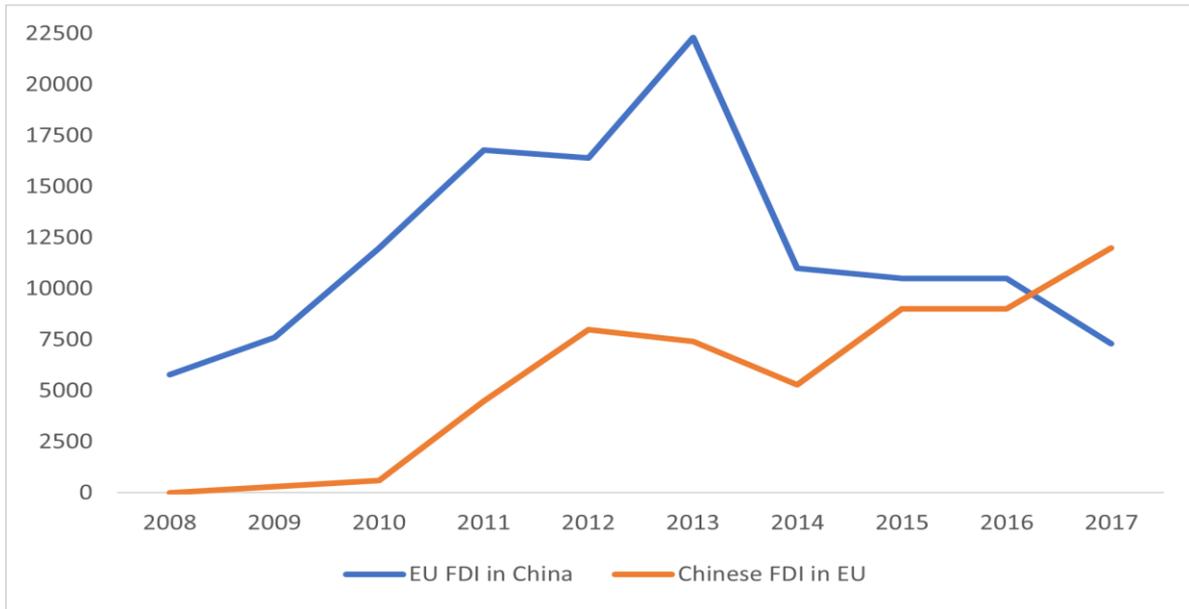
Source: OECD TiVA database

2016 saw a total of US\$472.48 billion in bilateral commerce between China and the EU. China's exports to the European Union have almost doubled from €200 billion to €400 billion during the same period. China retained a share of 11% in extra-EU exports, worth €198 billion in 2017, making it the second most important trade partner of the European Union behind the United States. For extra-EU imports, China was the EU's largest partner, representing 20% of all EU-imported goods, amounting to €380 billion.

4.1. FDI Inflows Between China and the European Union

China's enhanced transportation and infrastructure - especially port efficiency - have increased China's desirability as a location for foreign direct investment (FDI) from European businesses. The manufacturing industry in China has received the majority of European FDI. EU companies have been able to use China as a platform for re-exports and to increase efficiency thanks to low salaries and a labor force that is relatively productive. Foreign direct investment (FDI) flows have grown at a steady rate over the past few years. For instance, the flow of foreign direct investment from the European Union to China grew by 225% from 2008 to 2017, increasing from €54 billion in 2008 to €178 billion in 2017.

Figure 10: FDI flow between China and the European Union



Source: Trade and Investment Relation in challenging times, Eurostat

In a similar manner, Chinese FDI in the EU increased by over ten times, reaching EUR 59 billion in 2017. A diminishing domestic rate of return on capital is one of the main reasons for the considerable increase in Chinese investment in the EU. Nevertheless, there has been a decline in European FDI in China in recent years. Poor investor protection, uneven market access, increased state interventions, non-compliance with existing rules and regulations are some of the reasons that can be attributed to this reduction of FDI in China from European companies.

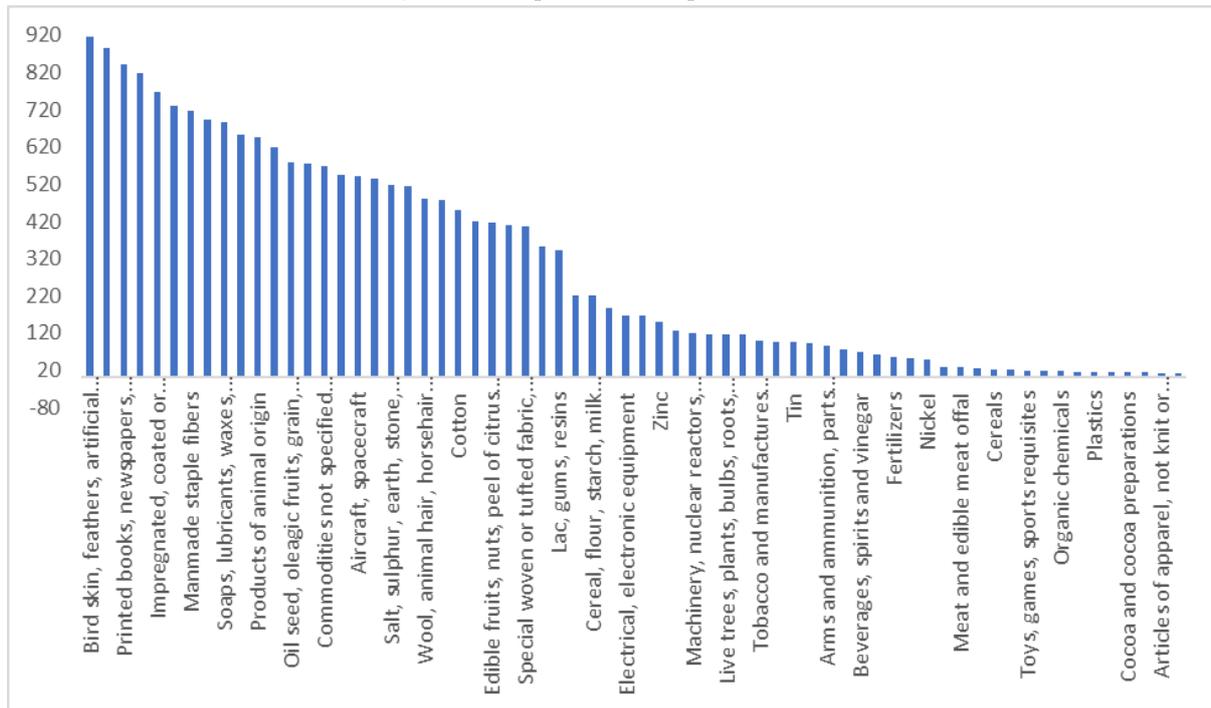
4.2. Impact on employment

Such economic integration between China and the European Union has brought significant gains for the countries in terms of employment. For instance, Chinese exports supported about 1.1 million jobs in the EU. 5.5 million new jobs were created in China as a result of these exporting activities. Additionally, since 1995, the number of EU global value chain jobs in Chinese exports has increased roughly nine times faster than the number of EU jobs overall. This demonstrates the increased dependency of EU global value chains on Chinese companies.

4.3. China- EURO trade basket

The complementary nature of goods produced by both China and Europe has played a significant role in the integration of both countries. For instance, returns to high and medium skill labor account for 56% of domestic value added in exports from the European Union, compared to returns to low and medium skill labor which account for 21% of domestic value added in exports from China. The main categories driving imports from China were machinery and vehicles (representing half of the total imported goods from China), electronic equipment, other manufactured goods, and chemicals. The Netherlands accounted for 30.4% of all EU imports from China, followed by Germany, the United Kingdom, Italy, and France.

Figure 11: European Union import from China



Source: Trading Economics

Electronic items such as TVs and cameras, along with other items such as automatic data processing machines, optical readers, transmission apparatus for radiotelephony, and cordless telephones, were China's top exports to the European Union in terms of value in 2020. The value of the export of these products from China to the EU in 2020 stood at 46.78 billion dollars. Electrical and electronic equipment were the highest exported goods in terms of value from China to the European Union, followed by the exports of machinery and textile articles. The value of exports of machinery and other textile articles was 92.96 billion dollars and 26.03 billion dollars, respectively.

5. METHODOLOGY

This research uses a CGE model of global trade for model simulations in order to examine the effects of trade liberalization on the entire economy. We start by identifying specific sectors in India that have a comparative advantage over China and stand to benefit from a free trade agreement between India and the European Union.

5.1. Revealed comparative advantage

To analyze the export potential, the notion of revealed comparative advantage (Balassa 1965, 1977, 1979, 1986) is used. It shows how a product is competitive in a country's exports compared to its share in another country or group of countries. A product with a high RCA is competitive and can be exported to countries with a low RCA.

Table 1: Revealed comparative advantage analysis between Indian and China

| <i>Category</i> | <i>HS Code</i> | <i>Sector</i> |
|--|--|---|
| <i>India is more advantageously placed than China</i> | 03 | <i>crustaceans, aquatic invertebrates and Fish.</i> |
| | 10 | <i>Cereals</i> |
| | 12 | <i>fruit, grain, oleagic fruits, Oil seed etc.</i> |
| | 14 | <i>vegetable products and Vegetable plaiting materials,</i> |
| | 25 | <i>Stone, sulfur, sulfur, lime, salt, etc.</i> |
| | 50 | <i>Silk</i> |
| | 52 | <i>Cotton</i> |
| | 53 | <i>paper yarn, Vegetable textile fibers, woven fabric</i> |
| | 54 | <i>Man Made filaments</i> |
| | 57 | <i>Textile coverings for floors and other Carpets</i> |
| | 58 | <i>tapestry, lace and other woven fabric</i> |
| | 63 | <i>Other made textile articles, sets, worn clothing etc.</i> |
| | 68 | <i>mica, plaster, Stone, asbestos, etc.</i> |
| <i>China is more advantageously placed than India</i> | 05 | <i>Products of animal origin,</i> |
| | 36 | <i>Matches, pyrotechnics, Explosives, etc.</i> |
| | 42 | <i>travel goods, harness and other article of leather</i> |
| | 61 | <i>knit or crochet, articles of apparel, accessories, etc.</i> |
| | 64 | <i>Gaiters, Footwear, etc.</i> |
| | 67 | <i>human hair, artificial flowers, Bird feathers and skin</i> |
| | 80 | <i>Tin and articles thereof</i> |
| | 82 | <i>Cutlery, implements, etc.</i> |
| 96 | <i>Miscellaneous manufactured articles</i> | |
| <i>India and China are equally advantageously placed</i> | 07 | <i>Tubers, vegetables, certain roots etc.</i> |
| | 55 | <i>Man Made staple fibers</i> |
| | 62 | <i>Not knit or crochet accessories and Articles of apparel,</i> |
| | 73 | <i>Articles of steel or iron</i> |

Source: India's GVC integration: An analysis of upgrading efforts and facilitation of lead firms, ICRIER

5.2. The framework of CGE model simulations

A computable general equilibrium model, which is based on the Walrasian general equilibrium system, tries to replicate the general equilibrium structure of an economy numerically. It is based on the general idea that, at a given price, the demand and supply of all commodities are equal. A computable general equilibrium model, with its ability to incorporate interdependencies and strong micro-foundations, provides us with an effective framework to analyze the impact of various policies and structural changes on the allocation of resources.

Several key assumptions of the standard GTAP model are as follows:

1. Perfect competition implies no supernormal profits for firms.
2. Constant Return to Scale
3. In line with the Armington Parameters, imperfect substitution in goods and services between the home and the foreign economy is assumed.
4. The model assumes full employment as the amount of labor and capital is generally fixed in the model.

The analysis in the paper is carried out to analyze the impact of the removal of trade protection policies from both India and the European Union on several macroeconomic variables and resource allocations. The data for the same is taken directly from the GTAP database and is

unaltered. GTAP uses a set of equations to analyze the impact of a particular shock on the entire economy. The following equation is used to analyze the change in exports from one country to another.

$$Q_{k,r,s}^{XM} = Q_{k,s}^{IM} \left(\frac{\theta_{k,r,s}^{IM}}{P_{k,r,s}^{IM}} \right)^{\sigma_{Mk}} \left[\sum_r \left((\theta_{k,r,s}^{IM})^{\sigma_{Mk}} (P_{k,r,s}^{IM})^{1-\sigma_{Mk}} \right) \right]^{\frac{1}{1-\sigma_{Mk}}} AMS_{k,r,s}^{\sigma_{Mk}-1}$$

Where,

θ = Share of imports derived from the SAM

σ_{Mk} = Substitution between imports from different sources by commodity. Econometrically estimated (others may be calibrated)

In the above equation, Commodity export from country A to B ($Q_{k,r,s}^{XM}$) is a function of the increase in the demand of the good in country B $\left[\left(\frac{\theta_{k,r,s}^{IM}}{P_{k,r,s}^{IM}} \right)^{\sigma_{Mk}} \right]$, the impact of competitiveness changes between A and others $\left[\sum_r \left((\theta_{k,r,s}^{IM})^{\sigma_{Mk}} (P_{k,r,s}^{IM})^{1-\sigma_{Mk}} \right) \right]^{\frac{1}{1-\sigma_{Mk}}}$, and the impact of shifts in technology in A and B $[MS_{k,r,s}^{\sigma_{Mk}-1}]$.

6. RESULTS

After running the GTAP simulation and removing the trade barriers between India and the European Union by effectively reducing the tariff rates to zero, it was observed that India and the European Union stand to benefit from such a reduction in trade barriers. However, the gains from trade observed in India are much greater when compared to the European Union. For instance, as a result of free trade between the European Union and India, India's GDP is expected to increase by 0.25% from 1232816.75 US dollars to 1235888.88 US dollars, while the GDP of the European Union is expected to increase by 0.01%. On the other hand, as a result of the shift of the EU's imports from China to India, China will also experience a 1% contraction in its GDP as a result of free trade between India and the EU.

A sector-wise analysis reveals that the majority of sectors in which India has a comparative advantage over China stand to gain from a free trade agreement. However, sectors such as cereals, livestock, and meat production in which India enjoys a comparative advantage showed some contractions. Upon the removal of tariffs, the exports of cereals are expected to contract by 0.8% and exports of livestock and meat products are expected to contract by 3.64%.

Table 2: Impact of free trade on China's and India's macroeconomic indicators

| | % Change in GDP | Absolute Change in GDP | Change in Trade Balance (US Million \$) |
|----------------------|-----------------|------------------------|---|
| <i>Rest of World</i> | 0 | 344 | -11005.91 |
| <i>China</i> | -0.01 | -216.25 | 26875.16 |
| <i>India</i> | 0.25 | 3072.13 | -7315.86 |
| <i>EU_25</i> | 0.01 | 1040 | -8553.32 |

Table 3: Aggregate exports of *i* from region *r*

| | <i>Rest of World</i> | <i>China</i> | <i>India</i> | <i>EU_25</i> |
|---|----------------------|--------------|--------------|--------------|
| <i>Other</i> | -0.08 | 0.19 | 36.64 | -0.02 |
| <i>Cereal</i> | 0.03 | 0.05 | -0.8 | -0.09 |
| <i>Grains and Crops</i> | 0.06 | 0.15 | 0.11 | -0.14 |
| <i>Meat and Livestock</i> | 0.15 | 0.27 | -3.64 | -0.11 |
| <i>Extraction</i> | -0.1 | -0.34 | 4.69 | 8.23 |
| <i>Fishery</i> | 0.05 | 0.04 | 0.5 | -0.05 |
| <i>Processed Food</i> | 0 | 0.13 | 4.75 | -0.02 |
| <i>Textile</i> | -0.45 | -0.21 | 15.21 | -1.19 |
| <i>Textile and Wearing Apparel</i> | -0.57 | -0.3 | 25.34 | -1.19 |
| <i>Light Manufacturing</i> | 0.01 | 0.17 | 2.93 | 0.04 |
| <i>Heavy Manufacturing</i> | -0.06 | -0.1 | 3.06 | 0.24 |
| <i>Utility and Constructions</i> | 0.24 | 0.29 | -0.68 | -0.28 |
| <i>Transportation and Communication</i> | 0.13 | 0.13 | -0.99 | -0.16 |
| <i>Other Services</i> | 0.26 | 0.28 | -2.05 | -0.15 |

Additionally, as a result of the free trade, India's trade balance is expected to reduce significantly, indicating an increase in the level of imports as a result of reducing the tariffs. However, the increase in GDP could be explained by the fact that most of the imports (light manufacturing and high manufacturing products) usually go into consumption and investment as inputs and therefore result in an overall increase in the GDP.

6.1. Technological shock

After running the initial simulation of removing the tariffs between India and the EU, it was observed that despite having a comparative advantage, India's exports of cereals and livestock products experienced some contractions. However, increasing productivity in the above-mentioned sectors by 1% can help reverse the trends. By increasing the productivity in sectors exporting cereals, livestock and meat products by 1%, India can increase the exports of cereal products by 2.7% and the exports of livestock and meat products by 5.06%.

Table 4: Impact of technological shock

| | <i>% Change in GDP</i> | <i>Absolute Change in GDP</i> | <i>Change in Trade Balance (US Million \$)</i> |
|----------------------|------------------------|-------------------------------|--|
| <i>Rest of World</i> | 0 | 356 | -10939.65 |
| <i>China</i> | -0.01 | -208.75 | 26880.58 |
| <i>India</i> | 0.32 | 3922.38 | -7418.88 |
| <i>EU_25</i> | 0.01 | 1048 | -8522.01 |

Additionally, in such a scenario, India's GDP will be expected to increase by 0.32% (compared to 25% before). However, the effect on China's and the EU's remains the same.

Table 5: Aggregate exports of i from region r

| | <i>Rest of World</i> | <i>China</i> | <i>India</i> | <i>EU_25</i> |
|------------------------------------|----------------------|--------------|--------------|--------------|
| <i>Other</i> | -0.1 | 0.15 | 37.87 | -0.05 |
| <i>Cereal</i> | 0.01 | 0.03 | 2.76 | -0.1 |
| <i>Grains and Crops</i> | 0.04 | 0.12 | 0.76 | -0.15 |
| <i>Meat and Livestock</i> | 0.06 | 0.18 | 5.06 | -0.14 |
| <i>Extraction</i> | -0.1 | -0.33 | 4.6 | 8.23 |
| <i>Fishery</i> | 0.05 | 0.04 | 0.2 | -0.05 |
| <i>Processed Food</i> | 0 | 0.13 | 5.19 | -0.02 |
| <i>Textile</i> | -0.45 | -0.21 | 15.27 | -1.19 |
| <i>Textile and Wearing Apparel</i> | -0.57 | -0.3 | 25.27 | -1.19 |
| <i>Light Manufacturing</i> | 0.01 | 0.17 | 2.85 | 0.04 |
| <i>Heavy Manufacturing</i> | -0.06 | -0.1 | 2.96 | 0.24 |
| <i>Utility and Construction</i> | 0.24 | 0.29 | -0.78 | -0.28 |
| <i>Transport and Communication</i> | 0.13 | 0.13 | -1.03 | -0.15 |
| <i>Other services</i> | 0.26 | 0.29 | -2.21 | -0.14 |

CONCLUSION

In conclusion, India with its vast labor force and low prices can control the Global Value Chains in the Covid-19 pandemic and increase its participation in EU Global Value Chains. However, it would require significant effort from the governments of both nations. Attempts must be made to create an export-oriented atmosphere by reducing the tariff rates to ensure increased integration into global value chains.

Furthermore, schemes such as The Production Linked Incentive Scheme should be encouraged more. As it would not only provide an incentive to the producers to increase the production level of the manufacturing sector and attract large investments in the White Goods manufacturing value chain but will also help in improving the trade balance by reducing the import of light and heavy manufacturing products.

REFERENCES

1. Aggarwal, R., Chaudry, Q., Prakash, A., Saeed, M., & Salluzzi, E. (2019). Asia–Europe Economic Connectivity Global Value Chain Structures in ASEM Region. *Economic Research Institute for ASEAN and East Asia*.
2. Aiyar, S. (2020). Why being a part of the global value chain matters for India?. *The Economic Times*.
3. Alexander, S. (2020). Why India link in global value chains is weak. *Mint*.
4. Altman, S. (2020). Will Covid-19 Have a Lasting Impact on Globalization?. *Harvard Business Review*.
5. Antràs, P. (2020). De-Globalisation? Global Value Chains in the Post-COVID-19 Age. *The National Bureau of Economic Research (NBER)*. NBER Working Paper, No. 28115.
6. Balakrishnan, K., & Kukreja, S. (2020). Can India be the Next Global Manufacturing Hub?. *The Manohar Parrikar Institute for Defense Studies and Analyses (MP-IDSA)*. MP-IDSA Issue Brief
7. Balassa, B. (1965). Trade Liberalization and Revealed Comparative Advantage. *The Manchester School of Economic and Social Studies*. 33, 99-123.
8. Balassa, Bela. (1977). Revealed Comparative Advantage Revisited: An Analysis of Relative Export Shares of the Industrial Countries, 1953-1971. *The Manchester School of Economic & Social Studies*. 45(4), 327-44.
9. Balassa, Bela. (1979). The Changing Pattern of Comparative Advantage in Manufactured Goods. *The Review of Economics and Statistics*. 61(2), 259-66.
10. Balassa, Bela. (1986). Comparative Advantage in Manufactured Goods: A Reappraisal. *The Review of Economics and Statistics*. 68(2), 315-319.
11. Baldwin, R., & Mauro, B. W. (Eds.). (2020). Mitigating the COVID Economic Crisis: Act Fast and Do Whatever It Takes. *Centre for Economic Policy Research*.
12. Barua, S. (2020). COVID-19 Pandemic and World Trade: Some Analytical Notes. SSRN.
13. Barua, S. (2020). COVID-19 Pandemic and World Trade: Some Analytical Notes. SSRN
14. Borin, A., & Mancini, M. (2019). Measuring What Matters in Global Value Chains and Value-Added Trade. *The World Bank*. Policy Research Working Paper No. 8804.
15. Business Impact of the Coronavirus: Business and Supply Chain Analysis Due to the Coronavirus Outbreak. *Dun & Bradstreet*.
16. Capturing the benefits of Global Value Chains. (2021). *Organisation for Economic Co-operation and Development (OECD)*.
17. Chadha, R. (2020). Fractured Global Value Chains post COVID-19: Can India gain its missed glory?. *Brookings*.
18. Chatterjee, S., & Subramanian, A. (2020). India's Export-Led Growth: Exemplar and Exception. *Ashoka Centre for Economic Policy*. Working Paper No. 01.
19. Chatterjee, S., & Subramanian, A. (2020). India's Inward (Re)Turn: Is it Warranted? Will it Work?. *Ashoka Centre for Economic Policy, Ashoka University*. Policy paper no. 1.
20. China Product Exports to Europe & Central Asia US\$000 2006 - 2019 | WITS Data. *World Integrated Trade Solution (WITS)*.
21. Gonzalez, J., Gasiorek, M., Holmes, P., & Parra, M. (2013). China-EU global value chains: who creates value, how and where? growing linkages and opportunities. *European Commission's of Directorate-General for Trade*. Final Report.
22. Hayakawa, K., & Mukunoki, H. (2021). Impacts of COVID-19 on Global Value Chains. *The Developing Economies*. 59(2), 154-177.
23. Herrero, A., Nguyen, T., & Tan, J. (2019). Europe's value chain increasingly dependent on China at the expense of its own regional integration. *Natixis beyond banking*.
24. Herrero, A., Wolff, G., XU, J., & Poitiers, N. (2020). EU-China trade and investment relations in challenging times. *European Parliament's Committee on International Trade*.
25. Jagdambe, S. (2016). Analysis of Revealed Comparative Advantage in Export of India's Agricultural Products. *The Institute for Social and Economic Change, Bangalore*. Working paper 372.
26. Kee, H., & Tan, H. (2022). Domestic Value Added in Exports: Theory and Firm Evidence from China. *American Economic Review*. 106(6), 1402-1436.
27. Lee, C. (2022). Global value chains and premature deindustrialisation in Malaysia. *ERIA: Economic Research Institute for ASEAN and East Asia*. ERIA Discussion Paper Series No. 423.

28. Lopez-Gonzalez, J., Holmes, P., Mendez Parra, M., et al. (2014). China-EU global value chains: who creates value, how and where? growing linkages and opportunities: final report. *European Commission, Directorate-General for Trade*.
29. Mitra, S., Gupta, A., & Sanganerla, A. (2020). Drivers and benefits of enhancing participation in global value chains - Lessons from India. *Asian Development Bank*. ADB South Asia Working Paper No. 79.
30. OECD. (2013). *Interconnected Economies: Benefiting from Global Value Chains*.
31. OECD. (2021). *Global Value Chains: Efficiency and Risks in the Context of COVID-19*.
32. OECD. (2021). *OECD Quarterly International Trade Statistics – Trends and Indicators*. Organisation for Economic Co-operation and Development. 2020 (3).
33. OECD. (2021). *Trade in Value Added (TiVA) 2018 ed: Principal indicators*. OECD.STAT.
34. Ray, S., & Miglani, S. (2016). India's GVC integration: An analysis of upgrading efforts and facilitation of lead firms. *Indian Council for Research on International Economic Relations*. Working Paper 386.
35. Ray, S., & Miglani, S. (2020). India's GVC integration: An analysis of upgrading efforts and facilitation of lead firms. *Indian Council for Research on International Economic Relations (ICRIER)*. Working paper 386.
36. Simola, H. (2021). The impact of Covid-19 on global value chains. *Bank of Finland, Bank of Finland Institute for Emerging Economies*. BOFIT Policy Brief 2021 No. 2.
37. Taneja, N., Ray, S., & Pande, D. (2016). India – Pakistan Trade: Textiles and Clothing. *Indian Council for Research on International Economic Relations (ICRIER)*. Working paper 326.
38. The World Bank. (2021). *Global Value Chains. The World Bank - Understanding Poverty*.
39. *Trade in value-added and global value chains: statistical profiles*. World Trade Organization.
40. *Trading for development in the age of global value chains*. *The World Bank*. World Bank flagship report 2020.
41. United Nations Conference on Trade and Development (UNCTAD). *Beyond 20/20 WDS - Table view*. UNCTADSTAT.
42. West, J. (2020). India squanders its comparative advantage. *East Asia Forum*.
43. WITS. (2021). *GVC - Data Download*. *World Integrated Trade Solution (WITS)*.
44. World Bank. (2021). *Trade (% of GDP) – China*.
45. World Trade Organization. *Trade and development: recent trends and the role of the WTO*. World Trade Report 2014.
46. World Trade Organization. *Trading for Development in the Age of Global Value Chains*. World Trade Report 2020.
47. Yadav, N. (2020). *Can India Take Over China's Position as a Global Manufacturing Hub?*. *India Briefing*.
48. Zhou, Y., Chen, S., & Chen, M. (2019). Global value chain, regional trade networks and Sino-EU FTA. *Structural Change and Economic Dynamics*. 50(C), 26-38.