India's Trade Relationship with the United States of America: A Comparative Study

Dr. Tushinder Preet Kaur
Professor of Economics Faculty, Mittal School of Business, Lovely Professional University, Punjab, India.
Muhammad Hashem Omari
Student of M.Sc. Economics, Mittal School of Business, Lovely Professional University, Punjab, India.
Parwin Muradi
Lecturer of Economics Faculty, Department of (BAF), Andkhoy Multipurpose Institute, Faryab, Afghanistan.
Ahmad Milad Nabard
Student of M.FA. Economics, Balkh University, Mazar-i-Sharif, Afghanistan.

Abstract:
India and the USA have had trade relations with each other since ancient times, but with the opening of both economies, it started to change in the 1980s. At present, India has become one the most important trade partners to China and the USA, and on the other hand, the USA has become one of India's top three trading partners. This paper attempts to analyze the bilateral trade relationship between these two countries, and also, a theoretical framework is presented to identify the trends and patterns of trade flow between India and the USA. The composition and share of imports and exports have been studied by using the bilateral trade of involving countries and the top ten traded commodities (in Harmonized System) are examined too. For determining the export performance, Revealed Symmetric Comparative Advantage (RSCA) method has been used. We found that, among the top ten commodities that traded between these two countries, India and the United States had Comparative Advantages on these commodities as compare to each other; (described in the context).

Keywords: Bilateral Trade, Comparative Advantage and Disadvantage, Revealed Comparative Advantages, Net-Export.

Introduction: India is the fastest-growing economy in the world currently despite China competing with it on all grounds. According to the (IMF article IV, 2018)'s data India has ranked 7th in 2018, but according to the prediction of this organization in 2019 India will

achieve 5th rank in the world. The real GDP of India in 2018 was 2849.2 billion U.S dollars that which will increase to 3053.8 billion U.S dollars in 2019, according to an estimation of IMF. On another side, the GDP growth rate of India in 2018 was 7.1 percent and according to the predictions, it will increase to 7.3 percent. Trade is the most important factor for a country to establish an inclusive economy. International trade starts gaining momentum only after the late 18th and 19th centuries and continued by some countries, including India and China, opening up their economies to the international market.

Nowadays, trade has become more urgent than ever before because countries facing different problems like limited resources. Trade has integrated different economies in recent years and has been reducing barriers of cross-border investment, distances, time zones, differences in government regulation and the trading system. After 1945, bilateral and multilateral trade agreements like GATT (General Agreement on Tariffs and Trade) & Bretton Woods institutions (IMF and World Bank) have been formatted by different rules and regulations. The flow of products is influenced by macroeconomic factors present in commercial and world economies. Thus, countries were aware of their diverse trade and felt the need to participate in international trade. Trade pattern gives an overall picture of what types of goods and services are being traded and which countries are involved. The study of trade reflects the economic growth of both developed and less developed countries.

India is a country that comes into the trade-map of the world in 1991 when reforms have been made by the Industrial Policy. These reforms have led to a breakthrough change in the performance of the external sector in India. After independence, India's pattern of trade began to change. Since the 2000s, India's exports and imports have been increased by 662.4 percent and 885.2 percent respectively, (Author's findings based on Directorate General of Commercial Intelligence and Statistics, 2017). India exports approximately 7500 commodities to about 190 countries and imports about 6000 from 140 countries. India's export of commodities in 2018s was US$ 323.06 billion that shows a 9.1 percent increase from its previous year. On the other hand, its import commodities also increased by 14.3 percent in 2018s from US$ 444.05 billion to US$ 507.58 billion. These data are showing that the import of India is much greater than its export. Mineral fuels, mineral oils, and products of their distillation had the highest share of exports and imports among commodities in 2018s by 14.9 and 33.2 percent respectively. India's export and import figures reflect the subdued economic scenario both domestically and globally. Both exports and imports have been started to increase from 2015 to 2018 after a decline in 2014.

According to the Ministry of Commerce and Industry, the USA is one of the largest trading partners of India after China. From the earlier period, both India and the USA have been saying in public that they are committed to engaging in FTAS (Free Trade Agreements). The India-US trade policy forum was established in July 2005 with an agenda to arrange for the two Governments to discuss trade and investment issues. The main items of India's trade to the USA include (precious stones including gold and diamonds, woven and knit apparel, organic chemicals and machinery, and miscellaneous textile article). On the other hand, the USA exports to India (sophisticated machinery, medical and surgical

equipment, aircraft, spacecraft, etc.). This paper attempts to analyze the bilateral trade relationship between these two countries, and also, a theoretical framework is presented to identify the trends and patterns of trade flow between India and the USA.

Review of Literature: (Nath, H et all, 2015), examined the pattern and determinants of CA (comparative advantage) of services trade of USA with China and India from 1992 to 2010. It was found that the US still has CA in most services despite being an exception in services like travel and transportation and computer and information services. India has the capabilities to gain an advantage in particular services. China was persistent in maintaining dominance over the USA for some time. It suggested that the USA should focus on the relative abundance of sector-specific labor, human capital, and FDI inflows to have as Significant CA over China and India. (Chatterji. M. et all, 2014), said that after India's economy changes from the state-led growth model to the pro-market model, the relationship between economic growth and trade openness has been increasingly evolving. There was no evidence of a significant association between trade barriers and growth. (Mohanty S.K, 2014), analyzed the trend of India's trade with China's market and followed an in-depth study of increasing regionalism between India and China to focus on sustainable trade potential of India and China (Mohanty, 2014).

(Marelli. E & Signorelli. M, 2011), analyzed the trade relations and their effect on India and China's economic growth by observing past institutional reforms and comparing the trade and FDI. They used panel data to estimate economic growth and trade openness with the addition of control variables such as gross fixed capital formation. The result showed that there is a positive effect in opening up the economy and integrating with the world economy (Marelli & Signorelli, 2011). (Muthiah. K, 2010) took a SWOT analysis to look at the basic figures and details of trade for India and China with the view of global economies and various bilateral moves (Muthiah. K, 2010).

(Paul. B, 2010), examined whether India's business cycle has synchronized with that of the economy of the US, post India's liberalization in the early 1990s. It was found that with liberalization intensified over time India's business cycle has increasingly been synchronized with the USA. This coordination was viewed as business cycle transmission from the USA to India due to the reason that USA output variations were arguably exogenous to India. This synchronization was also helped by trade and monetary policy (Paul. B, 2010).

(Burnage. L et all, 2009), analyzed revealed comparative advantage India's service trade from 1908 to 2007; to compare the growth in both pre- and post-liberalization period. Further, he emphasized that to have sustainable growth India needs to focus rather on the global environment than focusing on internal policy (Burnage. L et all, 2009). (Veeramani. C, 2008), took a comparative analysis of the changing export performance and observed the patterns of resource allocation in India and China. It exposed that India need not be fear of the 'Chinese Invasion' of export markets by calling it a myth. He noticed an improvement in comparative advantage in technology and human capital-intensive goods of both countries. He also said that India as compared to China needed to do away with the

bottlenecks on infrastructures and policy rigidity of the factor markets if they want to have an efficient resource allocation process and export activities in India. He did not agree with the statement that import liberalization would lead to the large-scale disappearance of domestic industries (Veeramani. C, 2008).

(Qureshi. M. & Wan. G, 2008), identified the export performances and trade complementariness and competitiveness pattern of India and China with each other as well as with the world. It proposed that the exports of labor-intensive products created by China can be reduced in the long run (Qureshi. M. & Wan. G, 2008). (Hong. Z, 2007), observed the role of ASEAN, India, and China, and other power economies and suggested that ASEAN has been playing a significant role in bringing the whole Asian region together. He examined the changing regionalism and globalization on ASEAN relations and their impacts on India (Hong. Z, 2007). (Sen. R, 2006), discussed the adjustment of India, China, and ASEAN to the term 'new regionalism' through comparative bilateral and regional analysis of their initiatives. It has remained skeptical that these initiatives will not lift them to the global free trade platform unless supported by unilateral and multilateral liberalization (Sen. R, 2006).

(Cuñat. A & Maffezzoli. M, 2007), presented a comparative advantage model that is capable of generating a sizable increase in trade volumes over time. A fall in tariffs has increased the scale of specialization with the factor endowments given leading to bigger volume in the short run. Further, a fall in tariff also raised the factor price of an abundant factor of each country. The study indicated a disproportional increase in the trade share data due to a fall in tariffs (Cuñat. A & Maffezzoli. M, 2007). (Wu. Y & Zhou. Z, 2006), focused on the changing trends of bilateral trade of two countries through studying trade intensity, intra-industry trade, and comparative advantages of the two countries. Batra. A & Khan. Z, 2005, analyzed the pattern of comparative advantage at various levels of disaggregation of commodities and found no correlation between the manufacturing sectors of India and China in the global economy. When ranked according to the comparative advantage at the constituent six-digit commodity level, sectors occupying among the top ten places as per the RCA indices, were not able to keep their position (Batra & Khan, "Revealed Comparative Advantage: An Analysis for India and China", 2005).

(Baier. S & Bergstrand. H, 2004), estimated the indigeneity of fats (free trade agreement) and suggested that trade flow is increased to quintupled by the effect of fats between two member countries. However, they failed to address the impact of such agreement on non-trading members nor trade between nonmembers as well. (Lai. H & Zhu. S, 2004), fitted asymmetric trade barriers and international differences in production costs through a monopolistic competition model and detected a presence of highly non-linear bilateral trade equation. A study of the model indicated that there will be a shifting of trade liberalization from rich to poor countries and from within trading partners to intercontinental trading partners (Lai. H & Zhu. S, 2004).

(Veeramani. C, 2002) implies that trade expansion towards IIT (intra-industry trade) was favored by the atmosphere of the liberalized policy. It also showed how one group of

countries imports from one country and then simultaneously exports too other. As the country's income distribution became more dissimilar, the more intense the IIT, in most industry groups, becomes. It can be observed that bilateral trade happens when there is a closer distance between the partners and when the market of the trading partner widened their market size. (Richardson. D & Zhang. C, 2001), found that the USA has the comparative advantage in differentiated producer goods though and comparative disadvantage in standardized producer and consumer goods. The consumer good patterns are found to be very remarkably unstable and uneven across trading partners and at different levels of aggregation. They were less unsuccessful in finding out sectoral niche comparative advantage than geographical niche comparative advantages (Richardson & Zhang, 2001).

(Smarzynska. B, 2001), analysis was found to be statistically significant estimated using the intra-OECD trade flows. The results also show that two countries located at the periphery rely more on bilateral trade than a pair of countries located close to their central counterparts. The study shows that omitting the location measure influences the estimated impact of regional country groupings in a systematic manner which might lead to policy implications. (Feenstra. R et al, 1998), identifies the determinants of bilateral trade deficit between the US and China and found that there was a widening trade deficit due to opposing macroeconomic factors of both the countries and increased movement of production of US imports to China from East Asia (Feenstra, 1998).

(Leaner. E & Levinsohn. J, 1994), surveyed and studied the distance effect on bilateral trade and said that its finding was one of the clearest and most robust empirical findings. They suggested geographic size and isolation could affect both the total trade of a country and also the composition of that trade. Further suggestions were also provided for future empirical research (Leamer & Levinshhn, 1994).

(Balassa. B & Noland. M, 1989), studied the comparative advantage of Japan and the USA and found that the USA was increasing its comparative advantage in the natural resource-intensive product while still specialized in physical as well as human capital-intensive goods. There was an increase in the comparative advantages of high technology products from both countries.

Objectives of the Study: The main purpose of this study is to analyze the bilateral trade relationship between these two countries, and also, a theoretical framework is presented to identify the trends and patterns of trade flow between India and the USA along with the following specific objectives:
1. To analyze the trends and patterns of commodities trade of India to the rest of the world.
2. To identify the top ten exports and imports commodities of India.
3. To study the bilateral trade between India and the USA for the top ten commodities.

Scope and Methodology:
    The paper will emphasize its importance on the study of India's trade by collecting import and export data of the participating countries. The data are collected from relevant

websites (International Trade Center and Directorate General of Commercial Intelligence and Statistics (DGCI&S), which is under the Ministry of Commerce, Government of India) over a certain period 2008s to 2018s and are observed to find out the trading trends and pattern of the trade. This study will look into the trade flow of the countries to see whether India is exporting more or importing more; what goods are trading; which goods and services are being exchanged. It will help determine the performance of the economies comparing with the other economies. It will also enable us to study the degree of openness of the countries that engage in trade. Commodities are sorted from the hundred 2-digit codes (Harmonized System) of grouped commodities from 2001s to 2018s and thereafter, the top 10 traded export and import commodities from each year will be analyzed based on the absolute value from the hundred commodities. From the top ten export and import commodities of each year, we add for the total absolute value of each year and sort the highest and find the top ten traded commodities out of the total added.

The main purpose is also to study the behavior of the trade of a country through revealed comparative analysis (RCA) which is the most widely used measured index from Balassa's RCA (Balassa, 1965). RCA can be defined as the measurement of the relative export performance of a country. In other words, RCA is the relative country's share of world exports of a product or commodity divided by its share of total world export. It shows the export performance of the country which can be useful in indicating the trade potential of the country. Countries with identical RCA figures are likely to have low bilateral trade intensities unless there is the involvement of intra-industry trade. Specifically, The RCA index for the country (i) and commodity (j) is calculated as follows:

$$RCAij = \frac{\dfrac{xij}{xit}}{\dfrac{xwj}{xwt}}$$

Where, xij = the values of export of product j by country i

Xit = total export of country i

Xwj = the values of world exports of product j

Xwt = world total exports

The interpretation of RCA is relatively simple. The index value is ranged from 0 to ∞ 1 as the breakeven point. That is, a value less than one means the country has no comparative advantage; on the other hand, a value above one implies the product has a revealed comparative advantage in the product. However, for this paper, since the world consists of two countries that are into trading, this index will be using the modified version of Nath, Lui, and Tochkov (Nath, 2015), which is expressed as below:

$$RCAij = \frac{\dfrac{Xij}{\sum_{j=1}^{n} Xij}}{\dfrac{Xij + Mij}{\sum_{j=1}^{n} \text{Xij} + \sum_{j=1}^{n} \text{Mij}}}$$

Here Xij denotes the values of India's exports of commodities j (j=1…. n) to country I (i= China). Mij is the value of country i's exports of commodities j to India (i.e., India's import of commodities j from the USA). In other words, the bilateral RCA index is the share of given commodities in total India's exports to the USA relative to the share of India's trade (exports as well as imports) in these commodities with the USA in total India's commodity trade with the USA. In this also the value takes the range from 0 to where values exceeding 1 indicates that India has a comparative advantage (CA) in j and values between 0 and 1 indicates that India has a comparative disadvantage (CDA) in given commodities vis-a-vis China.

RCA index however suffers from the problem of asymmetry and tends to net trade flows and intra-industry trade. It is asymmetric for the reason that, values on one side of unity are not comparable with those on the other side. To address this problem, Dalum, Laursen, and Villumsen (Bent, Keld, & Gert, 1998), suggest transforming the RCA into;

$$RSCAij = \frac{RCAij - 1}{RCAij + 1}$$

Where RSCA is the revealed symmetric comparative advantage (RSCA). The interpretation of RSCA is slightly different from the interpretation of RCA in such a way that the index value ranges between -1 to +1. Positive values indicate that India has a CA with the USA while negative values indicate that India has CDA vis-à-vis the USA in commodities j. That being said, this would not be a serious issue because we are not examining distributional dynamics and evolution of CA; we are simply trying to know which commodities have CA over the USA.

Data Analyze: This section is for analyzing the data (secondary data) that gathered from (International Trade Center and Directorate General of Commercial Intelligence and Statistics (DGCI&S), which is under the Ministry of Commerce, Government of India) from 2001s to 2018s.

1. **Trends and Patterns of India's Trade with Rest of the World:**

India has opened its borders for international countries since 1991 after economic reforms have been made. From that time India started to grow in the international arena. Nowadays, India is the third-largest economy in nominal GDP, and its export has been increased by 662.4 percent since the 2000s, (Author's findings based on Directorate General of Commercial Intelligence and Statistics, 2017). The available data is showing that since the 2001s, the total exports of India to the rest of the world were 3564.54 billion dollars and imports were 5325.28 billion dollars. The following figure shows that in 2013s and 2018 India attached the highest points of exports and imports by 336.61 billion dollars and 507.58 billion dollars respectively. On the other hand, the lowest point of exports and imports of India were in 2001s by 43.88 and 50.67 billion dollars respectively. These data also show that in the last seventeen years India has grown very fast than other countries.
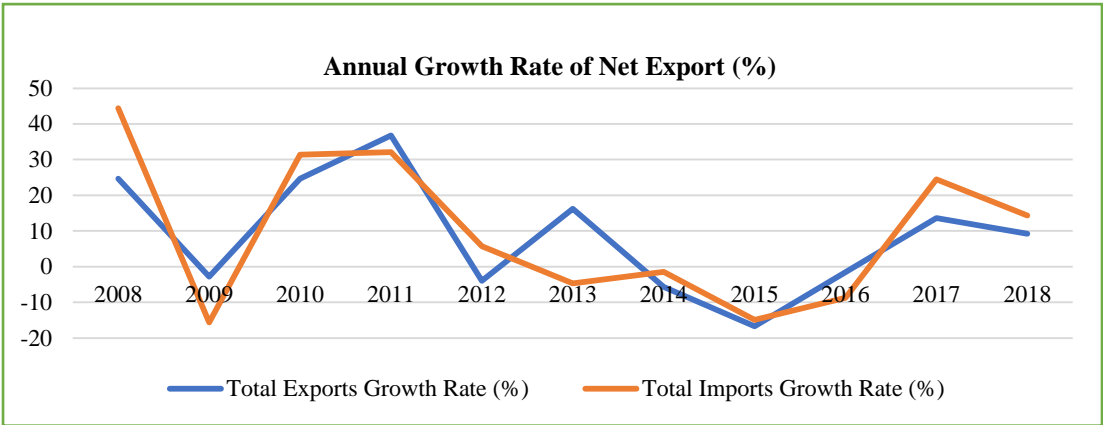
Figure 1: Trend and Patterns of India's Trade with Rest of the World
Source: International Trade Center (Trade Map)

The above data show that the net export of India was so high in 2012s and low in 2009s. It means India's imports were much than its exports. Also, in ten years we can see that India had experienced a trade deficit.
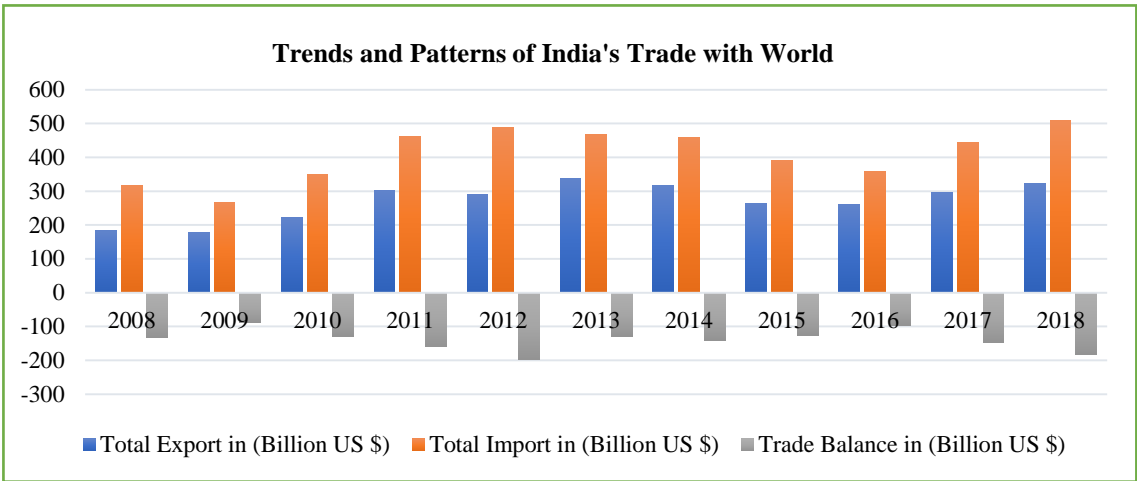
Figure 2: Trade Annual Growth rate in Percentage

Source: International Trade Center (Trade Map)

The above data show the trade annual growth rate of India since 2008s. The highest exports and imports annual growth rate were in 2011s and 2008s by 36.7 percent and 44.3

percent respectively. In 2015 and 2009, India has experienced the lowest growth rate by -16.7 percent and -15. 62 percent in exports and imports respectively.

2. Commodities-Wise Trade of India with Rest of the World (2008-2018):

The top ten commodities are found from a hundred 2-digit code (Harmonized System) of grouped commodities from 2008s to 2018s.

Table 1: Top Ten Export and Import Commodities from India to Rest of The World Since 2008

Code	Product Label	Total Export (Billion $)	Code	Product Label	Total Import (Billion $)
'27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ...	481.03	'27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ...	1499.15
'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	426.65	'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	696.01
'84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	135.82	'85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ...	368.33
'87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	135.39	'84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	358.72
'29	Organic chemicals	126.40	'29	Organic chemicals	165.20
'30	Pharmaceutical products	110.13	'72	Iron and steel	120.39
'85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ...	104.87	'39	Plastics and articles thereof	106.94
'72	Iron and steel	88.91	'15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal ...	98.26
'62	Articles of apparel and clothing accessories, not knitted or crocheted	86.73	'99	Commodities not elsewhere specified	91.74
'52	Cotton	79.94	'31	Fertilizers	74.96

Source: Author's findings from International Trade Center (Trade Map)

The above table shows the top ten commodities that exported and imported by India since 2008s. The top three commodities are those commodities that India export as well as import them, but the amount of import is much higher than the amount of export.

3. Bilateral Trade between India and the USA:

The USA is one of the most important partners of India in trade. Since 2008s, the total trade (Export + Import) of India with the USA was 645.72 billion dollars, more than the other countries in the world except for China. India imports more from China, and export more to the USA, United Arab Emirates, and China respectively. From 2008s to 2018s the total export of India to the USA was increased from 21.4 billion dollars to 51.6 billion dollars that shows an increase of 141 percent. On the other hand, in that period, the total import from the USA is increased from 24.49 billion dollars to 32.64 billion dollars that shows a 33 percent increase.

Table 2: India's Trade with the USA in Billion Dollars and Share of Trade in Percentage

Year	Export in Billion US $	Share in Total Export (%)	Import in Billion US $	Share in Total Import (%)
2008	21.41	11.8	24.49	7.8
2009	19.13	10.8	16.00	6
2010	23.59	10.7	19.10	5.5
2011	32.92	10.9	22.57	4.9
2012	37.17	12.8	24.11	4.9
2013	41.96	12.5	22.60	4.8
2014	42.68	13.4	20.44	4.4
2015	40.31	15.2	20.46	5.2
2016	41.99	16.1	20.40	5.7
2017	46.06	15.6	24.10	5.4
2018	51.60	16	32.64	6.4

Source: International Trade Center (Trade Map)

The above table is showing the trends of trade between India and the USA since 2008s in billion dollars and the share of this trade in total trade of India. In 2018s, India has exported 51.6 billion dollars to the USA more than the other years and in that time the total share of the USA in total exports of India was 16 percent. The lowest amount that India has exported to the USA was US $ 19.13 billion in 2009s and in that time the total share of the USA in India's total exports was 10.8 percent, the lowest percentage share. On the other hand, in 2018s and 2009s India has imported the highest and lowest amount from the USA about 32.64 billion dollars and 16 billion dollars respectively. But in 2018s and 2014s the total share of China in India's total imports was 6.4 percent (the highest) and 4.4 percent (the lowest) respectively.
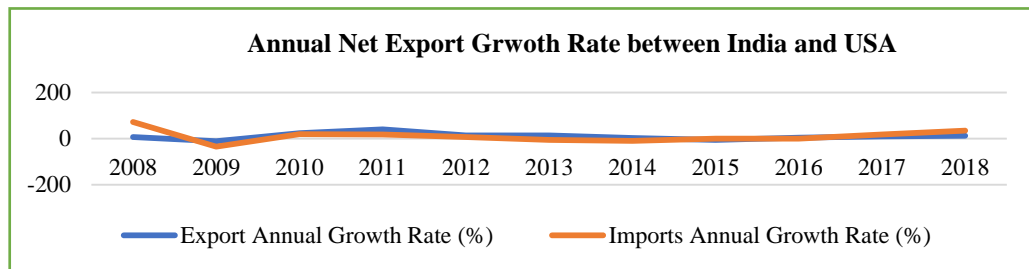
Figure 3: Exports and Imports Annual Growth Rate between India and the USA

The above figure shows the annual growth rate of exports and imports between India and the USA since 2008s. The highest exports annual growth rate of India to the USA was in 2011 with a 40 percent increase than the 2010s. The lowest annual growth rate of exports of India to the USA was in 2009s by -11 percent. On the other hand, the highest and lowest annual growth rate of imports of India from the USA were 72 percent and -35 percent in 2008s and 2009s respectively.

Table 3: Top Ten Commodities Exported to USA and Imported from USA by India (2008-2018)

Code	Product Label	Total Exports (Billion $)	Code	Product Label	Total Imports (Billion $)
'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad **...**	82.12	'84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	34.62
'30	Pharmaceutical products	36.19	'71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad **...**	33.20
'27	Mineral fuels, mineral oils and	21.52	'27	Mineral fuels, mineral oils and	22.29

	products of their distillation; bituminous substances; mineral **...**			products of their distillation; bituminous substances; mineral **...**	
'63	Other made-up textile articles; sets; worn clothing and worn textile articles; rags	20.88	'88	Aircraft, spacecraft, and parts thereof	17.67
'62	Articles of apparel and clothing accessories, not knitted or crocheted	20.63	'85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television **...**	17.15
'84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	20.30	'90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical **...**	14.64
'61	Articles of apparel and clothing accessories, knitted or crocheted	16.62	'99	Commodities not elsewhere specified	12.88
'29	Organic chemicals	16.19	'29	Organic chemicals	9.88
'73	Articles of iron or steel	16.07	'39	Plastics and articles thereof	9.26
'85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television **...**	15.07	'31	Fertilizers	8.77

Source: Author's findings from International Trade Center (Trade Map)

The above table shows the total exports and import values to the USA and from the USA respectively obtained from computation of highest total given by the sorting of all top ten traded commodities of each year i.e. From 2001s to 2018s Among the top ten commodities, these commodities (Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...) With 82.12 billion dollars, (Pharmaceutical products) with 36.19 billion and (Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral ...) 21.52 billion were exported to China respectively. On the other hand, among the top ten commodities these three commodities had the most value in importing from China; Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof with 34.62 billion dollars, Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ..., With 33.20 billion dollars and Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ... With 22.29 billion dollars respectively.

4. Measure of Revealed Symmetric Comparative Advantage (RSCA) :

Before joining the RSCA, we need to examine the RCA to determine the relative advantage or disadvantage of a particular country in a particular class of goods or services. Here for this study, RCA is calculated by considering the top ten export commodities as shown in Table 3. The RCA indicates that the indices must be in the range 0 to ∞, representing values greater than 1 Comparative Advantage, and values between 0 and 1 indicating CDA. In contrast, the RSCA indicates that the value index should be from -1 to 1 and positive values indicate that the country has a CA (comparative advantage) while the negative value indicates a country has a CDA (comparative disadvantage). The measures of the Revealed Symmetrical Comparative Advantage for bilateral trade between India and the USA are presented in Table 5.

Table 4: RCA of India's Trade with USA

Years	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	Pharmaceutical products	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ...	Other made-up textile articles; sets; worn clothing and worn textile articles; rags	Articles of apparel and clothing accessories, not knitted or crocheted	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	Articles of apparel and clothing accessories, knitted or crocheted	Organic chemicals	Articles of iron or steel	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ...
2008	1.68	1.89	0.35	2.13	2.14	0.66	2.14	1.27	1.90	1.00
2009	1.38	1.61	0.49	1.73	1.83	0.47	1.83	1.19	1.53	0.98
2010	1.26	1.65	0.68	1.75	1.81	0.52	1.81	1.17	1.56	0.92
2011	1.16	1.56	0.82	1.64	1.68	0.56	1.68	1.06	1.46	0.78
2012	0.99	1.51	0.65	1.59	1.64	0.57	1.64	1.06	1.45	0.80
2013	1.21	1.43	1.08	1.49	1.54	0.59	1.54	1.02	1.33	0.78
2014	1.05	1.36	1.10	1.43	1.47	0.62	1.48	1.00	1.29	0.65
2015	1.06	1.42	0.93	1.46	1.50	0.60	1.50	0.99	1.31	0.64

2016	1.24	1.39	0.88	1.44	1.48	0.48	1.48	0.96	1.26	0.60
2017	1.18	1.42	0.62	1.48	1.52	0.61	1.52	0.89	1.34	0.66
2018	0.98	1.54	0.51	1.59	1.63	0.79	1.63	0.83	1.40	0.78

Source: Author's Calculation from International Trade Center (Trade Map)

The above table shows the Revealed Comparative Advantage of India with the USA since 2008s. As mentioned before, the numbers above (1) mean India has Comparative Advantage and less than (1) means India has Comparative Disadvantage in trade with the USA. We found that India had CA on these goods; (Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ..., Pharmaceutical products, Other made-up textile articles; sets; worn clothing and worn textile articles; rags, Articles of apparel, and clothing accessories, knitted or crocheted and Articles of iron or steel) in trade with the USA. On the other hand, India had CDA in trade with the USA in these goods; (Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral, Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof, and Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television). However, Because the RCA index suffers from the problem of asymmetry and has a tendency to net trade flows and intra-industry trade. It is asymmetric for the reason that, values on one side of unity are not comparable with those on the other side. For this reason, we are going to check the Revealed Symmetric Comparative Advantage (RSCA) too.

Table 5: Revealed Symmetric Comparative Advantage (RSCA) of India with USA

Years	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	Pharmaceutical products	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ...	Other made-up textile articles; sets; worn clothing and worn textile articles; rags	Articles of apparel and clothing accessories, not knitted or crocheted	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof	Articles of apparel and clothing accessories, knitted or crocheted	Organic chemicals	Articles of iron or steel	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ...
2008	0.25	0.31	-0.48	0.36	0.36	-0.21	0.36	0.12	0.31	0.00
2009	0.16	0.23	-0.34	0.27	0.29	-0.36	0.29	0.09	0.21	-0.01

2010	0.11	0.25	-0.19	0.27	0.29	-0.31	0.29	0.08	0.22	-0.04
2011	0.07	0.22	-0.10	0.24	0.25	-0.28	0.25	0.03	0.19	-0.13
2012	-0.01	0.20	-0.21	0.23	0.24	-0.27	0.24	0.03	0.18	-0.11
2013	0.09	0.18	0.04	0.20	0.21	-0.26	0.21	0.01	0.14	-0.12
2014	0.02	0.15	0.05	0.18	0.19	-0.24	0.19	0.00	0.13	-0.21
2015	0.03	0.17	-0.04	0.19	0.20	-0.25	0.20	-0.01	0.13	-0.22
2016	0.11	0.16	-0.07	0.18	0.19	-0.35	0.19	-0.02	0.11	-0.25
2017	0.08	0.17	-0.24	0.20	0.21	-0.24	0.20	-0.06	0.15	-0.20
2018	-0.01	0.21	-0.32	0.23	0.24	-0.12	0.24	-0.09	0.17	-0.12

Source: Author's Calculation from International Trade Center (Trade Map)

The above table shows the Revealed Symmetric Comparative Advantage (RSCA) of India's trade with the USA since 2008s. As we mentioned before, the range of RSCA is between -1 and +1. The positive values show the CA of India and the negative values show the CA of the USA in trade with India. All the above data show that India had CA on (Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad …, Pharmaceutical products, Other made-up textile articles; sets; worn clothing and worn textile articles; rags, Articles of apparel and clothing accessories, knitted or crocheted and Articles of iron or steel) in trade with the USA. On the other hand, the USA had Comparative Advantage in trade with India in these goods; (Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral, Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof, and Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television). Organic chemicals commodities are those commodities that sometimes India had CA on it and sometimes the USA. Since 2015s USA has comparative advantage on organic chemicals, but before that India had CA on it. Generally, we can analyze that India has CA on labor-intensive commodities and the USA has Comparative Advantages on capital intensive goods in trade with each other. In the end, we can say that India has to focus more on exporting more labor-intensive goods and its government has to support the producers of these commodities.

Conclusion and Discussion:

According to the Ministry of Commerce and Industry, China and the USA are the largest trading partners of India. From the earlier period, both India and the USA have been saying in public that they are committed to engaging in ftas (Free Trade Agreements). The India-US trade policy forum was established in July 2005 with an agenda to arrange for the two Governments to discuss trade and investment issues. The main items of India's trade to the

USA include (precious stones including gold and diamonds, woven and knit apparel, organic chemicals and machinery, and miscellaneous textile article). On the other hand, the USA exports to India (sophisticated machinery, medical and surgical equipment, aircraft, spacecraft, etc.). Since 2008s, the total trade (Export + Import) of India with the USA was 645.72 billion dollars. India imports more from China, and export more to the USA, United Arab Emirates, and China respectively. From 2008s to 2018s the total export of India to the USA increased from 21.4 billion dollars to 51.6 billion dollars that shows an increase of 141 percent. On the other hand, in that period, the total import from China is increased from 24.49 billion dollars to 32.64 billion dollars that shows a 33.3 percent increase. This paper was an attempt to analyze the bilateral trade relationship between these two countries, and also, a theoretical framework is presented to identify the trends and patterns of trade flow between India and the USA.

The composition and share of imports and exports have been studied by using the bilateral trade of involving countries and the top ten traded commodities (in Harmonized System) are examined too. For determining the export performance, Revealed Symmetric Comparative Advantage (RSCA) method has been used. We found that, among the top ten commodities that traded between these two countries, India had Comparative Advantages on these commodities; Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clam..., Pharmaceutical products, Other made-up textile articles; sets; worn clothing and worn textile articles; rags, Articles of apparel and clothing accessories, knitted or crocheted and Articles of iron or steel) in trade with the USA. On the other hand, the USA had Comparative Advantage in trade with India in these goods; (Mineral fuels, mineral oils, and products of their distillation; bituminous substances; mineral, Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof, and Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television).

References:

Alam, D. (2015). "A macro analysis of India & Nepal bilateral trade: Retrospect and prospects". *Journal of Economics and Finance* , 25 - 34.

Baier. S, & Bergstrand. H. (2004). Economic Determinants of Free Trade Agreements. *Journal of International Economics, 64*(1), 29–63.

Balassa, B. (1965). 'Trade liberalization and "revealed" comparative advantage', . *The Manchester School of Economic and Social Studies* , 33: pp. 92–123.

Balassa. B, & Noland. M. (1989). Revealed Comparative Advantage in Japan and the United States. *Journal of International Economic Integration, 4*, 8-22.

Bano , S. (2014). "Trade Relations between New Zealand and China: An Empirical Analysis in the Context of a Free Trade Agreement". *Review of Economics Finance,* , PP 76-92.

Batra, A. (2004). "India's Global Trade Potential –Growth model Approach", . *Indian Council for Research on International Economic Relation (ICRIER), New Delhi*, Working Paper No. 251.

Batra, A., & Khan, Z. (2005). "Revealed Comparative Advantage: An Analysis for India and China",. *Indian Council for Research On International Economic Relations, Working Paper No.168*, No.168.

Bent, D., Keld, L., & Gert, V. (1998). Structural Change in OECD Export Specialization Patterns: De-Specialization and 'Stickiness. . *'International Review of Applied Economics.* , Vol. 12, pp. 423-443.

Burange. L et all. (2009). India's Trade in Services. *Indian Economic Journal, 58*(2), 44-62.

Chatterji. M et all. (2014). Relationship Between Trade Openness and Economic Growth of India: A Time Series Analysis. *Journal of Academic Research in Economics, 6*(1), 45-69.

Cuñat. A, & Maffezzoli. M. (2007). Can Comparative Advantage Explain the Growth of US Trade? *The Economic Journal, 117*(520), 583-602.

Feenstra, R. (1998). "The US-China Bilateral Trade Balance: Its Size and Determinants", University of California, Department of Economics. . *Frankel, Working Papers 989.*, Papers 989.

Fukase, E., & Martin, W. (2016). "the economic potential of an India-US free trade.

Hong. Z,. (2007). India and China: Rivals or Partners in Southeast Asia? *Contemporary Southeast Asia, 29*(1), 121-142.

Ibrahim, K. H., & Shehu, A. (2016). "Nigeria-India Bilateral Trade Relation: An Analysis of Trade Complementarity Index (TCI)",. *Asian Journal of Economic Modelling,*, PP 190-198.

Indo – US Partnership conclave 'The March towards US $500 Billion Trade'. (n.d.).

Islam, F., Tiwari, A. K., & Shahbaz, M. (2018). "Indo-US Bilateral Trade: An Empirical.

Kumar, D. (2015). "Bilateral Trade Relations between India and Pakistan: Recent Experience and Future Prospects",. *Journal of Indian Research,* , PP 01-32.

Lai. H , & Zhu. S. (2004). The Determinants of Bilateral Trade. *The Canadian Journal of Economics, 37*(2), 459-483.

Leamer, E., & Levinshhn, J. (1994). "International Trade Theory: The Evidence", . *National Bureau of Economic Research, Working Paper 4940.*, Working Paper 4940.

Marelli, E., & Signorelli, M. (2011). China and India: Openness, Trade and Effects on Economic Growth. . *The European Journal of Comparative Economics,*, 8(1), 129-154.

Marelli. E, & Signorelli. M. (2011). China and India: Openness, Trade and Effects on Economic Growth. *The European Journal of Comparative Economics, 8*(1), 129-154.

Mohanty, S. K. (2014). "India-China Bilateral Trade Relationship". *Research and Information System for Developing Countries, A Report for RBI*.

Muthiah. K. (2010). CHINDIA – the changing times of China and India bilateral relations. *Management Research Review, 33*(1), 23-40.

Nath, H et all. (2015). Comparative advantages in U.S. bilateral services trade with China and India. *Journal of Asian Economics, 38*, 79-92.

Nath, H. K. (2015). "Comparative advantages in U.S. bilateral services trade with China and India",. *Journal of Asian Economics,* , Vol. 38, pp. 79-92.

Paul. B. (2010). Liberalization and India's Business Cycle Synchronization with the US. *Indian Economic Review, 45*(1), 159-182.

Qureshi. M., & Wan. G. (2008). Trade Expansion of China and India: Threat or Opportunity? *The World Economy, 31*(10), 1327-1350.

Richardson, D., & Zhang, C. (2001). "Revealing Comparative Advantage Chaotic or Coherent Patterns across Time and Sector and U.S. Trading Partner?", . *NBER*.

Sen. R. (2006). New Regionalism" in Asia: A Comparative Analysis of Emerging Regional and Bilateral Trading Agreements involving ASEAN, China and India. *Journal of World Trade, 40*(4), 553-596.

Service, T. C. (2020). U.S.-India Trade Relations.

Smarzynska. B. (2001). Does relative location matter for bilateral trade flows? An extension of the gravity model. *Journal of Economic Integration, 16*(3), 379–398.

Veeramani. C. (2008). India and China: Changing Patterns of Comparative Advantage? *India Development Report*, 145-156.

Wu. Y, & Zhou. Z. (2006). Changing bilateral trade between China and India. *Journal of Asian Economics, 17*, 509–518.