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Exploring The Nature And Key Drivers Of Intra-Industry Trade Between India And ASEAN Five Major Economies.

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A Brief Introduction

Trade in goods and services across the national boundaries has been an indispensable part of almost every country and it currently accounts a major portion of the Gross Domestic Product (GDP) in many countries. According to World Bank statistics, world exports of goods and services as percentage of GDP have continuously been on an increasing trend from 12% in 1960s to around 30% in 2018. Engaging in exchange of goods and services globally widens consumers' choices to choose between a wide variety of goodseither not produced or not cheaply available domestically. Trade allows countries specialise in the production of goods in which it has comparative advantage. This, in turn, leads to the efficient utilisation of a country's resources. Specialisation helps in reaping the benefits of economies of scale and greater efficiency of the producers. All these factors uplift the standard of living and stimulate economic growth.

The understanding of international trade by common people is, however, different from the understandings of economists. The first formal attempt to discuss why countries engage in international trade was made by the father of Economics, Adam Smith, in 1776 in his theory of absolute advantage. Absolute advantage is the ability of one country to specialise and produce (using the same amount of resources) a greater quantity of a good than its competitors. The theory suggest that out of two trade partners one can produce a good in absolute efficient and cost effective way than the other trade partner while the latter can do it in the other good than the former. This theory was unrealistic in nature because it was observed that the opposite happened in case of all the countries that engage in international trade. The countries do not possess any special advantage in production of the traded goods or services. David Ricardo in 1817, developed the classical theory of comparative advantage which refers to a country's ability to produce goods and services at relative advantage than that of its trading partners. The theory of comparative advantage postulates that a country should produce (and export) that good or service in which it has maximum comparative advantage or minimum comparative

disadvantage. Unfortunately, both these theories failed to explain the trade between the least developing countries because it was observed that such countries neither possessed any sort of absolute advantage nor any comparative advantage but still were engaged in international trade.

Among several other theories that were developed to explain the occurrence of international trade, the most popular and influential is the Heckscher-Ohlin theory. It was developed by two Swedish economists, Eli Heckscher and Bertil Ohlin in 1919. The theory is also popularly known as the factor-endowment theory. The theory established the basis of comparative advantage in terms of factor endowment. The basic proposition of the model is that a country will produce and export that good which is produced with intensive use of its abundant factor. In 1950s, Leontief observed that although US is a capital abundant country, yet it exports labour intensive goods. Linder, 1961, also found something contradictory to the existing trade theories that countries with similar per-capita income trade in similar but differentiated commodities because it has similar demand pattern. This is known as Linder hypothesis.

The Concept of Intra-Industry Trade (IIT)

Verdoorn (1960) and Balassa (1966), for the first time noticed a unique pattern of trade among the OECD countries. They noticed simultaneous import and export of the same goods within a same industry. This original Heckshcher-Ohlin theory however, is incapable of explaining this unique pattern of trade which came to be known as intra-industry trade.

The terms ‘inter-industry’ and ‘intra-industry’ trade, although are very similar in sound, have very different meanings. Inter-industry trade is a trade of products that belong to different industries. For instance, the trade of agricultural products produced in one country with technological equipment produced in another country can be classified to be an inter-industry trade. Countries usually engage in inter-industry trade according to their comparative advantages.

Intra-industry trade, on the other hand, is a trade of products that belong to the same industry. As it has been noted, “intra-industry trade (IIT), that is trade of similar products, has been a key factor in trade growth in recent decades. These trends have mostly been attributed to the fragmentation of production (outsourcing and offshoring) as a result of globalisation and new technologies” (Handjiski et al, 2010, p.15).

Objectives

This study tries to address the following objectives-

1. To analyse the nature and pattern of intra industry trade (IIT) between India and ASEAN-5 nations and to measure its intensity.
2. To examine the country-specific determinants of India-ASEAN-5 intra-industry trade.

Research Questions

1. Does the India-ASEAN Free Trade Area (AIFTA) have any significant impact on the intensity of IIT between India and ASEAN-5 countries?
2. Does Revealed Comparative Advantage (RCA) have any significant impact on the intensity of IIT between India and ASEAN-5 countries?

Methodology of the Study

In the present study, an analysis of IIT between India and five major ASEAN countries- Indonesia, Malaysia, Singapore, Thailand and Philippines is done. The time frame of the present study is 2000-2017. Intensity of IIT is measured using the Adjusted Grubel-Lloyd index. The country specific determinants of IIT is examined using panel regression analysis. The econometric model used here is the Augmented Gravity model. The details of the methodology will be discussed in detail in the later parts of this section of the study.

The very idea and scope of international trade has underwent significant changes over the past couple of decades. Trade was conventionally understood as the exchange of commodities between countries very well suited to its national characteristics like comparative advantages, natural endowments, climate, geography, culture etc. The traditional trade theories of Adam Smith, Ricardo, Heckscher-Ohlin etc. believed in such natural difference in country specific characteristics to be the prime cause behind exchange of goods and services among them. Such theories believed in trade in heterogenous products and perfectly competitive markets,which is inter-industry trade. With the passage of time, some researchers observed quite contrasting phenomenon to that of traditional theories. Verdoon and Ballasa were the first to observe the presence of such trade which is known as intra-industry trade. Grubel and Lloyd were the first to empirically test the presence of intra-industry trade.

Over the past couple of decades, the importance of intra-industry trade has been increasing which is seen in its growing share in total trade of different countries. Falvey, (1981). Brulhart (2008) found that the share of intra-industry trade for the world from 1962 to 2006 has increased from 20% to 40%. Considering the growing share of intra-industry trade in world trade and the dearth of empirical studies for intra-industry trade between India and ASEAN, (as India and ASEAN share an illustrious history of cooperation for more than 25 years with $ 142 billion trade in 2018-19),

Interpretation of the test results-

The advantage of using panel data analysis in this study is that unlike time-series and cross-sectional analysis is that it allows for a holistic view of the determinants of intra-industry trade covering all the countries in question. The independent variable in our regression estimation was Grubel-Lloyd index and the independent variables were- DPCI=Difference in per capita Income of the trading partners, SA= combined surface area of the trading partners, GP= geographical proximity of the trading

partners, RCA= revealed comparative advantage in the traded commodity between two countries, FTA= a dummy variable capturing the impact of India ASEAN Free Trade Area (AIFTA). MS= difference in Market size of the trading partners, CGDP= combined GDP of the trading partners, DFN= difference in Factor endowment of the trading partners, DRD= difference in R&D expenditure (as % of GDP) among the trading partners. The Random effect panel regression gravity model performs well with R square value of 0.69 and adjusted R square value of 0.64 and f-statistic value of 9.96 significant at 5% level.

In our analysis, the variables RCA, difference in R&D expenditure, combined GDP,difference in per-capita income and difference in factor endowment have statistically significant effect on the intensity of intra-industry trade among India and ASEAN-5. Whereas, the remaining four variables-market size, combined surface area, geographical proximity and FTA (dummy variable) is found to have no statistically significant effect on the intensity of intra-industry trade.

The estimated parameter of RCA i.e. revealed comparative advantage is significantly and positively related with the intensity with intra-industry trade. It implies that the intensity of intra-industry trade increases when the country have revealed comparative advantage in the production of that commodity and decreases when the country has revealed comparative disadvantage in the production of that commodity. The estimated coefficient value is 0.00038 and the t statistic value is 1.84 significant at 10% level. The result is similar to [Horácio Faustino, (2008), Das, Rishi and Dubey (2016)]

Difference in R&D expenditure between the trading partners is found to have a significant negative impact on the intensity of intra-industry trade between the countries. Expenditure in R&D activities is proxied here for the existing state of technology in that country. As per the regression result, when the difference in the state of technology between both the countries is larger, the intensity of intra-industry trade will be lower. When a high technology country trades with a low technology country, the resultant trade intensity will not be much higher whereas when trade trades place between two countries having similar state of technology, intensity of trade will be higher. The estimated parameter in our study has a value of -0.001 and the t-statistic value is -0.084 which is significant at 10% level.

Similarly, difference in per capita income also has a significantly negative impact upon the intensity of intra-industry trade. The coefficient value is-0.583 and the t-statistic value is -4.32 significant at 5% level. The per-capita income of a country is the average income earned by the people of that particular country or region. It reflects the purchasing power, or standard of living of the people which in turn determined the demand pattern for variety of consumption goods.Inferences exist, though not unequivocal, relating to the interaction between income distribution and per capita income [Economides (1984),Falvey and Kierzkowski (1987)].

Again, the variable, combined GDP of the trading partners is found to have a significantly positive relationship with the intensity of intra-industry trade. It means that when the size of the economy increases, the intensity of intra-industry trade increases and vice versa. The larger combined GDP of two countries indicates a bigger market size. A bigger market size is believed to facilitate trade by increasing the competitiveness of industries thereby lowering average mark-ups and higher aggregate productivity, (Melitz et.al, 2008). The estimated coefficient value is 0.087 and the t-statistic is 2.921 which is significant at 5% level. The results are similar to the literature (Kabir, and Salim, 2010; Anderson, 2011; Leitão et al., 2012; Batra, 2004; De, 2013; and Bhattacharyya and Banerjee, 2006).

The variable, difference in factor endowment shows significantly negative impact on intensity of intra industry trade between the trading partners with a coefficient value of -0.056 and t statistic value -6.95 significant at 5 % level. It indicates that the trading partners having a larger difference in their factor endowment is likely to negatively impact trade intensities. Since, intra-industry trade is all about trade in similar products and between similar industries, the lesser the gap in the factor endowment, the more intense will be trade. Our result is inconsistent with the results of Baleix and Egido, (2010).

The other variables which show insignificant impact are- average market size, combined surface area, geographical proximity and FTA. Geographical proximity turned out to be an insignificant determinant in our study.It is consistent with the results of (Ghatak et al., 2009; Martinez-Zarzoso et al., 2003; Tharakanet al., 2005; Bhattacharyya and Banerjee; 2006; and Batra, 2004) but inconsistent with the results of [Balassa and Bauwens (1987)] who found that geographical proximity the intensity of lIT will be negatively correlated with the geographical distance between the two countries. Similarly, combined surface area also yielded insignificant results indicating that transportation cost and distance is no longer a factor affecting volume of IIT between India and ASEAN-5. Average market size of India and ASEAN-5 member countries have no significant impact upon IIT. This result is inconsistent with some of the previous studies like (Faustino and Proença, 2011;Bagchi and Bhattacharyya, 2019).The FTA (dummy variable) is found to have no statistically significant effect on the intensity of intra-industry trade. It implies that formation of Free Trade Area may have brought strategic gains to India but it is still far from bringing about gains in intra-industry trade volume and intensity.

Major Findings-

1.Analysing the nature and pattern of intra-industry trade between India and ASEAN-5 nations revealed that the CAGR (import and export) of all commodities in which simultaneous imports and exports takes place, have witnessed a positive growth during the study period except for oils and fodder. The highest growth was observed in food products (meat and sugar).

2. The measurement of commodity wise GL-index for intra-industry trade of India with respect to each of the countries revealed that intra-industry trade is highest in footwear for all the countries followed by Wood and Plastic products. Whereas, intra-industry score was relatively low for vegetables. Metals had

the lowest GL score in case of India-Malaysia, machinery and electrical had the lowest GL score for India-Singapore and stone and glass for India-Thailand.

3. For the overall India-ASEAN-5 analysis of intra-industry trade, we found that the intensity of intra-industry trade is highest in case of India-Philippines (GL index score of 61.5), followed by India-Thailand (GL index score 60.5), India Indonesia (GL index score 59.4), India-Malaysia (GL index score 59.3) and India- Singapore having a lowest among the 5 countries (with a score of 58.3).

4. For examining the determinants of IIT we estimated the Random effect Panel regression. Results indicated that the variables RCA (positive), difference in R&D expenditure (negative), combined GDP (positive), difference in per-capita income (negative) and difference in factor endowment (negative)all have statistically significant effect on the intensity of intra-industry trade among India and ASEAN-5. Whereas, the remaining four variables- difference in market size, combined surface area, geographical proximity and FTA (dummy variable) is found to have no statistically significant effect on the intensity of intra-industry trade.

5. The research question whether FTA has any significant impact on intensity of IIT is answered that there is no significant impact of FTA on the intensity of IIT. It implies that the mere reduction of tariff may not boost trade but in turn widen the trade deficit. For example, India's trade deficit rose from $15 billion in 2011 to $24 billion in 2017 after the signing of AIFTA. The major reasons for the under-utilisation of FTA's may be due to lack of information, administrative delays and costs, non-tariff barriers etc.

6. Another research question whether RCA have any significant impact upon the intensity of IIT reveals that RCA positively and significantly impacts the intensity of IIT. It implies that India and ASEAN-5 can expand their trade volume in case of those commodities in which they possess Revealed comparative advantage. The commodities in case of which the Revealed Comparative index is greater than 1 has a comparative advantage in the production of that commodity. The commodity wise RCA index value has been discussed in detail in chapter 4 previously.

Conclusion and policy implications-

The present study concludes that intra-industry trade occupies major portion of the total Indo-ASEAN trade with 59.8% average share of Intra-industry trade in total trade which has continuously increased over the passage of time. This results paves the way for important policy recommendation focusing primarily on intra-industry trade between India and ASEAN-5 which shows strong potential for continued upswing. Framing suitable trade policy to promote intra-industry trade may help in the strengthening of mutual cooperation further and improve the share of IIT in total trade. India should focus more on intra-industry trade while framing policy with respect to ASEAN countries by looking at the potential of IIT to occupy more than half of the total trade share.

While analysing the commodity wise intensity of IIT, this study have found strong intensity of footwear, wood and plastic industry for each of the countries. Since, intra industry trade requires lesser adjustment costs and can reap the benefits of economies of scale, it would be easier to gain specialisation in footwear, wood and plastic products. Specialisation would further increase competitiveness among such industries and lead to improvement in its quality. Such policies are likely to be very much beneficial for the growth and development of economies of the trading partners as we speculate that the share of intra-industry trade in total trade will continue to increase in the coming years.