

Trade Flow among Association of South-East Asian Nations (ASEAN) Countries: A Trade Intensity Approach

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Abstract

This paper features the integration of trade among five founding member countries of ASEAN during the period 2001-2019. To measure the trade relations between two countries, a variety of statistical indicators are available, but in this paper trade intensity index is applied. As a general rule, when a country's trade intensity index of imports and exports is observed to be more than one with the trading partner, then it indicates a high degree of trade association between them. The empirical results signify that the pair-wise export and import intensity index of these countries is greater than one, suggesting significant trade among the member countries. The study has many policy implications. Although the trade intensity index is greater than one for all counties, the value varies, signifying the under-developed bilateral trade areas among the region which need to be focused. Further, the regional and cultural differences should be coped up to accelerate the trade in the region.

Keywords: Association of South-East Asian Nations (ASEAN) Exports, Imports, Trade Flow, Trade Intensity Index

1. Introduction

No country in the world today is totally dependent on its own resources. Due to the fact that each country has its own natural resources, climate, geographical circumstances, and energy sources, all countries on earth are in some way interdependent on one another. The dominant characteristic of the modern world economy is interconnectedness between nations.

International trade means the exchange of goods and services between two or more two countries. Regional integration has been used as a successful strategy for the development of countries and regions. It is universally accepted that regional integration brings many advantages to the member countries such as

free inflow and outflow of factors of production, free flow of investment, and free flow of technology, economic and political benefits. Also, regional integration helps to promote economic growth and process of industrialization through the development of intraregional trade, infrastructure and investment. Regional integration offers a vast market base for the member countries. Regional trade cooperation among nations is the most important strategy to face the challenges of globalization. Many successful schemes related to regional trade in developed and developing nations can be seen in the history of regional cooperation. However, regional economic integration involves more than just advancing trade; it also involves identifying a development engine. In recent years, nations, both developed and developing,

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have looked to regional economic integration as a way to increase their international competitiveness and as a driver of economic progress.

Since the early 1990s, regional integration has taken the lead in trade liberalization. There has not been much advancement in multilateral liberalization since the Uruguay Round came to an end in 1994.

In 1993, Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand established Association of South-East Asian Nations (ASEAN) Free Trade Area (AFTA). In the second part of the 1990s, Vietnam, Laos, Myanmar, and Cambodia were added. The bloc's internal trade liberalization has not happened as quickly as it has in some other trading blocs (e.g. NAFTA).

Many Preferential Trade Agreements (PTAs) were signed by countries since the early 1990s for all the governments, the important instrument for making foreign economic policies is PTAs. Some trade agreements such as the EU and NAFTA are very wide-ranging and contain many provisions that direct extensive liberalization of markets. Other trade agreements than these are narrow in nature. Over the more than 50 years (1967-2019), the Association of Southeast Asian Nations has experienced many significant variations in its prosperities. ASEAN was formulated in 1967. Trade among the ASEAN countries shows the results higher than one would expect, based on the levels of income, GDP, per capita GDP and other determinants. The increasing rate of trade among ASEAN countries can be witnessed by the rapid growth rate of the countries. In the developing world, ASEAN is the most successful regional organization today.

The aim of this article is to inspect and describe the trade relationship among a set of five selected ASEAN nations. The study is based on the trade intensity index approach. In international trade, the trade intensity index approach is widely used to test the trade integration among the countries. ASEAN is the association of 10 member countries but the study concentrates on 5 founding members of ASEAN (Indonesia, Malaysia, Philippines, Singapore and Thailand).

The population of the five founding member countries is showing a considerable increase in the time period taken. These five founding member countries of ASEAN are home to more than 6% population of the world. Indonesia leads the group in terms of GDP. Indonesia is having the largest population (constituting approx. 55% of the population share of these 5 countries in 2019). Singapore is the only country with a significantly less population among all the countries. But per capita GDP of Singapore is very high as compared to other countries. The per capita GDP of Singapore is the highest among all the five countries studied. Indonesia has the largest GDP among all countries. Philippines, Malaysia and Singapore have almost equal GDPs. Indonesia had the least per capita GDP in 2001 but in 2019, the Philippines has the least per capita GDP among the countries. It can be clearly seen that all the countries have a large share of the population as the labor force (Table 1). In much of the region, the rapid growth can be seen in the ASEAN which led to poverty reduction in the region. Also, high savings and investment rates are one of the reasons for the success of the region. Malaysia has been able to virtually reduce the poverty and Indonesia and Thailand have made significant progress in this key area.

All data shown in mention the table 1, are in US Million \$. India's import share in world trade is showing an increasing trend. It was at its peak in 2008 in the last decade but a slight decrease is observed from 2008 to 2009 because of the global financial crisis. These financial crises affected trade adversely (Table 1 & Figure 1). After the global financial crisis, by the 3rd quarter of 2009, as the global economic recovery began, there was a quick bounce-back in trade. The import share of the selected five ASEAN countries in world imports started increasing. It was maximum in 2012 (5.88%). The fluctuating trend can be seen in the terms of export share of the selected ASEAN countries in world export. But it can be observed from Table 1 that the global financial crisis did not adversely affect the export of these selected countries. An increase of 0.24% can be observed from 2008 to 2009. From 2009 to 2010, the export share increased at a considerable rate (Table 2 & Figure 2).

Table 1. General profile of founding member countries of ASEAN

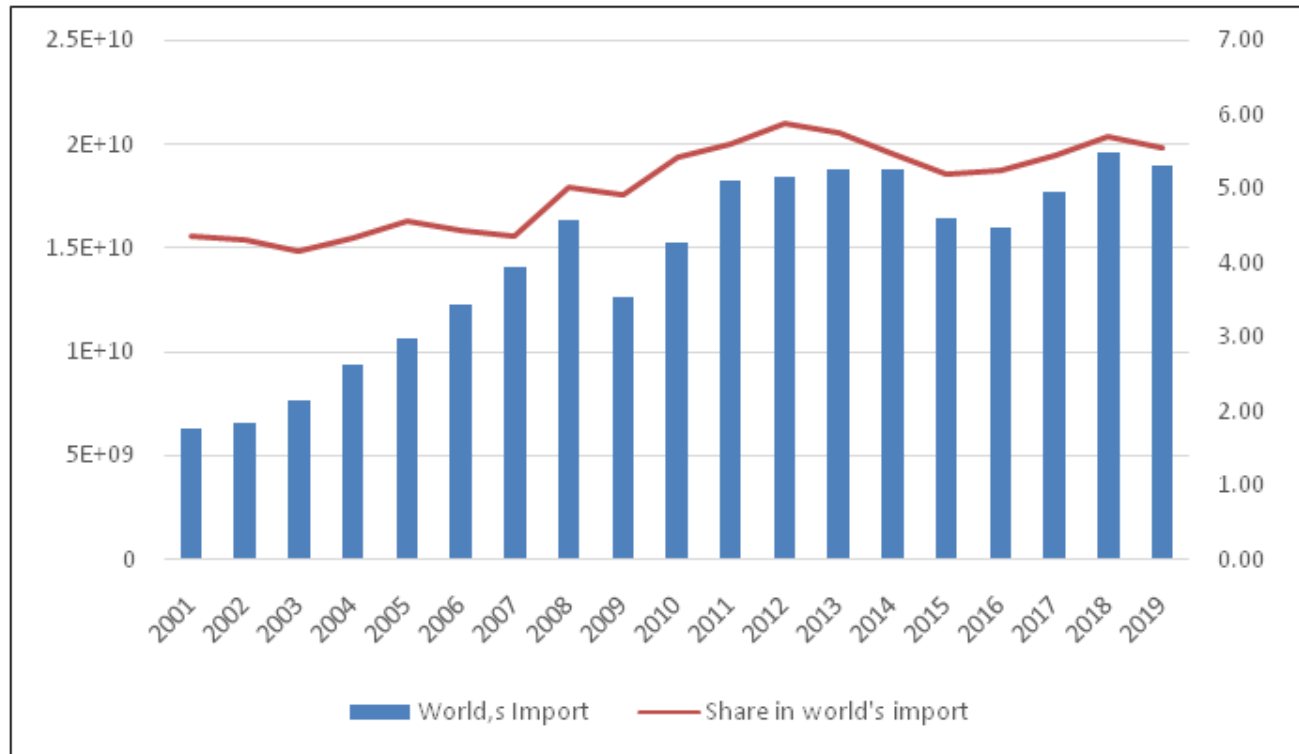
Indicators	Population (million)		GDP (current US million \$)		GDP (per capita)		Labour force	
Countries	2001	2019	2001	2019	2001	2019	2001	2019
Indonesia	214	271	160447	1119091	748	4135	98977592	135802879
Malaysia	24	32	92784	364681	3913	11414	9801296	15780716
Philippines	80	108	78921	376823	991	3485	30709971	45122827
Singapore	4	6	89795	374386	21700	65641	2229754	3525665
Thailand	64	70	120296	544264	1893	7817	35314997	38650533
World	6194	7673	33447171	87607774	5400	11417	2798178816	3467973718
ASEAN	385	486	542243	2779246			177033610	238882620
% Share of ASEAN	6	6	2	3			6	7

Source: World Development Indicators.

Table 2. Import and export share of five founding member countries of ASEAN in World trade

Year	Total Imports of 5 ASEAN countries	World's Import	% Share in the World's import	Total export of 5 ASEAN countries	World's Export	Share in the World's export
2001	274830764	6295722210	4.37	419978756	6127168103	6.85
2002	284755795	6600730224	4.31	436003545	6424106515	6.79
2003	319765409	7700393696	4.15	522184650	7485766161	6.98
2004	407135024	9393145534	4.33	635167959	9100843775	6.98
2005	483777958	10609919771	4.56	729225691	10342419304	7.05
2006	544713285	12260236463	4.44	855641990	11955765894	7.16
2007	615469981	14109148536	4.36	943718273	13784026650	6.85
2008	822356434	16354108727	5.03	1066959081	15965475878	6.68
2009	620521899	12631963842	4.91	854300462	12344002666	6.92
2010	825258818	15227210473	5.42	1114548039	14961202608	7.45
2011	1019687343	18246109350	5.59	1311109862	17992417179	7.29
2012	1082140141	18403224559	5.88	1300706783	18256692173	7.12
2013	1077717630	18747572045	5.75	1307428972	18686653670	7.00
2014	1029946699	18800370402	5.48	1302817420	18704565806	6.97
2015	854412022	16448394550	5.19	1103103664	16268945626	6.78
2016	835988294	15965656664	5.24	1050378934	15797329860	6.65
2017	964826745	17680718068	5.46	1195870577	17427030242	6.86
2018	1114581390	19562788897	5.70	1319347276	19169698116	6.88
2019	1054607675	18996743625	5.55	1256950612	18591310421	6.76

Source: Trade statistics of International Trade center.



Source: Trade Statistics of International Trade center.

Figure 1. Import share of five founding member countries of ASEAN in World trade.



Source: Trade Statistics of International Trade center.

Figure 2. Export share of five founding member countries of ASEAN in World trade.

The present study is an examination of trade integration among five founding member countries (Indonesia, Malaysia, Philippines, Singapore and Thailand) of ASEAN for the period 2001-2019. The current study adds to the existing literature in several ways: firstly, to the best of the author's knowledge, there is no single study has been found which observed the trade performance of ASEAN countries in the region. Although many studies have been found which have been studied the relationship of trade with economic growth in two countries. But none of the studies has investigated the trade performance of ASEAN countries. So, this study is unique in this point of view.

Second, there are many studies found on various groups in the world but no study is found on the ASEAN group. ASEAN is a well-known regional group in the world. Meanwhile, the establishment of ASEAN in the year 1967 has attained notable collaboration growth in terms of economic, common & political facades. The ASEAN's intra-trade performance has also been observed to prominent enhancement, sustained by the implementation of numerous preparations related to trade, including the AFTA in 1992, with the objective to eliminate various trade barriers in the region. Thus, our study tries to fill the gap. Third, due to data unavailability, our study includes only five founding members of the ASEAN in our study, therefore the results of our study have wide implications. Forth, the study has applied the latest technique Trade Intensity Index to measure the trade performance of each country selected with the remaining other countries, thus providing efficient results.

The structure of the study is as follows. The literature review is described in Section II. Section III presents the data specifics and the empirical findings. The next Section includes some final observations.

2. Review of Literature

Anilkumar *et al.* (2021) shed some light on the determinants of the nature of Indian exports with its top 20 trading partners during the period 1991-2017 by applying the gravity model. The study concluded that the exports of India to EU countries have been found

to mostly be inter-industry trade but ASEAN exports are of intra-industry nature. Also, it has been found that two-sided trade agreements are less attractive than multidimensional trade agreements.

Ibrahimov *et al.* (2019) shed some light on the bilateral trade between Azerbaijan and Poland from 2001 to 2016 by applying the trade intensity index. The study concluded that a weak trade relationship has been found between the countries: Azerbaijan and Poland and lower trade intensity has been found than expected between the selected countries.

Purnama and Yao (2019), during the period 2004-2015, by employing the Pedroni panel co-integration test, found the long-term co-integrated relationship between international trade and economic growth in ASEAN countries. A positive and long-term effect has been found on economic growth.

Sawhney and Kiran (2019) analyzed the mutual trade among BRICS nations by employing the trade intensity index approach for the time span of 2006-2015. The study concluded that the trade intensity in the form of exports and imports among BRICS nations is found more than 1.

Maryam *et al.* (2018) analyzed the revealed comparative advantage and trade intensity in the context of intra-BRICS trade during the period 2001-2015 with the help of the trade intensity index. The study concluded that the countries selected for the study are mainly based on natural products and processed products. Competition has been observed between India and China with the help of the export similarity index.

Sakyi *et al.* (2017), by applying the GMM estimation model, for the period 2010-2014, investigated the direct impact of trade and facilitation of trade on the economic growth of 35 African nations. The outcomes of the study concluded that the improvement in trade facilitation has a positive influence on the economic growth of the selected nations.

Liu (2016) tested the association between trade agreements and economic growth between 1960 and

2007 with the help of a fixed-effects regression model. The study concluded that complementarity between RTAs and the WTO is limited.

Anand and Garg (2016) considered the trade intensity of India with the United Arab Emirates from 1991 to 2014 by applying the trade intensity index approach. The study concluded that there has been strong trade integration between India and UAE.

Anderson and Yotov (2016) shed some light on the terms of trade & effects of FTAs between 1990 and 2002 by applying the panel data techniques, and gravity model of trade. The study concluded that the trade and real income of the countries have been positively affected by FTAs.

Balasubramaniam *et al.* (2016) shed some light on the association of trade integration and economic growth in five countries (Indonesia, Malaysia, Philippines, Singapore and Thailand) of the ASEAN group using the ARDL bound testing approach. The paper concluded that economic growth in each country can be promoted by high trade integration.

Malik and Sharieff (2015) analyzed the trade intensity of China with South Asian countries during the period 2005-2013 by applying the trade intensity index approach. The study concluded that the trade intensity of China has increased with South Asian Economies.

Raj and Amborse (2014) analyzed the strength and nature of trade relations between India and Japan for the time span of 2001-2011 by applying the trade intensity index approach. The study found low trade intensity among the countries India and Japan. India exports the same goods to Japan for many years but the volume of exports has declined.

Bojanic (2012) tested the influence of financial growth and trade on the economic growth of Bolivia during the period 1940-2010 by applying the co-integration test, standard Granger regressions and ECM model. The study concluded that a long-run relationship has been found between economic growth, indicators of trade openness and financial development.

Hur and Park (2012) tested the effects of the FTAs on the economic growth of the member nations during the period 1971-2003. The findings of the non-parametric approach revealed that growth performance has been insignificantly affected by FTAs.

Tapsoba (2010) considered the trade intensity and synchronicity of the business cycle during the period 1965-2004 by applying the trade intensity index approach. The study concluded that the trade intensity increases the synchronization of business cycles in the African context.

Mikic (2009) analyzed the trade integration of ASEAN members, the role of ASEAN economies in world trade, negotiation position and WTO membership of individual ASEAN countries and the role of ASEAN as a trade bloc and trade agreements of ASEAN economies during the period of 1998-2007.

Baier and Bergstrand (2007) shed some light on the importance of free trade agreements on international trade by applying the techniques of Instrumental Variable (IV), Control-Function (CF) and panel-data. The study concluded that there has been a positive impact of FTAs on economic growth and international trade.

Calderon *et al.* (2007) tested the trade intensity, integration and process of the business cycle in the context of developing countries during the period 1960-99 by applying regression techniques and the trade intensity index approach. The study concluded that in both developing and developed countries, industrial units have been impacted by trade integration.

Kien and Hashimoto (2005) highlighted the economic analysis of the ASEAN free trade area during the period 1988-2002 with the help of Hausman-Taylor estimation. The study concluded that a similar trade pattern has been found among the countries of the same region.

Shin and Wang (2004) analyzed the trade integration and movements of the trade cycle of Korea with Asian nations by using data from 12 Asian economies. The study concluded that the business cycle of Korea has

become synchronized with Asian economies because of intra-industry trade.

Sharma and Chua (2000) highlighted the intra-regional trade and economic integration in the ASEAN countries from 1980 to 1995 by using the Gravity model of trade. The study concluded that with the increase in the size of the economies trade in ASEAN economies also increases.

From the above literature, it is found that trade intensity among ASEAN member nations is not studied. Many studies are found conducted on various regional groups other than ASEAN studying the trade performance. No study is found studying the trade intensity among ASEAN nations. Thus, the current study aims to study the trade intensity and nature among five founding member nations of ASEAN during the period 2001-2019.

3. The Objective of the Study

The study is an effort to test the integration of trade among five founding members of the ASEAN region. ASEAN is a trading bloc formed by five countries (Indonesia, Malaysia, Philippines, Singapore and Thailand) to support local trade and manufacturing in all ASEAN nations. The Asia-Pacific Economic Cooperation, the East Asia Summit, and the Regional Comprehensive Economic Partnership are some of the largest multilateral forums and blocs in the world. ASEAN is the largest and most significant free trade area in the world. It also drives a network of conversation partners. Through steadfast devotion to the ideals of the United Nations Charter, respect for justice and the rule of law, and promotion of regional peace and stability.

4. Data and Methodology

The present study is based on subordinate data. The data for the study has been taken from 2001-2019 from five founding member countries of ASEAN. The data is analyzed by presenting the data into groups. Further to analyze the pattern of mutual trade among the five founding countries of ASEAN, the intensity index of imports and exports has been calculated for 5 founding

member countries of ASEAN from the period 2001-2019. The export and import intensity index has been calculated by the methodology provided by Asian Development Bank. The secondary data used for the study has been obtained from the World Development Indicators and Trade statistics database of the International Trade Centre (ITC), a mutual agency of the Asian Development Bank for a period of 19 years i.e., from 2010 to 2019. The intensity index of export and import are calculated as follows:

Export Intensity Index_{AB}

$$= \frac{\text{Export of country A to country B} \div \text{Export of country A to the world}}{\text{Export from world to country B} \div \text{Value of total export in the world}}$$

Import Intensity Index_{AB}

$$= \frac{\text{Import of country A from country B} \div \text{Import of country A from the world}}{\text{Import of the world from country B} \div \text{Value of total import in world}}$$

5. Empirical Results

The export and import intensity index of Indonesia with Malaysia, Philippines, Singapore and Thailand is more than 1. It indicates the strong trade integration among all these countries. The export integration of Indonesia with the Philippines is the largest among all countries, in the case of import intensity index, Indonesia and Singapore are closely integrated. But some variation can be observed in the import intensity index of Indonesia with Singapore. As it was a maximum of 8.08% in 2008, then it started reducing and reached 5% in 2019. The considerable variations can be seen in the export and import trade intensity index of Indonesia with Malaysia, Philippines, Singapore and Thailand (Table 3).

The export and import intensity index of Malaysia with Indonesia, Philippines, Singapore and Thailand is more than 1. It indicates the strong trade integration among all these countries. The effects of the global financial crisis can also be observed from the export and import intensity index in the post-crisis years. It reached less than 1 in 2010, 2011 and 2012 with Singapore. A similar impact can be seen in the import and export intensity index with other countries. The considerable variations can be seen in the export and import trade intensity index of Indonesia with Malaysia, Philippines, Singapore and Thailand (Table 4).

Table 3. Export and import intensity index of Indonesia with Malaysia, Philippines, Singapore and Thailand

Indonesia with Malaysia, Philippines, Singapore and Thailand								
Export Intensity Index					Import Intensity Index			
Year	Malaysia	Philippines	Singapore	Thailand	Malaysia	Philippines	Singapore	Thailand
2001	2.62	2.54	5.03	1.87	2.32	0.59	5.26	3.09
2002	2.65	2.13	5.16	2.13	2.35	0.68	6.91	3.69
2003	3.47	2.72	4.86	2.25	2.57	1.19	6.14	5.01
2004	3.65	3.41	4.39	2.66	2.68	1.16	6.18	5.81
2005	3.62	3.46	4.71	2.30	2.79	1.44	7.56	5.76
2006	3.72	3.08	4.41	2.49	3.99	1.21	7.37	4.59
2007	4.21	3.86	4.79	2.57	6.90	1.35	6.18	5.29
2008	4.82	3.96	4.64	2.36	5.68	1.95	8.08	4.51
2009	5.84	5.56	4.40	2.56	4.72	1.85	7.48	3.95
2010	5.39	5.16	4.16	2.37	4.88	1.54	6.43	4.29
2011	5.18	5.13	4.38	2.28	4.71	1.82	6.41	4.68
2012	5.52	5.45	4.27	2.57	5.17	1.48	6.03	4.78
2013	5.31	5.95	4.40	2.48	5.86	1.38	6.12	4.70
2014	4.95	6.10	4.71	2.70	4.89	1.19	6.40	4.53
2015	4.68	6.05	4.61	2.95	4.89	1.34	5.99	4.41
2016	4.61	6.71	4.34	3.01	4.46	1.72	5.19	4.78
2017	4.48	6.95	4.02	2.96	4.55	1.53	5.10	4.43
2018	4.61	6.31	3.73	2.89	3.60	1.47	5.39	4.54
2019	4.76	6.65	3.99	2.87	3.62	1.30	5.00	4.28

Source: Trade Statistics of International Trade center.

Table 4. Export and import intensity index of Malaysia with Indonesia, Philippines, Singapore and Thailand

Malaysia with Indonesia, Philippines, Singapore and Thailand								
Export Intensity Index					Import Intensity Index			
Year	Indonesia	Philippines	Singapore	Thailand	Indonesia	Philippines	Singapore	Thailand
2001	3.51	2.57	1.37	1.87	3.39	4.88	6.51	3.84
2002	3.97	2.24	1.77	1.26	3.43	5.65	5.86	3.57
2003	4.66	2.41	1.94	1.24	4.43	7.92	5.65	4.39
2004	4.73	3.03	1.56	1.94	5.24	6.34	5.24	5.37
2005	4.19	2.93	1.43	2.05	4.74	7.25	5.38	5.09
2006	4.96	2.99	1.66	1.81	4.60	5.72	5.24	5.13
2007	5.42	3.43	1.58	2.18	5.29	5.45	5.35	4.94
2008	3.86	3.87	1.00	3.88	5.56	4.46	5.24	5.17
2009	3.98	3.39	1.18	2.88	5.75	3.03	5.14	5.01
2010	3.12	4.00	0.78	5.13	5.37	6.32	4.91	4.86
2011	3.04	4.45	0.68	6.51	5.48	3.16	5.61	4.79
2012	3.74	4.16	0.90	4.63	4.97	2.80	5.86	4.72
2013	4.60	3.69	1.25	2.96	4.43	2.42	5.52	4.89
2014	4.35	4.34	1.00	4.34	4.34	2.30	5.68	4.80
2015	4.25	3.92	1.09	3.61	4.96	2.67	5.68	4.74
2016	4.10	3.19	1.28	2.49	4.65	2.68	5.02	4.53
2017	4.13	3.13	1.32	2.37	4.73	2.99	5.24	4.31
2018	3.23	2.81	1.15	2.45	4.98	3.03	5.56	4.33
2019	3.39	3.04	1.12	2.72	5.18	2.87	5.13	4.03

Source: Trade Statistics of International Trade center.

Table 5. Export and import intensity index of Philippines with Indonesia, Malaysia, Singapore and Thailand

Philippines with Indonesia, Malaysia, Singapore and Thailand								
Export Intensity Index					Import Intensity Index			
Year	Indonesia	Malaysia	Singapore	Thailand	Indonesia	Malaysia	Singapore	Thailand
2001	0.82	0.00	3.79	4.18	2.63	2.32	3.26	2.73
2002	1.19	0.00	3.87	3.06	2.29	2.71	3.42	2.74
2003	1.88	0.00	3.69	3.36	2.64	2.72	3.27	3.43
2004	1.85	0.00	3.48	2.58	2.84	3.31	3.64	3.51
2005	2.07	0.00	3.38	2.48	2.74	2.80	3.60	3.27
2006	1.50	0.00	3.68	2.60	2.40	3.08	3.78	3.78
2007	1.92	0.00	3.24	2.67	2.89	3.28	5.17	3.81
2008	1.52	0.00	2.63	2.72	3.17	3.52	4.93	4.57
2009	1.27	0.00	3.22	2.97	4.53	3.13	3.99	4.69
2010	0.96	0.67	6.79	2.84	4.08	3.47	4.01	5.47
2011	1.28	0.62	4.30	3.12	3.58	3.50	3.54	4.56
2012	1.54	0.86	4.43	3.47	4.33	3.24	3.15	4.47
2013	1.47	0.65	3.52	2.51	4.66	3.00	3.00	4.46
2014	1.29	0.35	3.57	3.12	5.02	3.80	3.14	4.39
2015	1.22	0.56	3.41	3.11	4.85	3.86	3.30	4.92
2016	1.22	0.30	3.67	3.05	6.05	3.34	3.15	5.85
2017	1.23	0.36	3.26	3.24	7.14	3.14	2.77	5.25
2018	1.30	0.61	3.24	3.07	6.40	2.94	2.60	5.40
2019	1.27	0.75	2.82	3.26	7.00	3.33	2.91	4.82

Source: Trade Statistics of International Trade center.

Table 6. Export and import intensity index of Singapore with Indonesia, Malaysia, Philippines and Thailand

Singapore with Indonesia, Malaysia, Philippines and Thailand								
Export Intensity Index					Import Intensity Index			
Year	Indonesia	Malaysia	Philippines	Thailand	Indonesia	Malaysia	Philippines	Thailand
2001	0.00	14.39	4.44	4.30	0	12.39	4.31	4.32
2002	0.00	12.99	3.80	4.53	0	12.89	4.03	4.50
2003	22.69	12.75	3.56	3.80	7.71	11.60	4.41	3.87
2004	18.73	11.88	3.89	3.76	7.36	10.67	5.76	3.77
2005	17.46	12.01	3.80	3.58	6.52	10.20	5.96	3.64
2006	17.96	11.97	4.11	3.91	7.67	9.92	6.09	3.43
2007	18.17	12.17	4.83	3.99	7.24	10.43	6.14	2.96
2008	13.32	12.37	5.64	3.52	6.68	9.73	5.07	3.25
2009	12.41	11.49	5.01	3.44	6.35	9.27	6.86	2.76
2010	10.48	10.90	5.20	2.95	5.25	8.91	8.69	2.56
2011	11.04	11.75	4.59	2.67	4.71	8.45	6.32	2.44
2012	10.31	11.55	4.26	2.84	5.15	8.49	5.54	2.11
2013	10.40	11.22	4.53	2.73	5.14	8.65	4.34	1.97
2014	9.72	10.80	4.57	3.07	5.39	8.30	4.02	1.92
2015	9.32	10.04	4.29	3.20	5.30	9.12	4.29	2.04
2016	9.10	9.93	3.63	3.18	5.25	9.58	4.71	1.81
2017	8.32	9.47	3.45	3.05	4.84	9.63	4.90	1.64
2018	8.13	9.60	3.22	2.88	4.46	9.13	6.11	1.75
2019	7.61	9.56	3.60	3.05	4.93	9.26	5.34	1.65

Source: Trade Statistics of International Trade center.

Table 7. Export and import intensity index of Thailand with Indonesia, Malaysia, Philippines and Singapore

Thailand with Indonesia, Malaysia, Philippines and Singapore								
Export Intensity Index					Import Intensity Index			
Year	Indonesia	Malaysia	Philippines	Singapore	Indonesia	Malaysia	Philippines	Singapore
2001	4.15	8.30	3.12	4.27	2.46	3.55	3.56	2.38
2002	5.06	8.54	2.92	4.50	2.78	3.99	3.12	2.37
2003	6.51	11.10	3.55	4.02	2.96	4.39	3.79	2.08
2004	6.52	10.77	3.75	3.82	3.23	4.36	3.89	2.08
2005	6.45	9.25	3.89	3.49	3.28	5.13	4.10	2.10
2006	5.00	9.99	4.39	3.22	3.28	5.02	4.30	2.00
2007	5.86	9.44	4.55	3.25	3.43	4.84	4.17	2.05
2008	4.39	6.87	5.20	2.81	3.61	4.46	4.23	1.90
2009	3.90	6.41	5.33	2.48	3.08	5.15	4.38	1.99
2010	4.15	5.97	6.40	2.20	3.00	4.50	3.85	1.49
2011	4.47	5.49	5.73	2.42	2.89	4.34	4.49	1.49
2012	4.65	5.16	5.92	2.23	3.16	4.28	3.89	1.40
2013	4.76	5.70	6.27	2.37	3.31	4.34	3.46	1.46
2014	4.39	5.89	7.12	2.27	3.41	4.49	3.49	1.56
2015	4.16	5.41	6.51	2.23	3.54	4.81	3.26	1.68
2016	4.37	5.20	5.47	2.10	3.62	4.71	3.95	1.62
2017	4.14	4.85	5.20	1.85	3.47	4.29	4.06	1.69
2018	4.02	4.68	5.22	1.93	3.52	4.24	4.00	1.46
2019	4.00	4.61	4.64	1.85	3.47	4.35	3.68	1.57

Source: Trade Statistics of International Trade center.

The export intensity index of the Philippines with Indonesia, Singapore and Thailand is more than 1 but with Malaysia, it is less than 1. But the import intensity index of Indonesia with all selected countries is more than 1. It is showing increasing trade integration among the countries. The import intensity index of the Philippines with Indonesia is greater among all the selected countries. Some variations in the export and import intensity index can be observed in the years 2009, 2010, and 2011 due to the global financial crisis in the years 2008 (Table 5).

The export and import intensity index of Singapore with Indonesia, Malaysia, Philippines and Thailand is more than 1 which shows strong trade integration among the countries. The export intensity index of Singapore with Indonesia was maximum at 23.69 in 2003, and then it started decreasing and reached to 7.61 in 2019. A continuous decrease in the export intensity index of Singapore with Indonesia can be observed. A similar continuous decrease can be observed in

the export intensity index of Singapore with the Philippines. A downward slope can be observed in the export intensity index of Singapore with other selected countries (Table 6).

The export and import intensity index of Thailand with other selected countries of ASEAN is more than 1. As observed from the results, strong trade integration is between all the selected countries. Export and import integration with Thailand and Malaysia is more than in other countries. It was maximum in 2003 and then it started reducing and reached 4.61 in 2019 which is the minimum in the selected period. The results revealed that there are considerable variations in the results that in the initial years of the study, it started increasing, but after some years it started decreasing. Our results regarding increasing trade among the ASEAN countries are in line with Sharma and Chua (2000); Paswan (2021); Goyal and Vajid (2018). Sharma and Chua (2000) highlighted that the trade among ASEAN members has increased in the proportion of the countries' size while

Paswan (2021) argued that India's export intensity is very low and declined almost every year while import intensity was always above the unity level in every year except in the year 2012. While our results are also in line with Burhani and Wani (2019) who illustrated that the trade integration of India is superior to in other Asian countries such as Afghanistan. Likewise, Goyal and Vajid (2018) reported that the trade of India with the UAE is more intense than in other countries, thus increasing international trade in the last few decades. Furthermore, Hossain and Islam (2021) argued that Bangladesh's export level to China has been much less than China's share of the world market, according to the export intensity value for Bangladesh to China. While Bangladesh has been exporting identical goods whose demand has been dropping over time, the import intensity shows that it has not been able to diversify its export basket enough for the Chinese market over the years (Table 7).

Our results differ from those of Keeryo *et al.* (2020) who established the declining intensity index of trade between India and Pakistan. They put forward the worst political relations behind the declining trend of trade between the nations. Further, our results also stand in contrast with Khatoon and Imam (2019), who reported a declining trade intensity index between India and Germany. While, Ibrahimov *et al.* (2019) illustrated that although trade between Azerbaijan and Poland has been moderate, it has been rather less intense than anticipated.

6. Conclusion

The present paper is an effort to investigate the strength and integration of trade among five founding member countries of ASEAN by using a trade intensity index for imports and export during the period 2001-19. When a country's intensity index values of imports and exports are observed to be more than 1 with the trading country, then it is concluded a high degree of trade integration between them. The study concluded that the export and import intensity index of Indonesia with Malaysia, Philippines, Singapore and Thailand is more than 1. The intensity index for export and import of Indonesia with Malaysia, Philippines, Singapore and

Thailand is more than 1. The export intensity index of the Philippines with Indonesia, Singapore and Thailand is more than 1 but with Malaysia, it is less than 1. But the import intensity index of Indonesia with all selected countries is more than 1. The intensity index for export and import of Singapore with Indonesia, Malaysia, Philippines and Thailand is more than 1. The export and import intensity index of Thailand with other selected countries of ASEAN is more than 1. The results are showing high trade integration among the countries. But the adverse effect of the global financial crisis can also be seen in the results. The global financial crisis of 2008 adversely affected the trade among the countries.

It can be observed that the trade relations among ASEAN nations are good. Trade between countries is affected by various factors such as tariff and non-tariff barriers, lack of transport services, lack of infrastructure development etc. In this manner, it is prescribed that the neighboring nations should try to make better relations to create a trade-friendly environment and to form inviting approaches and participate with each other.

7. References

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