

Analysis the Level of Intra-Industry Trade for ASEAN's Economy

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ABSTRACT

This paper aims to examine and analyse the level of intra-industry trade on economy of ASEAN. These data obtained from the accurate and reliable source of ASEAN Trade Statistics databases. The important of intra-industry and measurement also described. Moreover, the linkage of intra-industry trade and trade and investment liberalization under the ASEAN Economic Community (AEC) also explained. The effective enhancement schemes to increase the competitiveness of specific industries had been proposed to enhance ASEAN to be efficient production hub and network of region that lead to the ultimate goal of single market. The further studies can be applied to construct and estimate the econometric model and forecasting technique to confirm by the empirical results.

KEY WORDS: Intra-industry trade, ASEAN, AEC, trade and investment liberalisation

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1. INTRODUCTION

Economic and financial crisis attacked the Asian region starting from Thailand in 1997. Almost all countries in this region had been domino affected by the crisis. The economic growth and structural changes has been emerged particularly for the past two decades. This growth can be regarded as miracle growth because of the spectacular growth performance characteristics. Many perspectives can explain this experience as follows. These aspects can be divided into two factors as primary and secondary factors. The miracle growth also associated with the economic policy implementation as well as the changing of trade policy and the attraction of massive foreign direct investment especially in the industrilised export production (Dowling and Valenzuela, 2004). As a consequence, all Southeast Asian economies grew very rapidly over expectation especially in the 1990s.

Nevertheless, many countries in this region had been domino affected by the crisis. The enhancement of intra-industry trade for important industries had been proposed and implement by trade and investment liberalisation policy to accelerate ASEAN's economy growth. Both tariff and non-tariff barriers (NTBs) have to be eliminated under the agreement. The efficient regional production hub and network needs be concerned by all members. Moreover, the enhancement of intra-industry trade under the specialization perspective in the region has been proposed and debated among economists. Therefore, the issue of analysis level and impact of intra-industry trade on ASEAN's economy is very interesting to study.

2. REVIEW LITERATURE

This section reviews the related literature to explore the research gap and determine objectives of study.

Elliott and Ikemoto (2004) used a modified gravity equation to examine ASEAN intra- and extra regional bias in bilateral trade flows and how these relationships have changed overtime. The investigated period covered before and after the signing of AFTA as well as the crucial years prior to and following the Asian crisis. By given the 'openness' of ASEAN countries, the consideration is not only intra-ASEAN trade but also the effect of AFTA on non-members. It is found that trade flows were not significantly affected in the years immediately following the signing of the AFTA agreement. Additionally, the policy implementation of ASEAN countries to focus on an outward oriented

economic activity has not been significantly affected but rather stimulated by the AFTA process and/or the Asian economic crisis. One important effect of the Asian economic crisis was to generate a stronger desire to source imports from within the region and in particular for intra-industry trade pattern.

It can be stated that most of the related literature has undertaken by concentrate on the structure or pattern and impact of intra-ASEAN regional trade. Therefore, the level and impact of intra-industry trade on ASEAN's economy is very interesting to consider the support of that whether ultimate target of single market via enhance intra-industry trade is mutual benefit to members.

3. IMPORTANT AND MEASUREMENT OF INTRA-INDUSTRY TRADE

The ultimate target of ASEAN regional integration is to be single market. The one important condition is trade and investment liberalisation to assure the expansion of intra-industry trade. All members has to address that which industries that have high production specialisation and competitiveness. These industries need to be categorised and prioritised as target industries to develop via the mutual agreements (Wattanakul, 2010). Nevertheless, these mutual agreements should be adjusted in term of appropriateness and flexibility for all new members consist of Cambodia, Laos, Myanmar and Vietnam (CLMV).

The explanation of intra-industry trade is also presented in this section prior to propose of conceptual framework and econometric model and estimation methods. The intra-industry trade level (IIT) can be measured by using the IIT index as follows (Appleyard and Field, 1997).

By given the intra-industry trade happens within a selected commodity, the intra-industry trade can be measured by using the IIT. The changes of this index measurement is very useful because it shows the improvement of a country from time to time and allows the comparison of different countries.

If the commodity category is represented by i and exports and imports in this category are represented by X_i and M_i respectively. The total exports and imports of same category are represented by X and M . Therefore, the IIT can be shown in formula to calculate the intra-industry trade degree as follows (Appleyard and Field, 1997, pp.199-200).

$$IIT = 1 - \frac{\sum | (X_i/X) - (M_i/M) |}{\sum | (X_i/X) + (M_i/M) |}$$

From the above, the (X_i/X) and (M_i/M) is regarded as the country's total export and import percentage in the selected category i and $(X_i/X) - (M_i/M)$

Shows the difference between the share of exports and imports in the category in absolute value. The $\sum (X_i/X) + (M_i/M)$ presents sum of exports and imports share in the category. The \sum means the overall summing of the commodity categories.

The index value lies between 0 and 1. The different value affirms the moderate level if the value is approximately 0.5. The value of 1 means total intra-industry trade that exports equal to imports in each category.

Comparative advantage based on factor endowment gradual assist to forecasting intra-industry. Intra-industry trade is more related to the factor endowments of the investigated country. Besides that, the one essential deficiency assumption of the Heckscher-Ohlin theory is the reliable explanation of intra-industry trade. The pattern of trade under Heckscher-Ohlin theory is only inter-industry trade between the different factor intensity commodities of labour and capital intensive commodities. Many reasons can be explained to support this argument as follows (Appleyard and Field, 1997).

- 1) Product Differentiation
- 2) Transportation Costs
- 3) Geographical Location
- 4) Dynamic Economies of Scale
- 5) Degree of Product Aggregation
- 6) Income Distribution Differentiation

The measurement of intra-industry trade had been examined to test various specific hypotheses as follows (Appleyard and Field, 1997).

- 1) Higher level of income per capita is associated with a higher amount of intra-industry trade.

- 2) There is positive relationship between country's total income because more economies of scale leads to larger national income.

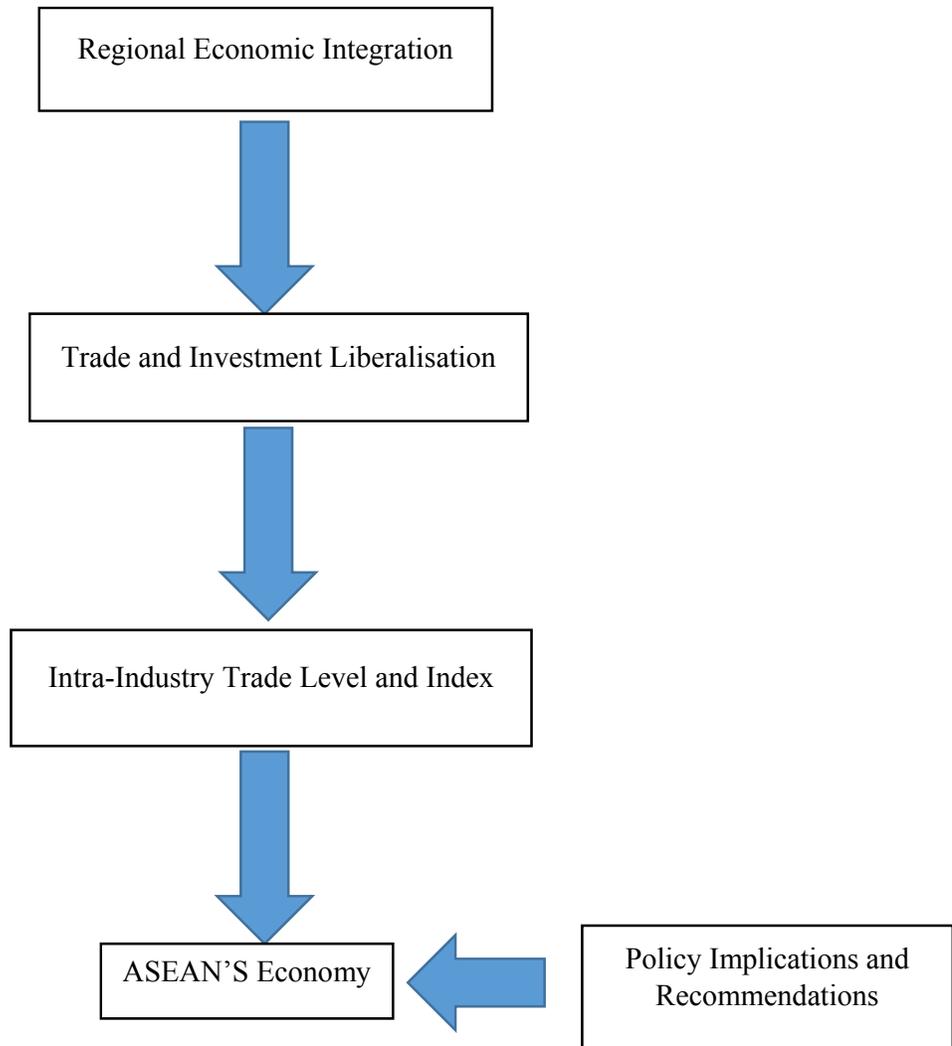
The above hypotheses are generally confirmed. The level of intra-industry trade is positively correlated with many factors such as income per capita, national income, openness and the common border with trading partners. In contrast, transportation costs that is measured by distance from trading partners is negatively correlated with intra-industry level.

Additionally, it can be stated that the intra-industry trade is an economic situation reflects the production and trade pattern complexity in reality that cannot be described by other international trade theories. The intra-industry trade is not only benefited to trading partners in term of various product differentiation but also more variety of goods to consumers.

4. CONCEPTUAL FRAMEWORK

This section proposes and explains the conceptual framework to address the objectives of study. The conceptual framework can be described as follows.

Figure I Conceptual Framework



Sources: From the theoretical framework and review literature

It can be described from the above conceptual framework that the essential related aspects need to be discussed prior to examine and analyse the level and impact of selected intra-industry trade on the economy of ASEAN.

These aspects consist of regional economic integration that one important condition is trade and investment liberalisation leads to the expansion of intra-regional and intra-industry trade. In addition, the policy implications and recommendations are also proposed to support and be transmission channels to link the intra-industry and ASEAN's economy development and growth.

5. TREND OF INTRA-INDUSTRY TRADE OF ASEAN

This section examines trend of intra-industry of ASEAN. These intra-industry trade is selected under the context of ASEAN Investment Agreement (AIA). The specific industries of each member have to be explored to propose according to this agreement. As a consequence, each member has different potential and competitiveness in different industries. The acceleration of intra-industry in ASEAN to increase needs efficient engine of develop infrastructure to support the expansion of trade and investment such as the transportation link via ports, airports, railways and roads. Furthermore, both the East-West and North-South Corridor has to be progress built to create the commodity delivery route with the region and contributes to transportation costs reduction between ASEAN and China.

Besides that, the production pattern of almost ASEAN members has been altered from the agriculture to manufacture during the past two decades. This can be affirmed by the massive inflow of foreign direct investment (FDI) especially in high competitiveness export manufacture industries before the attack of economic and financial crisis. Trade and investment facilitation schemes are also very crucial to assure the effective policy implementation.

5. TRADE AND INVESTMENT LIBERALISATION UNDER AEC

This section analyses the roles and importance of regional economic integration. Regional economic integration has been proliferated in many regions including Asia. It has an importance as first those countries in the same region develop the agreements to expand the economic cooperation not only for trade and investment liberalisation but also to enhance the effective alleviation economic and financial crises polices. The free trade agreements (FTAs) can be used as possible measure to deal with this issue.

The current important example of regional economic integration is ASEAN. ASEAN has increases an important role in terms of not only regional trade and investment liberalisation but also the expanding of other and deeper

economic integration to be the ASEAN Economic Community (AEC) by the end of 2015 (Wattanakul, 2010). The ultimate goals of AEC are to be single market in order to create the efficient production hub and network. Furthermore, the service sector liberalisation is also the additional important target of AEC.

Bilateral free trade agreements (FTAs) are an essential step that can be led to the building blocks for the comprehensive regional economic cooperation and plurilateral economic integration later. Many countries in ASEAN currently particularly for Thailand has enthusiastic negotiated and implemented the bilateral FTAs. Thailand has signed and implemented the bilateral FTAs with the countries both inside and outside the region.

In addition, the enlarged ASEAN has been progressed because of the major East Asian countries of China, Japan and South Korea has very interested to be part of AEC as the ASEAN+3 (Wattanakul, 2010). This progress will be benefit to all partners lead to the more negotiation power under the WTO and other mutual benefits. Another enlarged ASEAN negotiation and progress in the present is ASEAN+6. ASEAN+6 consist of ten ASEAN members and China, Japan, South Korea, Australia, New Zealand and India. All mentioned East Asia economies are very important for regional economy's growth because of the massive foreign direct investment (FDI) in export manufacturing in ASEAN host countries.

6. LEVEL OF INTRA-INDUSTRY TRADE ON ASEAN'S ECONOMY

This section describes level and impact of specific intra-industry trade on the selected ASEAN member's economy. The analysis of related macroeconomic and trade data is used to analyse by using descriptive statistics as well as tables and figures.

The data used to examine and analyse consists of total trade, trade aggregate, trade balance, total trade share to GDP, trade structure and trade dependency. This data obtained from the ASEAN Community in Figures 2011 (ACIF, 2011).

TABLE 1 ASEAN TRADE (US\$ Million)

Indicator	1998	2000	2003	2008	2009	2010
Total Trade	576,108	759,101	824,539	1,897,127	1,536,878	2,045,731
Intra-ASEAN Trade	120,918	166,846	206,732	470,112	376,177	519,805
Extra-ASEAN Trade	455,190	592,255	617,807	1,427,015	1,160,700	1,525,926
Trade Balance	57,194	61,180	80,575	57,946	84,068	96,152

Source: ASEAN Trade Statistics Database, 2011.

From the table 1, it shows that ASEAN trade reached US\$2.0 trillion in 2010 with an increased by 33.1 due to expansion in trade with both intra-ASEAN and extra-ASEAN partners. Intra-ASEAN's share to ASEAN total trade in 2010 stood at 25.4% that was slightly higher than 24.5% in 2009. Meanwhile, extra-ASEAN, accounting for three-fourths of total ASEAN trade that grew by 31.5%, in 2010 following recovery from the 2008 global economic downturn. In addition, the share of exports to GDP rose steadily in tandem with the ratio of imports to GDP. ASEAN continued to register trade surplus for 2010 amounting to US\$96 billion as demand for ASEAN export products remained strong

TABLE 2 TOTAL TRADE (US\$ Million)

Country	1998	2000	2003	2008	2009	2010
Brunei Darussalam	3,200	3,237	4,563	12,775	9,602	10,999
Cambodia	n.a.	2,772	5,022	8,776	8,887	10,480
Indonesia	76,185	95,639	93,609	266,218	213,339	293,442
Lao PDR	n.a.	n.a.	482	2,631	2,962	4,509
Malaysia	138,075	177,802	188,502	338,795	280,221	363,534

Myanmar	n.a.	3,413	6,307	10,415	10,191	11,798
Philippines	59,156	72,569	73,728	105,671	83,869	109,660
Singapore	211,299	273,033	296,116	657,956	515,617	699,273
Thailand	88,193	130,636	156,210	352,534	286,267	385,041
Vietnam	n.a.	n.a.	n.a.	141,357	125,922	156,993

Source: ASEAN Trade Statistics Database, 2011.

TABLE 3 TOTAL TRADE SHARE TO THE GDP (%)

Country	1998	2000	2003	2008	2009	2010
Brunei Darussalam	79.8	54.0	69.8	88.4	89.3	88.7
Cambodia	n.a.	76.6	108.4	79.2	85.8	93.8
Indonesia	72.2	57.8	39.8	51.9	39.0	41.4
Lao PDR	n.a.	n.a.	22.6	49.8	53.1	69.3
Malaysia	191.1	And 1196.9	181.3	152.1	145.1	152.2
Myanmar	n.a.	35.5	53.7	45.6	40.8	27.4
Philippines	90.2	97.0	92.6	63.5	52.0	57.9
Singapore	248.5	289.5	308.6	340.0	282.2	313.6
Thailand	78.2	106.2	109.3	129.2	108.3	120.8
Vietnam	n.a.	n.a.	n.a.	156.2	130.7	145.8

Source: ASEAN Trade Statistics Database, 2011.

From the table 2 and 3, it can be stated that nearly all members had an increased in total trade led to the increased of share to GDP. This trend emerged particular for during the period between 1998 and 2000 attributed to the recovery period from the economic and financial crisis. Other important factor contributed to the trade and investment liberalisation under the AFTA. The fluctuation period was during the period between 2003 and 2010 because of the recession in some countries. However, during this period the trade balance of all new members of Cambodia, Lao PDR, Myanmar and Vietnam (CLMV) was deficit including the Philippines.

TABLE 4 ASEAN TOP 20 EXPORT COMMODITIES IN 2010

HS Codes	Commodities	Value Share (US\$ Million)	Share (%)
8542	Electronic integrated circuits and micro-assemblies	97,644	9.1
2710	Petroleum oils, not crude	61,945	5.8

8471	Automatic data processing machines; optical reader, etc.	40,779	3.8
2711	Petroleum gases	34,107	3.2
2709	Crude petroleum oils	28,699	2.7
8473	Parts/acc. of computers & office machines	26,646	2.5
1511	Palm oil & its fraction	26,057	2.4
4001	Natural rubber, in primary form or plates	20,512	1.9
2701	Coal, briquettes, ovoids and similar solid fuels manufactured from coal	19,852	1.9
8541	Diodes/transistors & similar semiconductor devices, etc.	17,109	1.6
8443	Printing machinery; machines used for ancillary to printing	12,926	1.2
7108	Gold, unwrought or in semi-manufactured forms	11,468	1.1
8708	Parts & access of motor vehicles	10,140	0.9
8517	Electric appliance for line telephony (incl. current line system)	9,854	0.9
8528	Television receivers (incl. video monitors and projectors)	8,613	0.8
8703	Motor cars and vehicles for transporting persons (except public transport motor vehicles)	8,606	0.8
2603	Copper ores and concentrates	7,658	0.7
1006	Rice	7,351	0.7
8523	Prepared, unrecorded media (no film) for sound etc.	6,679	0.6
8536	Electrical appliances for electrical connection (i.e. fuse, switch, etc.), not exceeding 1000 volt	6,593	0.6
	Top 20 Export Commodities	463,240	43.3
	Others	607,701	56.7
	Total	1,070,941	100.0

Source: ASEAN Trade Statistics Database, 2011.

TABLE 5 ASEAN TOP 20 IMPORT COMMODITIES IN 2010

HS Codes	Commodities	Value Share (US\$ Million)	Share (%)
8542	Electronic integrated circuits and micro-assemblies	92,766	9.5
2710	Petroleum oils, not crude	82,656	8.5
2709	Crude petroleum oils	31,731	3.3
8471	Automatic data processing machines; optical reader, etc.	20,605	2.1
8473	Parts & accessories of computers & office machines	20,548	2.1
8517	Electric appliance for line telephony (included current line system)	17,747	1.8
7108	Gold, unwrought or in semi-manufactured forms	12,694	1.3
8703	Motor cars & vehicles for transporting persons (except public transport motor vehicles)	12,202	1.3
8708	Parts & accessories of motor vehicles	11,058	1.1
8541	Diodes / transistors & semiconductor devices; et.	10,188	1.0
8443	Printing machinery; machines for uses ancillary to printing	8,043	0.8
8529	Part suitable for use solely/principally with televisions	7,664	0.8
8704	Motor vehicles for transport of goods	7,601	0.8
4001	Natural rubber in primary form or plates	7,403	0.8
8802	Aircraft, powered; spacecraft & launch vehicles helicopters,	7,105	0.7

	satellites		
8431	Parts of machinery (for lifting, handling, loading, unloading, scraping, boring, extracting, leveling)	6,929	0.7
8536	Electrical appliance for electrical connection (i.e. fuse, switch, etc.), not exceeding 1000 volt	6,858	0.7
1006	Rice	6,344	0.7
8411	Turbo-jets, turbo-propellers and other gas turbines	6,198	0.6
8479	Machines and mechanical appliances having individual functions, not specified or included elsewhere	5,477	0.6
	Top 20 Import Commodities	381,817	39.2
	Others	592,973	60.8
	Total	974,790	100.0

Source: ASEAN Trade Statistics Database, 2011.

From the table 4 and 5, it can affirmed that the top 20 export commodities represented less than 50% of total export value which means that the ASEAN has diversified its export products to meet not only the ASEAN regional but also new global demands. Besides, the top 20 import commodity items made up less than 40% of total import value. This supports the production and trade structure of the region from agricultural to manufactured products. This obvious altered change can be contributed to the effective trade and investment liberalisation policy implementation to boost the intra-industry trade expansion.

7. DISCUSSION

The essential contribution to knowledge of this study attributes to primary empirical results by using appropriate econometric model and estimation techniques to confirm that whether the increasing of specific intra-industry trade in ASEAN region lead to economy growth of selected member. This important results can be used as the mutual agreement consideration of trade and investment liberalisation policy implementations and recommendations in the previous section.

8. SUMMARY

From the above, it can be summarised that many countries in Asia have been affected by the economic crisis during the past two decades although these countries have experienced continued economic growth. Nearly all countries especially in the ASEAN region have also affected considerably. This situation and challenge caused the global economy imbalances. Therefore, these affected countries need to implement effective economic policies to response and solve the challenges.

Furthermore, the regional economic integration is one possible channel that can be applied to use as the solution. Consequently, the bilateral FTAs have developed both inside and outside the region. The enlarged ASEAN in terms of ASEAN+3 and ASEAN+6 is the opportunity to expand the economic collaboration to alleviate the adverse impacts and prevent the re-emerge of the crisis including the other economic collaboration. The current obvious example of this proposes is AEC that the ultimate goal as single market targeted by the end of 2015. The plausible mutual benefits from the single AEC market need to be deeply examined to support this argument.

9. SUGGESTIONS FOR FURTHER STUDIES

This study can be extended in terms of both the development of appropriate econometric model to estimate by using suitable methods to strongly confirm via reliable and plausible empirical results of intra-industry trade. The other specific intra-industry trade in ASEAN as well as in Greater Mekong Sub-region (GMS) can also be selected to compare the results.

10. ADGEKNOWLEDGEMENT

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