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ANALYSIS OF INDONESIAN TRADE: CASE STUDY AFTER THE AFTA AGREEMENT

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ABSTRACT

The ASEAN Free Trade Area (AFTA) began in 1993. The hope of this agreement was that intra-ASEAN trade to grow rapidly turned out to be slow. Based on data from the ASEAN Secretariat in 2016, intra-ASEAN trade experienced a slow journey in the range of 20-24 percent over the past few years. This study empirically analyzed the influence of AFTA on Indonesia's trade structure towards ASEAN using TSI, GL / IIT, and CTB index. In the period of 2012-2017 Indonesia's trade balance against ASEAN suffered a loss. Despite the loss, there was a decrease in trade balance losses from 2015-2017 (after AFTA). To analyze trade there are 10 commodity classifications determined by SITC revision 3. Based on the results of the TSI analysis, there is a specialization of 6 commodities trading which have high export power. The CTB analysis is only commodities of Chemicals and related products, n.e.s, which contribute positively to Indonesian trade. For IIT analysis there are 4 commodities where the average IIT index increases after the AFTA agreement.

Keywords: *ASEAN, Trade, AFTA, IIT, TSI, CTB*
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Introduction

Asean Trade Agreement (AFTA) is a comprehensive world-class bilateral agreement thatsubstantially liberalizes trade between ASEAN countries. AFTA removes or reduces barriers to investment and trade between ASEAN countries. ASEAN is growing into an economic region thatis considered by the world. If the total GDP of ASEAN countries is ranked the 7th largest in the world and becomes the 3rd largest in ASEAN Secretariat (2016). It can be seen from foreigninvestment funds that entered ASEAN around 136 million US dollars in 2014. ASEAN's achievements are getting better where 2007 to 2014 have a total trade value of almost 1 trillion USDollars, where the largest share comes from ASEAN countries internal trade of 24, 1% (ASEAN Secretariat, 2016).

Indonesia's GDP is the largest in ASEAN, but the size of Indonesia's exports and importsis not the largest in ASEAN. ASEAN imports were dominated by Singapore, Malaysia and Thailand during the 2011-2015 period. If imported and exported in Indonesia is ranked 3rd underSingapore and Malaysia. In 2015 Indonesia's exports to ASEAN were recorded at 17.15% lower compared to Singapore and Malaysia, respectively 24.72% and 18.14%. However, in 2011-2015,several countries experienced declining exports except Vietnam, the Philippines and Myanmar. Indonesia experienced a decline in exports in 2011 of 19.09% to 17.15% in 2015.

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The condition of imports in Indonesia is not much different from exports where Indonesiaranked 4th under Singapore, Malaysia and Thailand. In 2015 Singapore in terms of imports rankedfirst at 30.06%, Malaysia 23.99%, Thailand 19.31% and Indonesia recorded at 12.43%. In the 2011-2015 period, imports of several countries experienced declines such as Indonesia, Malaysia and the Philippines. Indonesia from 2011 at 16.27 percent fell to 12.43 percent in 2015, Malaysiafrom 26.06 percent to 23.99 percent; and the Philippines from 4.52 percent to 3.87 percent. Whileseveral countries such as Singapore, Thailand and Vietnam experienced an increase. Singapore from 2011 was 26.60 percent up to 30.06 percent; Thailand from 19.31 percent to 21.41 percent; and Vietnam from 1.40 percent to 5.34 percent.

This study empirically analyzes the influence of AFTA on Indonesia's trade structure towards ASEAN using TSI, GL / IIT, and CTB index. It evaluates the comparative advantage of industrial or product exports and its competitiveness by TSI, measures the intra-industrial trade ofindividual products or goods that show export potential at the macroeconomic level and the difference between the industry trade balance and the same industrial trade by GL and IIT and measure the contribution to the national trade balance made by industry by CTB. Through this, theimpact of AFTA on the trade structure between Indonesia and ASEAN is ensured. An overview of the structure of Indonesian trade is possible by considering the import and export of structural factors of all goods in Indonesia and ASEAN. Furthermore, this paper examines which products /industries contribute to the trade balance of the two countries in such agreements. The broad and deeper meaning of the results is discussed as follows.

The Theoretical Basic

AFTA (ASEAN Free Trade Area)

ASEAN free trade is an international trade between ASEAN countries which includes thecountries of Vietnam, Laos, Cambodia, Brunei Darussalam, Malaysia, the Philippines, Thailand, Singapore, Myanmar and Indonesia. International trade is a cross-country trade that has the goal of getting an increase in income and a decrease in production costs which makes the price of goods cheaper (Mirza, 2016).

Table 1: Total Value Ekspor-Impor Indonesia in ASEAN before AFTA

Year	Impor(USD)	%	Ekspor(USD)	%
2004	11,685,965,579	-	12,994,204,003	-
2005	17,329,459,234	48.29	15,823,719,647	21.78
2006	19,379,180,446	11.83	18,483,087,661	16.81
2007	23,792,133,688	22.77	22,292,114,745	20.61
2008	40,991,662,181	72.29	27,170,819,686	21.89
2009	27,742,398,273	-32.32	24,623,898,564	-9.37
2010	47,124,718,198	69.87	33,347,510,079	35.43
2011	51,300,184,712	8.86	42,098,872,453	26.24
2012	53,823,355,864	4.92	41,831,097,108	-0.64
2013	54,030,994,802	0.39	40,629,958,093	-2.87
2014	50,903,135,935	-5.79	39,668,109,515	-2.37

Source : ASEAN Statistiical, 2018

In accordance with the above table, it can be explained the value and percentage of Indonesia's exports and imports in ASEAN. The lowest import value was in 2004 amounting to US $ 11.69 billion and tended to experience an increase in imports up to US $ 54.03 billion in 2013. The increase in import value began in 2005 at 48.29% from US $ 11.69 billion to US $

17.33billion. The highest increase in imports occurred in 2008 at 72.29% to US $ 40.99 billion. The highest import value occurred in 2013 amounting to US $ 54.03 billion with a percentage increaseof 0.39%. Whereas the export value is known to be lower than the value of imports in a fluctuatingcondition each year. The highest export value occurred in 2011 amounting to US $ 42.10 billion with a percentage increase of 26.24% while the highest increase in exports occurred in 2010 witha percentage of 35.43% with an export value of US $ 33.35 billion.

Common Effective Preferential tariff (CEPT)

The decline to the elimination of import tariffs has an impact on the level of domestic consumption. The lowering of import tariffs has an effect on the price of goods coming in lower and consumers do not face a high price. This is in accordance with the explanation of Adam Smith'sbook The Wealth of Nations (Skusen, 2015) which states Adam Smith's disapproval of the existence of high tariff rules, quotas and rules that are able to limit trade because it results in restrictions on living standards due to high prices. the price of goods that should be accessible forconsumption if there are no tariffs and trade restrictions.

Table 2: Decreasing ASEAN Country Rates

AFTA member countries	Timeliness / Deletion Schedule
ASEAN-6	In 2003 : 60% of products with 0% tariff In 2007 : 80% of products with 0% tariff In 2003 : 100% of products with 0% tariff
Vietnam	In 2006 : 60% of products with 0% tariff In 2010 : 80% of products with 0% tariff In 2015 : 100% of products with 0% tariff
Laos and Myanmar	In 2008 : 60% of products with 0% tariff In 2012 : 80% of products with 0% tariff In 2015 : 100% of products with 0% tariff
Cambodia	In 2010 : 60% of products with 0% tariff In 2015 : 100% of products with 0% tariff

Source : Asean.org, 2018

The enactment of free trade for ASEAN countries also creates fierce competition in producing goods or services in the territory of ASEAN countries. Facing this, there is one theoretical basis put forward by Adam Smith in the book The Wealth of Nation in Skusen (2015) concerning the concept of absolute excellence which states that each country must have the best quality products to be able to compete and prosper from an economic perspective on free market.This concept was later developed by Ricardo in Skusen (2015) in the form of a comparative advantage concept. The concept of Ricardo's comparative advantage requires the State to specialize in production at the lowest price with production costs incurred by other countries. So that these two advantages are needed to create and balance market competition.

Indonesian Trade Exchange Rates

Trade exchange rates occur starting with trading from one country to another. Hermawanin (Mirza, 2016) states that the ratio of international exchanges is said to be balanced depending on the desire of a country in offering and buying commodity goods at relative prices.

The trade exchange rate here is the export price index of a country on the import side.

The trade exchange rate is calculated by dividing the export value by import then multiplying by 100. If the value of more than 100% can be interpreted that the State collects more capital in exports than issuing capital to imports (Salvatore, 1996).

Balance of trade

The net export trade balance is the export value minus the import value (Mankiw, 2000)

$$NX = EX - IM$$

The trade balance and net capital outflow are the same, equal to savings minus investment.The Trade Balance is a record of the export and import transactions of a country. A trade balance is in three conditions, namely, surplus, deficit and balance. The condition of the tradebalance is said to be surplus if exports of goods are greater than imports (Pujoalwanto, 2014). Deficit is said if the value of exports of goods is smaller than imports and is said to be a balancedtrade balance if the export value of an item is equal to the value of imports made by the industry.

Table 3: Balance of Trade Indonesia-ASEAN 2004-2017

Year	Balance of trade(USD Miliar)
2004	1.308,24
2005	-1.505,74
2006	-896,09
2007	-1.500,02
2008	-13.820,84
2009	-3.118,50
2010	-13.777,21
2011	-9.201,31
2012	-11.992,26
2013	-13.401,04
2014	-11.235,03
2015	-5.340,45
2016	-986,97
2017	-39,30

Source : ASEAN Statistical, 2018

Indonesia's trade balance against ASEAN can be categorized as bad. Only in 2004 did Indonesia experience a trade surplus of 1,308.24 USD billion (ASEAN Statistical, 2017). After 2004Indonesia always experienced a trade balance deficit against ASEAN. Since AFTA began in 2016Indonesia's balance sheet began to improve. Although Indonesia's trade balance deficit from 2015to 2017 has decreased the trade balance deficit. From -5,340.45 USD billion in 2015 to -39.30 USD billion in 2017. This shows that the AFTA has a good influence on Indonesia's trade balance.

Efficiency and Equity

Specializes when experiencing success and success in increasing creativity and productivity. Based on the broader market and demand will be increasingly diverse so that market players will naturally try to meet market demand. To get a higher output, micro-economic actors make a more efficient economy to increase macro-economic competitiveness.

Increased capital, technology and productivity will have a positive effect on improving living standards according to J B Say in (Skusen, 2015). This will happen to countries that have

absolute advantages and comparatively benefit as outlined in the theory of efficiency. The inverseof a country that has no unity will suffer losses because it has a very high dependency on other countries, this is called the equity theory. While efficiency will encourage increased output to gethigh profits for those countries that have excellence.

Data and Research Methods

In the next section, this study will analyze the implications of AFTA based on 4 methodologies: Trade Specialization Index (TSI), Grubel Lloyd / Inter-Industry Trade Index (IIT),Contribution to the Trade Balance Index (CTB). The definition of this methodology is explained below. To analyze trade there are 10 commodity classifications determined by UNCTADSTAT SITC revision 3. Data used per commodity is obtained from the 2-digit up to 8-Digit (AHTN) ASEAN STATS Trade in Goods (IMTS), Annually, HS from 2012-2017.

Trade Specialization Index (TSI)

TSI evaluates the comparative advantage of industry or export products and their competitiveness (Sujová et al., 2015). In other words, the trade specialization index is a value thatshows the comparative advantage of a product, using the value of exports and imports of a country's products (Kang, 2016). TSI is calculated using the following equation: the same industrytrade balance and total trade industry. To make easier comparisons between industries or countries,indices are presented as ratios where the denominator is total trade (Leitão and Faustino, 2008).

$$TSI_{ij} = \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}} \quad (1)$$

TSI_{ij} : Describes the specialization of trade for j products from countries i

X_{ij} : Explain j product exports from country i

M_{ij} : Describes j product imports from country i

TSI is always between the minimum value -1 and the maximum value +1. For a particularcountry and product, TSI will be -1 if there is only import and no export (Perfect Import Specialization). TSI will be +1 if there is only export and no import (Perfect Export Specialization).TSI will be 0 for balanced trade. This is used as an index to measure export competitiveness. If it is greater than 0, that means the product group has a trade surplus and export competitiveness.

The closer the TSI value is -1, the weaker the competitiveness of product exports in the global commodity market. Alternatively, if the TSI index is bigger, it means having strong competitiveness and if the value is 0 means that the number of exports equal to imports translatesto the reality of the activity of intra-industrial trade. However, if it appears between -1 and 0, thatmeans the level of import specialization is high. TSI can also be an indicator of relative comparative advantage in exports and serves as an indicator for evaluating countries designed forspecial zones.

CTB (Contribution to Trade Balance (CTB) Index)

When, CTB> 0 means that the actual surplus is higher than expected or the trade deficit isrelatively lower than expected, and the industry or commodity group contributes positively to theoverall trade balance. Or, this in the real sense means it is a comparative advantage in trade. On the other hand, when CTB <0 means that industry and commodity groups contribute negatively tothe total trade balance because actual results are compared with negative expected results or lowerthan expected. This in the real sense shows that there is a comparative loss for trading.

$$CTB = \frac{100}{X - M}\left[(X_i - M_i) - (X - M)\frac{(X_i + M_i)}{X + M}\right] \quad (2)$$

X: Total Export for that year

M: Total Imports for that year

X_i: Export Products i

M_i: Import Products i

Grubel-Lloyd (GL) / Intra-Industry Trade (IIT)

Index The GL index measures the intra-industrial trade of a product or item that shows export potential at the macroeconomic level. It was modified for evaluation at the industrial leveland the calculation shows the level of commodity representation in a country's intrasectoral international trade. IIT levels are generally measured by what are called the Grubel and Lloyd indices (1975). IIT is the difference between CTB as follows; The GL index is now used to measurethe level of intra-industrial trade among countries. The intra-industrial industry trade index between two countries is defined as:

$$|| T_i = 1 - \frac{|X_i - M_i|}{X_i + M_i} \quad (3)$$

$|| T_i$: Explain intra-industry trade

X_i : Explain Industrial exports

M_i : Describes Industrial Imports

The IIT index has a value always greater or equal to zero and less or equal to one (0≤IIT≤1). The IIT index is equal to 1 if all trade is a type of intra-industrial trade and if IIT is equal to 0, all trade is a type of industrial trade. The closer the index value to 1 is the greater the degree of intra-industrial trade. However, it should be noted that the GL index is influenced by a measure of tradeimbalance. Sharma (1999) determined that the symmetrical index between countries and according to (Yoon & Starks, 1995), the index lies between 0 and +1.

Finding and Discussion

Trade Specialization Index (TSI)

The table below shows TSI based on Indonesian export and import items to ASEAN during2012-2017 (before and after the signing of AFTA). It can be seen from the table below that there are specialization index to the trading of most goods between Indonesia and ASEAN both before and after the signing of the AFTA.

Table 4: Result Analysis TSI 10 Comodities 2012-2017

Code	Desciption	2012	2013	2014	2015	2016	2017	Average before AFTA	Average after AFTA	Total average
0	Food and live animals	0,17	0,22	0,18	0,31	0,24	0,22	0,19	0,25	0,22
1	Beverages and tobacco	0,24	0,26	0,32	0,39	0,46	0,50	0,27	0,45	0,36
2	Crude materials, inedible, except fuels	-0,22	-0,18	-0,17	-0,14	-0,12	-0,11	-0,19	-0,12	-0,16
3	Mineral fuels, lubricantsand related materials	0,33	0,23	0,20	0,11	0,14	0,30	0,25	0,18	0,22
4	Animal and vegetables oils, fats and waxes	0,94	0,86	0,92	0,94	0,93	0,94	0,91	0,93	0,92
5	Chemicals and relatedproducts, n.e.s	-0,10	-0,06	-0,07	-0,11	0,00	0,00	-0,07	-0,03	-0,06

Code	Desciption	2012	2013	2014	2015	2016	2017	Average before AFTA	Average after AFTA	Total average
6	Manufactured Goods	-0,14	-0,13	-0,16	-0,14	-0,15	-0,13	-0,14	-0,13	-0,14
7	Machinery and transport equipment	-0,37	-0,29	-0,31	-0,32	-0,44	-0,48	-0,32	-0,41	-0,37
8	Miscellaneous manufactured articles	0,27	0,15	0,24	0,18	0,17	0,09	0,22	0,14	0,18
9	Commodities andtransactions	0,79	0,88	0,93	0,53	0,69	0,83	0,86	0,68	0,77

Source : ASEAN Statistical 2017 (processed)

Commodities Food and live animals Indonesia experiences perfect export specialties. In2012-2017 this commodity experienced a value above 0. Means, the product group Food and liveanimals have a trade surplus and export competitiveness. The average TSI index in 2012-2017 was 0.22. The average TSI Index before the implementation of AFTA in 2012-2014 was 0.19. After AFTA starts in 2015-2017 the average TSI Index becomes 0.25. The highest index value in the period 2012-2017 occurred in 2015 reaching a value of 0.31.

Indonesian Beverages and tobacco commodities experience perfect export specialties. In2012-2017 this commodity experienced a value above 0. Means, the product group Beverages andtobacco have a trade surplus and export competitiveness. The average TSI index in 2012-2017 was 0.36. The average TSI Index before the implementation of AFTA in 2012-2014 was 0.27. After AFTA starts in 2015-2017 the average TSI Index becomes 0.45. The highest index value in the period 2012-2017 occurred in 2017 reaching a value of 0.50.

Crude materials, inedible, except Indonesian fuels experience perfect import specialties. In 2012-2017 this commodity experienced a value below 0. Means, the product group Crude materials, inedible, except fuels Crude materials, inedible, except fuels suffered losses. The average TSI index in 2012-2017 is -0.16. The average TSI Index before the implementation of AFTA in 2012-2014 was -0.19. After AFTA began in 2015-2017 the average TSI Index was -0.12. The highest index value in the period 2012-2017 occurred in 2017 reaching a value of -0.11.

Commodities Mineral fuels, lubricants and related materials Indonesia experiences perfect export specialties. In 2012-2017 this commodity experienced a value above 0. Means, thegroup of Mineral fuels, lubricants and related materials has a trade surplus and export competitiveness. The average TSI index in 2012-2017 was 0.22. The average TSI Index before theimplementation of AFTA in 2012-2014 was 0.25. After AFTA starts in 2015-2017 the average TSI Index becomes 0.18. The highest index value in the period 2012-2017 occurred in 2012 reaching a value of 0.33.

Commodities Indonesian animals and vegetables oils, fats and waxes experience perfect export specialties. In 2012-2017 this commodity experienced a value above 0. Means, the productgroup of animals and vegetables oils, fats and waxes has a trade surplus and export competitiveness. The average TSI index in 2012-2017 was 0.92. The average TSI Index before theimplementation of AFTA in 2012-2014 was 0.91. After AFTA starts in 2015-2017 the average TSI Index becomes 0.93. The highest index value in the period 2012-2017 occurred in 2012, 2015,2017 reaching a value of 0.94.

Commodities Chemicals and related products, n.e.s Indonesia experiences perfect import specialties. In 2012-2017 this commodity experienced a value below 0. That means, the Chemicalsand related products, n.e.s product group suffered a loss. The average TSI index in 2012-2017 was -0.06. The average TSI Index before the implementation of AFTA in 2012-2014 was -0.07. AfterAFTA began in 2015-2017 the average TSI Index was -0.03. The highest index

value in the period2012-2017 occurred in 2016, 2017 reaching a value of 0.

Indonesian Manufactured Goods commodities experience perfect import specialties. In 2012-2017 this commodity experienced a value below 0. That means, the group of ManufacturedGoods products suffered a loss. The average TSI index in 2012-2017 was -0.14. The average TSIIndex before the implementation of AFTA in 2012-2014 was -0.14. After AFTA starts in 2015- 2017 the average TSI Index becomes -0.13. The highest index value in the period 2012-2017 occurred in 2013, 2017 reached a value of -0.13.

Indonesia's Machinery and transport equipment commodities experience perfect import specialties. In 2012-2017 this commodity experienced a value below 0. That means, the Machineryand transport equipment product group suffered a loss. The average TSI index in 2012-2017 was -0.37. The average TSI Index before the implementation of AFTA in 2012-2014 was -0.32. AfterAFTA starts in 2015-2017 the average TSI Index becomes -0.41. The highest index value in the period 2012-2017 occurred in 2013 reaching a value of -0.29.

Miscellaneous manufactured commodities articles Indonesia experiences perfect exportspecialties. In 2012-2017 this commodity experienced a value above 0. This means that groups ofMiscellaneous manufactured articles have a trade surplus and export competitiveness. The averageTSI index in 2012-2017 is 0.18. The average TSI Index before the implementation of AFTA in 2012-2014 was 0.22. After AFTA starts in 2015-2017 the average TSI Index becomes 0.14. The highest index value in the period 2012-2017 occurred in 2012 reaching a value of 0.27.

Commodities and transactions Indonesia experiences perfect export specialties. In 2012- 2017 this commodity experienced a value above 0. Means, the product group Commodities and transactions have a trade surplus and export competitiveness. The average TSI index in 2012-2017was 0.77. The average TSI Index before the implementation of AFTA in 2012-2014 was 0.86. After AFTA starts in 2015-2017, the average TSI Index becomes 0.68. The highest index value inthe period 2012-2017 occurred in 2014 reaching a value of 0.93.

CTB (Contribution to Trade Balance (CTB) Index)

The table below shows CTB based on Indonesian export and import items to ASEAN during 2012-2017 (before and after the signing of AFTA). It can be seen from the table below thatthere are comparative advantages relating to the trading of most goods between Indonesia and ASEAN both before and after the signing of the AFTA.

Table 5: Result Analysis CTB 10 Comodities 2012-2017

Code	Desciption	2012	2013	2014	2015	2016	2017	Average before AFTA	Average after AFTA	Total average
0	Food and live animals	-0,09	-0,09	-0,09	-0,11	-0,13	-0,25	-0,09	-0,16	-0,13
1	Beverages and tobacco	-0,14	-0,14	-0,14	-0,18	-0,21	-0,59	-0,14	-0,33	-0,23
2	Crude materials, inedible, except fuels	-0,15	-0,16	-0,16	-0,21	-0,24	-0,88	-0,16	-0,44	-0,30
3	Mineral fuels, lubricantsand related materials	-1,00	-1,00	-1,07	-1,49	-3,02	-39,90	-1,02	-14,81	-7,91
4	Animal and vegetables oils, fats and waxes	-0,70	-0,70	-0,74	-0,97	-1,46	-12,45	-0,71	-4,96	-2,84
5	Chemicals and relatedproducts, n.e.s	-0,41	-0,42	-0,44	-0,52	-0,32	5,55	-0,42	1,57	0,57
6	Manufactured Goods	-0,19	-0,19	-0,20	-0,25	-0,28	-0,66	-0,19	-0,40	-0,30
7	Machinery and transport equipment	-1,12	-1,12	-1,19	-1,69	-3,56	-49,08	-1,14	-18,11	-9,62

Code	Desciption	2012	2013	2014	2015	2016	2017	Average before AFTA	Average after AFTA	Total average
8	Miscellaneous manufactured articles	-0,07	-0,07	-0,07	-0,09	-0,10	-0,17	-0,07	-0,12	-0,09
9	Commodities andtransactions	-0,09	-0,09	-0,09	-0,11	-0,13	-0,32	-0,09	-0,19	-0,14

Source : ASEAN Statistical 2017 (processed)

It can be seen that Food and live animals make a negative contribution to the total trade balance because actual results are compared with negative expected results or lower than expected.This in the real sense shows that there is a comparative loss for trading. In 2012-2017 this commodity experienced a value below 0. The average CTB index of live food and animal commodities from 2012-2017 was -0.13. The average CTB index of commodity Food and live animals from 2012-2014 before the AFTA agreement was worth -0.09. The average CTB index ofcommodity Food and live animals from 2015-2017 after the AFTA agreement is worth -0.16. However, in the course of time the CTB index in this commodity tends to be monotonous becausethe increase in the CTB value is not too significant. The highest index value near zero from 2012-2017 was in 2012, 2013 and 2014 worth -0.09.

It can be seen that the Beverages and tobacco commodities contribute negatively to the totaltrade balance because the actual results are compared with the negative expected results or lower than expected. This in the real sense shows that there is a comparative loss for trading. In 2012- 2017 this commodity experienced a value below 0. The average CTB index of Beverages and tobacco commodities from 2012-2017 was -0.23. The average CTB index of Beverages and tobacco commodities from 2012-2014 before the AFTA agreement is worth -0.14. The average CTB index of Beverages and tobacco commodities from 2015-2017 after the AFTA agreement was worth -0.33. However, in the course of time the CTB index in this commodity tends to be monotonous because the increase in the CTB value is not too significant. The highest index valuenear zero from 2012-2017 was in 2012, 2013 and 2014 worth -0.14.

It can be seen that Crude materials, inedible, except fuels contributes negatively to the totaltrade balance because actual results are compared with negative expected results or lower than expected. This in the real sense shows that there is a comparative loss for trading. In 2012-2017 this commodity experienced a value below 0. The average CTB commodity index Crude materials,inedible, except fuels from 2012-2017 was -0.30. The average CTB commodity index of Crude materials, inedible, except fuels from 2012-2014 before the AFTA agreement was worth -0.16. The average CTB commodity Crude materials, inedible, except fuels index from 2015-2017 afterthe AFTA agreement was -0.44. However, in the course of time the CTB index in this commoditytends to be monotonous because the increase in the CTB value is not too significant. The highest index value near zero from 2012-2017 was in 2012 worth -0.15.

It can be seen that Mineral fuels, lubricants and related materials contribute negatively to thetotal trade balance because actual results are compared with negative expected results or lower than expected. This in the real sense shows that there is a comparative loss for trading. In 2012- 2017 this commodity experienced a value below 0. The average CTB index of Mineral fuels, lubricants and related materials from 2012-2017 was -7.91. Average CTB index of Mineral fuels,lubricants and related materials from 2012-2014 before the AFTA agreement worth -1.02. The average CTB index of Mineral fuels, lubricants and related materials from 2015-2017 after the AFTA agreement was worth -14.81. However, in the course of time the CTB index in this commodity tends to be monotonous because the increase in the CTB value is not too significant. The highest index value near zero from 2012-2017 was in 2012, 2013 worth -1.00.

It can be seen that the commodities of animals and vegetables oils, fats and waxes contributenegatively to the total trade balance because actual results are compared with negative expected results or lower than expected. This in the real sense shows that there is a comparative loss for trading. In 2012-2017 this commodity experienced a value below 0. The average CTB index of commodities of Animal and vegetables oils, fats and waxes from 2012-2017 was worth -2.84. Theaverage CTB index of animal and vegetables oils, fats and waxes commodities from 2012-2014 before the AFTA agreement was -0.71. The average CTB index of commodities for animals and vegetables oils, fats and waxes from 2015-2017 after the AFTA agreement was -4.96. However, in the course of time the CTB index in this commodity tends to be monotonous because the increase in the CTB value is not too significant. The highest index value near zero from 2012-2017was in 2012, 2013 worth -0.70.

It can be seen that the commodities Chemicals and related products, n.e.s, make a positive contribution to the total trade balance because actual results are compared with the expected resultsthat are higher than expected. This in the real sense shows that there is a comparative advantage for trading. The average CTB index of commodity Chemicals and related products, n.e.s from 2012-2017 was 0.57. The average CTB index of commodity Chemicals and related products, n.e.sfrom 2012-2014 before the AFTA agreement was worth -0.42. The average CTB index of commodity Chemicals and related products, n.e.s from 2015-2017 after the AFTA agreement waswor th 1.57. However, in the course of time the CTB index in this commodity tends to be monotonous because the increase in the CTB value is not too significant. The highest index valuenear zero from 2012-2017 is in 2017 worth 5.55, making the CTB average value in 2012-2017 positive, which is 0.57.

It can be seen that Manufactured Goods have a negative contribution to the total trade balance because actual results are compared with negative expected results or lower than expected.This in the real sense shows that there is a comparative loss for trading. In 2012-2017 this commodity experienced a value below 0. The average CTB Manufactured Goods index from 2012-2017 was worth -0.30. Average CTB index of Manufactured Goods commodities from 2012-2014before the AFTA agreement is worth -0.19. The average CTB Manufactured Goods index from 2015-2017 after the AFTA agreement is worth -0.40. However, in the course of time the CTB index in this commodity tends to be monotonous because the increase in the CTB value is not toosignificant. The highest index value near zero from 2012-2017 was in 2012, 2013 worth -0.19.

It can be seen that Machinery and transport equipment commodities make a negative contribution to the total trade balance because actual results are compared with negative expectedresults or lower than expected. This in the real sense shows that there is a comparative loss for trading. In 2012-2017 this commodity experienced a value below 0. The average index of CTB Machinery and transport equipment from 2012-2017 was worth -9.62. Average CTB index of Machinery commodities and transport equipment from 2012-2014 before the AFTA agreement worth -1,14. Average CTB Machinery index and transport equipment from 2015-2017 after the AFTA agreement worth -18.11. However, in the course of time the CTB index in this commoditytends to be monotonous because the increase in the CTB value is not too significant. The highest index value near zero from 2012-2017 was in 2012, 2013 worth -1.12

It can be seen that imported manufactured articles make a negative contribution to the total trade balance because actual results are compared with negative expected results or lower than expected. This in the real sense shows that there is a comparative loss for trading. In 2012-2017 this commodity experienced a value below 0. The average CTB Miscellaneous manufactured articles index from 2012-2017 was -0.09. Average CTB index of Miscellaneous manufactured articles from 2012-2014 before the AFTA agreement worth -0.07. The average CTB Miscellaneous manufactured articles index from 2015-2017 after the AFTA agreement is worth -0.12. However, in the course of time the CTB index in this commodity tends to be monotonous because the increase in the CTB value is not too significant. The highest index value

near zero from 2012-2017 was in 2012, 2013,2014 worth -0.07.

It can be seen that commodity Commodities and transactions contribute negatively to the total trade balance because actual results are compared with negative expected results or lower than expected. This in the real sense shows that there is a comparative loss for trading. In 2012- 2017 this commodity experienced a value below 0. The average CTB Commodities and transactions index from 2012-2017 was -0.14. The average CTB index of Commodities and transactions commodities from 2012-2014 before the AFTA agreement was worth -0.09. AverageCTB Commodities and transactions index from 2015-2017 after the AFTA agreement worth -0.19.However, in the course of time the CTB index in this commodity tends to be monotonous becausethe increase in the CTB value is not too significant. The highest index value near zero from 2012-2017 was in 2012, 2013, 2014 worth -0.09.

Grubel-Lloyd (GL)/Intra-Industry Trade (IIT) Index

To analyze the level of integration and trade links between Indonesia and ASEAN, use thevalue of IIT (Intra Industry Trade). With high values, it points to the close linkages of the country.With the value of IIT, it can identify patterns of trade between Indonesia and ASEAN. Data on export values and import values are obtained from the ASEAN STATS Trade in Goods (IMTS), Annually, 2-digit HS up to 8-Digit (AHTN), in US $. The commodity analyzed in the discussion is a commodity based on ASEAN STATS. The value of the results of a high IIT analysis (index = 1) indicates a two-way trade that means Indonesia and ASEAN are exporting and importing. Meanwhile, a small IIT value (Index = 0) indicates that there is a one-way relationship in which Indonesia only acts as an exporter or importer country. The table below shows the TSI of all commodities traded between Indonesia and ASEAN countries

Table 6: Result Analysis IIT 10 Comodities 2012-2017

Code	Desciption	2012	2013	2014	2015	2016	2017	Average-before AFTA	Average after AFTA	Total average
0	Food and live animals	0,89	0,87	0,88	0,75	0,80	0,81	0,88	0,79	0,83
1	Beverages and tobacco	0,76	0,74	0,68	0,61	0,54	0,50	0,73	0,55	0,64
2	Crude materials, inedible, except fuels	1,18	1,15	1,12	1,10	1,07	0,00	1,15	0,73	0,94
3	Mineral fuels, lubricants and related materials	0,34	0,41	0,42	0,41	0,09	-7,42	0,39	-2,31	-0,96
4	Animal and vegetables oils, fats and waxes	0,06	0,14	0,08	0,06	0,07	0,06	0,09	0,07	0,08
5	Chemicals and relatedproducts, n.e.s	1,10	1,06	1,07	1,11	1,00	1,00	1,07	1,04	1,06
6	Manufactured Goods	1,13	1,11	1,13	1,12	1,15	1,12	1,12	1,13	1,13
7	Machinery and transport equipment	1,37	1,29	1,31	1,32	1,44	1,48	1,32	1,41	1,37
8	Miscellaneous manufactured articles	0,69	0,79	0,70	0,80	0,79	0,85	0,73	0,81	0,77
9	Commodities and transactions	0,21	0,12	0,07	0,47	0,31	0,17	0,14	0,32	0,23

The table above shows the GL / IIT Index calculated for various items traded before and after signing the AFTA between Indonesia and ASEAN during 2012-2017. The degree of integration in each sector is measured by the Intra-Industry Trade index (IIT). The magnitude of the IIT illustrates the magnitude of intraindustry trade, namely the amount of export of imported commodities from the same industry. IIT is the difference between CTB as follows; The GL indexis now used to measure the level of intra-industrial trade among countries. This

shows that all traded items have a high level of import specialization during 2012-2015 (GL index is close to 0).There are 4 commodities where the average IIT index increases after the AFTA agreement. The 4 commodities are Manufactured Goods, Machinery and transport equipment, Miscellaneous manufactured articles, Commodities and transactions. However, there are also some commoditiesthat experience a decline in index value. The decrease in the worst index value for Mineral fuels, lubricants and related materials. In the year before 2012-2014 the average value of these commodities was at a value of 0.39. However, in the year after the 2015-2017 afta agreement decreased to -2.31. Overall there is intra-industry trade with the amount of exports between Indonesia and ASEAN (IIT> 0)

Conclusion and Suggestion

Conclusion

This study empirically analyzes the influence of AFTA on Indonesia's trade structure towards ASEAN using TSI, GL / IIT, and CTB index. It evaluates the comparative advantage of industrial or product exports and its competitiveness by TSI, measures the intra-industrial trade ofindividual products or goods that show export potential at the macroeconomic level and the difference between the industry trade balance and the same industrial trade by GL and IIT and measure the contribution to the national trade balance made by industry by CTB. Through this theimpact of AFTA on the trade structure between Indonesia and ASEAN can be ascertained. An overview of Indonesia's trade structure towards ASEAN is possible by considering import and export structural factors of all goods. Furthermore, this paper examines which products / industriescontribute to the trade balance in such agreements. The broad and deeper meaning of the results isdiscussed as follows. By promoting competition and efficiency.

The first analysis, namely TSI, found that items such as Food and live animals, Beveragesand tobacco, Mineral fuels, lubricants and related materials, Animals and vegetables oils, fats and waxes, Miscellaneous manufactured articles, Commodities and transactions were designated for export. Meanwhile Crude materials, inedible, except fuels, Chemicals and related products, n.e.s,Manufactured Goods and Machinery and transport equipment are specifically for imports. Of the several items examined by TSI there was no change in the index specialization. Because before and after AFTA there was no significant change in Indonesian trade specialization.

Analysis of the magnitude of the IIT illustrates the magnitude of intraindustry trade, namely the amount of export of imported commodities from the same industry. Overall, of the 10commodities, only 1 commodity has a value of <0. However, there are also some commodities which experience a decrease in index value. The decrease in the worst index value for Mineral fuels, lubricants and related materials. In the year before 2012-2014 the average value of these commodities was at a value of 0.39. However, in the year after the 2015-2017 afta agreement decreased to -2.31. Overall there is intra-industry trade with the amount of exports between Indonesia and ASEAN (IIT> 0)

The third analysis, CTB serves to show the comparative advantage of commodity goods traded by Indonesia against ASEAN. There is a comparative loss (CTB <0) of 10 commodities 9 of which have comparative losses. The nine commodities are Food and Live Animals, Beveragesand Tobacco, Crude materials, Inhibited, except fuels, Mineral fuels, lubricants and related materials, Animal and vegetables oils, Fats and waxes, Manufactured, Machinery and transport equipment, Miscellaneous manufactured articles Commodities and transactions. The biggest comparative losses are Machinery and transport equipment commodities where the average CTB value reaches -9.2. However, trading in Chemicals and related products, n.e.s from 2012-2016 suffered a comparative loss but in 2017 experienced a surge in exports reaching 5.55 from the previous year of -0.3.. Finally, products / items with CTB> 0 indicate they make a positive contribution to Korea's trade balance and vice versa.

During the 2014-2017 period based on ASEAN STATS data Indonesia's trade balance always experiences negative / loss. Due to the large number of commodities that still depend on ASEAN countries. The trade balance is the result of imports minus exports useful to know that Indonesia experiences profit or loss in trading. In 2012, 2013 and 2014 Indonesia's trade balance stood at -11,992,258,756, -13,401,036,709 and -11,235,026,420 US Dollars. After the AFTA agreement in 2015 Indonesia's trade balance began to improve where in 2015,2016 and 2017 experienced positive trends. The Indonesian trade balance for 2015, 2016 and 2017 was worth - 5,340,446,084, -986,966,556 and -39,304,751. Although still at a disadvantage, positive trends canbe experienced by Indonesia.

Therefore, Indonesia should be more active in order to increase and participate in encouraging trade in commodity commodities specifically for exports and for imports. With the AFTA, markets and permits are getting bigger and easier to use for commodity development. Indonesia should encourage an increase in trade facilities between ASEAN to increase Intra-Industry trade in various commodities so as to maintain a positive value for Indonesian trade. In addition, Indonesia also should identify and actively participate in encouraging comparative tradebetween Indonesia and ASEAN. Because of the 10 commodities, only 1 commodity has a comparative advantage to Indonesia.

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