Trade Creation and Diversion Effects of AIFTA Implementation

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Abstract

The number of Free Trade Agreements (FTA) based on each region or so called as Regional Trade Agreements (RTA) has been increased rapidly after the World Trade Organization (WTO) continues to increase from year to year. This cause of international trade is becoming autonomous. The Indonesia's participation at the ASEAN-India Free Trade Agreement (AIFTA) greatly affect to the economy due to strategic trade partnership which tied between Indonesia and India. This research has intention to explore more relates to impact of trade creation and trade diversion from the implementation of AIFTA on Indonesia's exports and imports through aggregate and disaggregated data which consisting of 6 commodities. The sample used in this research are consisted of 25 countries during year of 2006-2017. Poisson Pseudo Maximum Likelihood (PPML) were applied as estimation method. With estimation results shows that the implementation of AIFTA has significantly negative affect towards the export trade diversion. This indicates that there is a decline occurs in Indonesia's exports to non-AIFTA member countries. In disaggregated data, net trade creation is found in food-drinks, tobacco and livestock, energy products also raw materials. Furthermore, this net trade diversion was also found in other manufactured goods and machinery and transport equipment.

Keywords: AIFTA, trade creation, trade diversion

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INTRODUCTION

The number of Free Trade Agreements (FTAs) based on each region or Regional Trade Agreements (RTA) has experienced a significant increase since the World Trade Organization (WTO) was established in 1995. As a data

comparison, from 1948 to 1994 there were 95 RTA notifications referring to the provisions of the General Agreement on Tariff and Trade (GATT). Furthermore, from 1995 to 2022 there were total of around 408 additional RTAs that had been notified to the WTO/GATT and around 304 of them are still actively implemented until today (World Trade Organization, 2022).

This certainly shows the growth trend of RTA which results in free international trade. RTA increases global efficiency and provides substantial profits to its members while causing minimal losses to non-member countries (Anderson & Yotov, 2016). One of form of RTA in the Asian region is the ASEAN-India Free Trade Agreement or shorten as AIFTA.

Figure 1. Explains The Indonesia Bilateral Trade with India (Billion USD)
Source: World Integrated Trade Solution (2022)

The Indonesian government leaders along to other Association of Southeast Asian Nations (ASEAN) member countries and India are agreed on the Framework Agreement on Comprehensive Economic Cooperation between ASEAN and India on October 8, 2003. Moreover, this preferential tariffs of AIFTA began to apply in several stages starting from January 1, 2010. Geographical proximity as well as history background which formed as the basis of these agreement between ASEAN and India.

Beside that, there are similarities between the India's economic agenda and ASEAN economic goals of the ASEAN Economic Community (AEC) to increase regional competitiveness are important aspects of AIFTA.

The AIFTA agreement requires ASEAN member countries and India to reduce and eliminate import tariffs around 85% tariff items or 75% of the import value contained in the Normal Track (NT) and 10% tariff items in the Sensitive Track (ST) (Minister of Finance Regulation, 2022).

The Indonesia's participation in AIFTA can influence the economy because there is strategic trade partner between Indonesia and India. In 2006, trade between Indonesia and India reached USD4.79 billion which experienced an increased to USD18 billion in 2017 as shown at Figure 1. At the commodity level, according to the Standard International Trade Classification (SITC) revision 3, section level (1 digit), Indonesia's total trade with India in food, drinks,

tobacco, and livestock commodities reached USD317.4 million in 2006 and has been increased to USD638.1 million in 2017.

The total trade in raw materials commodities reached USD2 billion in 2006 and increased to USD7 billion in 2017. Beside that,

the total trade in energy products commodities between Indonesia and India reached USD775.4 million in 2006 and increased around USD5.1 billion in 2017. In chemicals industry, it reached USD720.1 million in 2016 and increased to around USD1.5 billion in 2017.
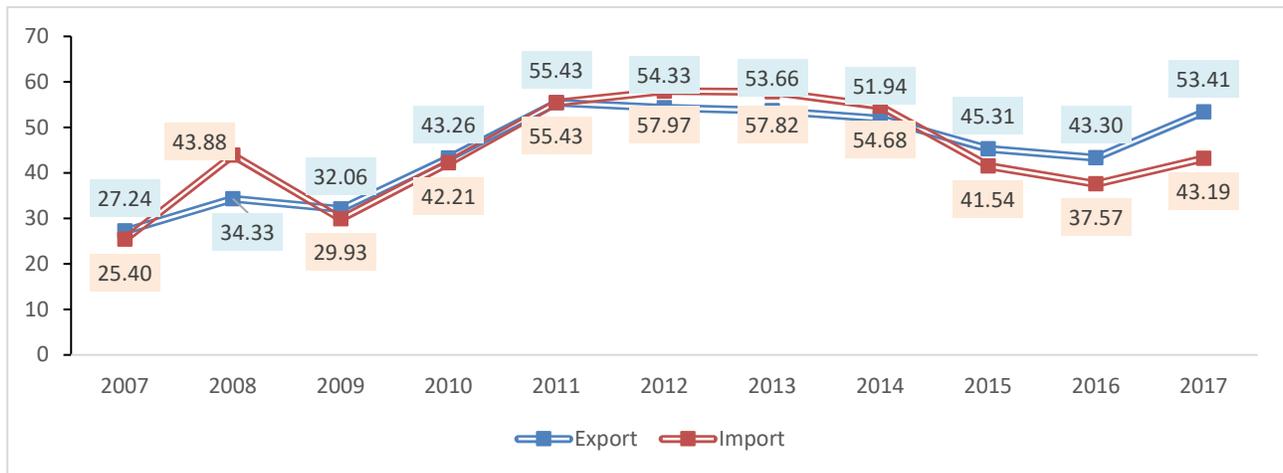

Figure 2. Presents The Indonesian Exports and Imports with AIFTA Member Countries during 2007-2017 (Billions of USD)
Source: World Integrated Trade Solution (2022)

The total trade in other manufactured goods between Indonesia and India reached USD642.3 million in 2006 and increased around USD2.2 billion in 2017. Finally, total trade in machinery and transport equipment commodities reached USD263.2 million and increased to USD1.3 billion in 2017 (World Integrated Trade Solution, 2022).

From those classification of these commodity groups above, Indonesia's main export products to India during period of 2006 to 2017 namely one of that is palm oil which categorized in raw materials commodities and coal which classified as energy products. In the other hand, one of Indonesia's main imported products from India is motorized vehicles which are grouped in commodity machinery and transport equipment.

Therefore, by eliminating tariffs in AIFTA could be challenge for domestic products to compete with imported products as well as an opportunity to expand market access for Indonesian export products to AIFTA intra-regional countries particularly India. The Figure 2 would show an increase in the value of Indonesia's exports and imports with AIFTA member countries since AIFTA began to operate in 2010. The value of Indonesia's exports to AIFTA member countries was USD27.23 billion in 2007 and reached USD53.4 billion in 2017.

Meanwhile In addition, the value of Indonesia's imports from AIFTA member countries amounted to USD25.4 billion in 2007 and reached USD43.19 billion in 2017. The average import growth reached 9.36% higher than the average growth exports of 8.22% during

2007-2017 (World Integrated Trade Solution, 2022).

Nevertheless, the usefulness of economic integration, in this context namely AIFTA, is not only visible from the increase in trade of its member countries. The benefits of AIFTA for Indonesian economy as well as intra and inter-regional countries AIFTA for example, it can be estimated through observing the static welfare effect. Trade creation are occurs when goods that were previously produced domestically in RTA member countries are then imported to other fellow RTA member countries which are the most efficient in production as a result of reducing or eliminating tariffs (Gandolfo & Trionfetti, 2014).

Meanwhile, trade diversion occurs when low-cost imports from non-FTA member countries are replaced by high-cost imports from FTA member countries (Salvatore, 2016). These RTA will be useful if the trade creation created an impact which greater than the trade diversion. Some of prior literature which had been observed both effects of trade creation and trade diversion from RTA by aggregate data such as Endoh et al. (2013), Kahouli & Maktouf (2015), Krugman et al. (2018), Urata & Okabe (2014), and Yang & Martinez-Zarzoso (2014).

Besides, the other studies has been utilized disaggregated data in the form of trade in certain industries or commodities (Darma & Hastiadi, 2017a; Subhash Jagdambe & Kannan, 2020; and Urata & Okabe, 2010). Urata & Okabe (2014) defined that analysis at the sectoral level could be explain the impact of RTA due to the differences in preferential tariffs for each commodity.

Analysis of the sectoral level Is also needed because of trade creation and trade diversion specifically occur at the sectoral level depending on the comparative advantage of each country's superior export products. Therefore, this study aims to provide an empirical analysis of the influence which occurs between trade creation and trade diversion from the implementation of AIFTA in the context of Indonesian trade using aggregate and disaggregated data at the commodity level.

Several research have been perform in order to explored further relates to the influence of trade creation and trade diversion from the implementation of AIFTA (Jagdambe & Kannan, 2020; Khurana & Nauriyal, 2017; Singh, 2021), but then only Darma & Hastiadi (2017b) which takes the context of Indonesian trade.

However, the analysis conducted did not only focus on the effects of AIFTA alone but also the combined of the effect of all Indonesian RTAs on the food and beverage industry. Meanwhile, the analysis in this research has focuses on AIFTA includes an aggregate and sectoral data at commodity level. This relates applies the Poisson Pseudo Maximum Likelihood (PPML) as its estimation method which is claimed appropriate by Santos Silva & Tenreyro (2022) for dealing with zero trade issues and heteroscedastic.

None of prior RTA empirical analysis research in the context of Indonesian trade has been considered this method. Beside that, this research also recognized trading across borders as proxy for the quality of government regulations and trade facilities which has not been done in previous similar studies.

The economic integration is a process which involve with measurements in order to eliminate the differentiation between economic units from different countries and this economic integration is also referred to situation when various forms of distinction is disappear between

national economies (Balassa, 2013). Elimination of differentiation in an area is an important key to the concept of economic integration.

This gave a clear distinction vibe between integration and cooperation. Integration is quantitative, while cooperation is qualitative. For example, international agreements on trade policies are products of international cooperation, while the elimination of trade barriers is a form of economic integration.

In addition, the theory of economic integration refers to commercial policies that discriminately reduce or eliminate trade barriers between countries that have mutual agreements (Salvatore, 2016). There are several classification of the stages of economic integration according to Salvatore (2016), which is PTA, FTA, Customs Union, Common Market and Economic Union.

Preferential Trade Agreement (PTA) by lowering the trade barriers among participating countries compared to non-participating countries. The PTA could be said to be the most basic form of economic integration. For example, is the British Commonwealth Preference Scheme which created in 1932 by the United Kingdom with members and former members of the British monarchy.

Free Trade Agreement (FTA) Is a form of economic integration in which eliminates all the trade barriers between member countries both tariff and non-tariff. However, each country member could maintain or remove these trade barriers against non-member countries. For example, is the ASEAN-India Free Trade Agreement (AIFTA) whose framework agreement was agreed upon in 2003 by ASEAN countries as well as India.

Like the FTA, customs unions will remove all trade barriers between countries member both tariff and non-tariff. In addition, this type of economic integration is also standardizing to trade policies (e.g. setting general tariff rates) among non-member countries. For example, is the European Union (EU) or the European Common Market which was approved in 1957 by West Germany, France, Italy, Belgium, the Netherlands, and Luxembourg.

Common market goes beyond to customs unions with the additional removal of barriers to the flow of factors of production, labor, and capital among countries members. The EU changed from a customs union to a common market in early 1993. Economic unions standardize or even unify the monetary and fiscal policies of its member countries.

This is the highest form of economic integration. The previous example that ever existed was the Benelux, which defines as the economic union of Belgium, the Netherlands and Luxembourg which was formed after the second world war and has now been replaced by the EU.

Based on these several stages of economic integration, it can be concluded that this kind of theory only focuses on the economic effects of integration in various forms and the problems arising from the divergence of monetary, fiscal, and various other national policies. Static welfare effects are one of the impacts which occurs from this economic integration.

In Customs Union Theory, Jacob Viner had observed that the effect from eliminating the trade barriers in the form of economic integration on two components of world welfare, namely the efficiency of resource allocation (static efficiency) and the distribution of income between countries (intercountry income distribution) (Balassa, 2013).

Viner (2014) had opinion that the distinguished from the impact of customs

unions on trade which turn into effects of trade creation and trade diversion in static approach. Static welfare effects assume that there is no movement from the factors of production between countries, thus it can ignore the dynamic effects of economic integration.

Analysis of the impact of economic integration on resource allocation could be refers to the free trade (Balassa, 2013). Trade creation is a production effect which results from the movement of commodity purchases from domestic producers which are more expensive to producers of FTA member countries which are cheaper.

However, changes in the trade tariff treatment of FTA member and non-member countries can also cause the production of some commodities to shift from non-member producers at lower costs to member producers at higher costs due to tariff discrimination against non-member producing countries. The impact of these changes will reduce global welfare.

The shift in production from producers with low costs to high costs resulted in an inefficient allocation of world resources. This impact is so called trade diversion. Thus, economic integration has a positive impact towards trade among FTA member countries but negatively affects trade between FTA member countries and non-FTA member countries. An economic integration could be beneficial if the result of trade creation effect is greater than its trade diversion effect.

In the context of the AIFTA agreement, Khurana & Nauriyal (2017) proved that AIFTA has a trade diversion effect because it reduces exports among member countries. In addition, no significant trade creation effect was found in AIFTA. Darma & Hastiadi (2017b) conducted

research with case studies in Indonesia and proved that the implementation of ACFTA, AKFTA and AIFTA had significantly positive of trade creation and trade diversion which affecting the export of food and beverage industry commodities.

Another research about AIFTA who was conducted by Jagdambe & Kannan (2020) it tells that AIFTA has stronger trade creation effect compared to the trade diversion one. Singh's research (2021) had examine the impact of AIFTA on trade in India and concludes that AIFTA has a pure trade creation effect because all the coefficients of trade creation and trade diversion proxy variables are results in significantly positive.

In accordance with the theoretical reviews and empirical studies related to RTA as well as the influence of trade creation and trade diversion, then the hypothesis of this study could be written as: There is positive affect on trade creation from the implementation of AIFTA towards Indonesia's trade with AIFTA countries member.

There is negative affect on export trade diversion from the implementation of AIFTA towards Indonesia's exports to non-AIFTA countries member. There is negative affect on the import trade diversion from this implementation of AIFTA towards Indonesia's imports from non-AIFTA countries member.

RESEARCH METHODS

The remoteness variable has been used Ok (2010) at this research as a proxy for economic distance from the main port city of exporting country i to the main port city of importing country j. if there is no port then use the distance to the country's capital. this remoteness calculation equation could be written as follows:

$$REM_{ijt} = ln\left(\frac{d_{ij}/GDP_{jt}}{\sum_{k\neq j}d_{ik}/GDP_{kt}}\right)$$

REM_{ijt} variable is the remoteness variable between country i and country j in year of t. is the distance between the main port city of country i and the main port city of country j. d_{ik} is the distance between the main port city of country i and the main port city of country k (country other than j). GDP_{jt} and GDP_{kt} is the nominal GDP of country j and country k (country other than j) in year of t.

Dummy variables $AIFTA1_{ij,t}$, $AIFTA2_{ij,t}$, and $AIFTA3_{ij,t}$ could measure the influence of trading in aifta. $AIFTA1_{ij,t}$ has a value of 1 after 2009 if country i is (Indonesia) and country j is (Indonesia's partner country) in year of t are members of aifta then it will have a value of 0 otherwise. $AIFTA2_{ij,t}$ has value of 1 after 2009 if in year of t a country of i is a member of AIFTA (Indonesia) and country j is an (indonesia's partner country) which is non-member of aifta so that the value would be 0.

$AIFTA3_{ij,t}$ has a value of 1 after 2009 if in year of t the i country which is (indonesia's partner country) as a non-member of aifta and country j is (indonesia) which is a member of aifta then the value would be 0. the interpretation of the trade creation and diversion effect coefficients are presents in table 1.This research used panel data to control endogeneity issues. Besides, zero trade flow were also become a problem which often found in the estimation of gravity equation that can solved off by the use of poisson pseudo maximum likelihood (PPML) as its estimation method who proposed by Santos Silva & Tenreyro (2022). In the model which assist by ppml estimation, the

dependent variable which is export value without logarithmic form.

This research are modified the gravity model which referring to the research model of Carrère et al. (2020), Endoh et al. (2013), Gharleghi & Shafighi (2020), Sun & Reed (2010), and Yang & Martinez-Zarzoso (2014) whom contain the three dummy variables as proxies of the impact of trade creation, export trade diversion and import trade diversion. The gravity equation which applies in this study could be seen as follows:

$X_{ijt} = f(GDP_{it}, GDP_{jt}, REM_{ijt}, TRADE_{it}, TRADE_{jt}, AIFTA1_{ijt}, AIFTA2_{ijt}, AIFTA3_{ijt})$

Through the logarithmic model of the function above are:

$ln(X_{ijt}) = \alpha_0 + \beta_1 ln(GDP_{it}) + \beta_2 ln(GDP_{jt}) + \beta_3 ln(REM_{ijt}) + \beta_4 ln(TRADE_{it}) + \beta_5 ln(TRADE_{jt}) + \beta_6 (AIFTA1_{ijt}) + \beta_7 (AIFTA2_{ijt}) + \beta_8 (AIFTA3_{ijt}) + \mu_{ij} + \varepsilon_{ijt}$

ij is the pair of country i and country j. The dependent variable $X_{ij,t}$ is the value of exports from exporter country i to importer country j in year t with the nominal GDP_{it} and GDP_{jt} is GDP in country i and country j in year of t. $REM_{ij,t}$ is the remoteness between country i and country j in year of t.

$TRADE_{it}$ and $TRADE_{jt}$ is the trading across the border of country i and country j in year of t. Eventhough it has been controlled for by the country-pair fixed effect, but this estimation could also uses as a clustered standard error to overcome the correlation pattern of country pairs that still occur as mentioned by Yotov et al. (2016). The observation period of this research

was 12 years, such as during the period of 2006-2017. The population of this research consists of aggregate and disaggregated data. Aggregate data is the total exports of indonesia and partner countries' exports to indonesia. This study also recognize the disaggregated data at the commodity level in the form of exports on six types of commodities based on the standard international trade classification (SITC) through revision 3 section level (1 digit) to obtain the largest sample size. Details of commodity codes and groups can be explained in table 2.

Table 1. Explains The Interpretation of Trade Creation and Trade Diversion Effect Coefficients

	Intra-regional	β_6	β_6
Extra-regional	**Coefficient direction**	+	-
Export (β_7)	+	Pure export trade creation	Export expansion
		Trade creation + export diversion ($\beta_6 > \beta_7$)	Export contraction + Export diversion
	-	Export diversion ($\beta_6 < \beta_7$)	
Import (β_8)	+	Pure import trade creation	Import expansion
		Trade creation + import diversion ($\beta_6 > \beta_8$)	Import contraction + Import diversion
	-	Import diversion ($\beta_6 < \beta_8$)	

Source: Yang & Martinez-Zarzoso (2014)

There are 25 sample countries of Indonesia's trading partners which includes of 6 AIFTA members and 19 non-aifta members. Indonesia's trading partner countries which are members of AIFTA are India, Malaysia, The Philippines, Singapore, Thailand, and Vietnam. Beside that, the sample of non-member countries are those countries which are Indonesia's main trading partners such as China, Japan, America, South Korea, Australia, Germany, Saudi Arabia, The Netherlands, Italy, Brazil, France, United Kingdom, Canada, Russia, Nigeria, Ukraine, Qatar, Switzerland, and New Zealand.

Table 2. Explains The Commodity Group Codes and Its Descriptions

Code Section SITC Rev 3	The Description of Commodity Group
0 + 1	Food, drinks, tobacco, and live animals
2 + 4	Raw materials
3	Energy products
5	Chemicals
6 + 8	Other manufactured goods
7	Machinery and transport equipment

Source: European Commission (2022)

The indonesia's export and import data are sourced from the world integrated trade solution (wits). wits have served indonesia's export and import data which cited from the sitc 3 classification so these data could be downloaded and used immediately. the nominal gdp of each

country which originates from the world bank's world development indicator (wdi) data. These geographical distances of the country's capital have sourced from time and date. the trade across border has sourced from the world bank.

RESULTS AND DISCUSSION

The coefficient variable of the nominal GDP from the exporting country is positive and significant at the level of 0.01 and 0.4375. Furthermore, the coefficient variable of the nominal GDP towards the importing country is positive and significant at the level of 0.01 and 0.7060. The coefficients of Score variable of trading across borders of exporting and importing countries have shown significant positive results at the level of 0.01, 0.0126 and 0.0142.

Table 3. Presents The Result of Aggregate Estimation Data

Variable	Coefficient
Constant	-9.9429*** (2.83)
$\ln GDP_{it}$	0.4375*** (0.14)
$\ln GDP_{jt}$	0.7060*** (0.13)
$\ln REM_{ijt}$	0.1979 (0.13)
$TRADE_{it}$	0.0126*** (0.00)
$TRADE_{jt}$	0.0142*** (0.00)
$AIFTA1_{ijt}$	-0.0899 (0.06)
$AIFTA2_{ijt}$	-0.2363*** (0.07)
$AIFTA3_{ijt}$	0.0568 (0.05)
Observations	600
P>chi2	0.0000
Pseudo R2	0.9768

*Standard error in parentheses, *** p<0.01, **p<0.05, *p<0.1
Source: Output Stata (2022)

The result of aggregate estimation data are presented in table 3. Through ceteris paribus conditions, a 1% an increase in nominal GDP of exporting countries will increases the exports with an average of 0.43% and a 1% increase in nominal GDP of importing countries will increases the exports by an average of 0.7%. In addition, an increase in trading across the

border of exporting countries will increase exports by an average of 1.26% and an increase in trading across the border of importing countries will increase exports by an average of 1.42%. The remoteness variable coefficient has no significant results.

Through this estimation results of aggregate data, the coefficient for the dummy variable of $AIFTA1_{ijt}$ as proxy for trade creation did not show significant evidence of a trade creation impact to Indonesia's trade with AIFTA member countries. This indicates that the implementation of AIFTA did not create a significant increase in trade between Indonesia and the AIFTA countries member.

The only dummy variable showing significant results is $AIFTA2_{ijt}$ as a proxy for export trade diversion. The coefficient of the $AIFTA2_{ijt}$ variable is negative and significant at the 0.01 level of -0.2363. Thus, there are indications that there has been a decline in Indonesia's exports to non-AIFTA member countries.

The result of sectoral estimation data are presented in table 4. Result in Food, drinks, tobacco and live animals (section 0 + section 1), the coefficient of control variable which shows significant results only occurs in the nominal GDP of the importing country which has positive and significant at the level of 0.01 which is around 1.6219. In the condition of ceteris paribus, an increase in the nominal GDP of importing country by 1% will increase an exports value by an average of 1.62%.

Coefficient of the dummy variable of $AIFTA1_{ijt}$ did not show any significant results. While Coefficient of the dummy variable of $AIFTA2_{ijt}$ as a proxy for export trade diversion indicates positive and significant results at the level of 0.1 which is around 0.2349. Furthermore,

coefficient of the dummy variable of $AIFTA3_{ijt}$ as proxy for import trade diversion shows negative and significant results at the level of 0.1 which is -0.1940. These estimation results are indicating that there is a positive influence from export trade diversion (trade expansion) towards Indonesia's exports of food, drinks, tobacco as well as Livestock to non-AIFTA member countries.

Besides, there is an import trade diversion effect which occurs in imports of Indonesian food, drinks, tobacco, and Livestock from non-AIFTA Countries member. Result in Raw materials (section 2 + section 4), the nominal GDP variable from the importing country and variable score from trading across the border of the exporting country have positive and significant coefficient at the level of 0.01 which is 0.5457 and 0.0138. Meanwhile, the other control variables show it has no significant coefficient.

In condition of ceteris paribus, a 1% increase in the nominal GDP from the importing country will increase its exports by an average of 0.54% as well as increase in trading across the border of the exporting country if its hike at 1 point it will increase the exports by an average of 1.38%.

Insignificant coefficients of the dummy variables of $AIFTA1_{ijt}$ and $AIFTA3_{ijt}$ indicates that there is no proven if there is an influence of trade creation and import trade diversion on trade in Indonesia's raw materials commodities. The coefficient of the dummy variable of $AIFTA2_{ijt}$ has a sign in positive and significant at the level of 0.1 which is around 0.1237. This certainly indicates positive affect of export trade diversion (export expansion) from Indonesia's exports to non-AIFTA countries member.

Result in Energy products (section 3), the coefficient of variable from the nominal GDP of

the importing country indicates positive and significant result at the level of 0.01 which is 1.5683. The remoteness coefficient has positive and significant at the level of 0.01 which is 1.1729. Furthermore, the coefficient of Score variable of trading across the borders of exporting countries has positive and significant at the level of 0.01 which is 0.0245.

As for variable of trading across the border of the importing country were also have positive and significant impact at the level of 0.05 which is around 0.0128. The coefficient variable of the nominal GDP from the exporting country did not show any significant results.

In condition of ceteris paribus, an increase in the nominal GDP of the importing country by 1% will increase the exports by an average of 1.56%. A 1% increase in remoteness increases the exports with an average of 1.17%. An increase of 1 point in the trading across the borders of exporting countries will increase the exports by an average of 2.45%. Besides, an increase of 1 point in trading across the border of importing countries will increase the exports by an average of 1.28%.

Coefficient of the dummy variable of $AIFTA1_{ijt}$ as proxy for the impact of trade creation has positive and significant at the level of 0.1 which is 0.3123. This positive and significant value by means that there is an increase in Indonesia's trade with intra-regional AIFTA countries in energy products commodities. Indonesia's trade with AIFTA member countries is on average of 36.65% {= (EXP (0.3123)-1) *100} which is higher than the normal trade level (ceteris paribus).

Result in Chemicals (section 5), all control variables indicate positive and significant coefficient at the level of 0.01, except for the coefficients of trading across border's score

variable from importing countries which seems insignificant. In ceteris paribus condition, if there is an increase in the nominal GDP of an exporting country of 1% it will increase the exports by an average of 0.57%.

An increase in the nominal GDP of importing countries by 1% will increase the exports by an average of 0.71%. Moreover, a 1% increase in the remoteness will increases exports by an average of 0.55% and last is if there is an increase of 1 point in the trading across borders from exporting countries will increase exports with an average of 0.65% Coefficients from the dummy variables of $AIFTA1_{ijt}$, $AIFTA2_{ijt}$ and $AIFTA3_{ijt}$ did not appear as significant results.

Therefore, it can be interpreted that there is no evidence of effect from trade creation and trade diversion in Indonesia's chemical commodity. Result in Other Manufactured Goods (section 6 + section 8), the coefficients of the nominal GDP variable of exporting and importing countries reveal as positive and significant results at the level of 0.01 which is around 0.4568 and 0.8056.

Furthermore, the trading across the border variable from the importing country is also sign as positive and significant at the level of 0.05 which is around 0.0115. While The coefficient of remoteness variable and trading across the border of the exporting country which did not show any significant results. The estimation results which are manifest in ceteris paribus condition, it tells that an increase in the nominal GDP of an exporting country by 1% will increase the exports by an average of 0.45%.

An increase in the nominal GDP of importing countries of 1% will also boost the exports' value by an average of 0.80%. Moreover, an increase of 1 point in trading across the border of importing countries will increase

exports by an average of 1.15%. The coefficient for the dummy variable of $AIFTA1_{ijt}$ is negative and significant stuck at the level of 0.01 which is around -0.3842.

If Indonesia's trading partner countries are members of AIFTA, Indonesia's trade will be at 31.9% {= (EXP (-0.3842)-1) *100} on the average which is lower than normal trade level. Furthermore, the coefficient for the dummy variable of $AIFTA2_{ijt}$ is a sign of negative and

significant at the level of 0.1 which is around -0.1583 meaning that there is an effect of an export trade diversion.

Meanwhile, the $AIFTA3_{ijt}$ coefficient did not show significant results. So based on estimation results it is proving that there is negative trade diversion effect (trade contraction) and an export trade diversion effect on trade in Indonesia's other manufactured goods commodities.

Table 4. Presents Sectoral Estimation Results

Variable	Food, drinks, tobacco, and live animals	Raw materials	Energy products	Chemicals	Other manufactured goods	Machinery and transport equipment
$lnGDP_{it}$	-0.2237 (0.27)	0.2605 (0.22)	-0.4468 (0.42)	0.5762*** (0.13)	0.4568*** (0.14)	0.6663*** (0.13)
$lnGDP_{jt}$	1.6219*** (0.27)	0.5457*** (0.18)	1.5683*** (0.35)	0.7167*** (0.10)	0.8056*** (0.15)	0.5530** (0.21)
$lnREM_{ijt}$	0.4564 (0.29)	0.1329 (0.22)	1.1729*** (0.22)	0.5553*** (0.13)	-0.1229 (0.13)	-0.0923 (0.28)
$TRADE_{it}$	-0.0017 (0.00)	0.0138*** (0.00)	0.0245*** (0.00)	0.0065*** (0.00)	0.0004 (0.00)	0.0074 (0.00)
$TRADE_{jt}$	0.0034 (0.00)	0.0073 (0.00)	0.0128** (0.00)	-0.0001 (0.09)	0.0115** (0.00)	0.0238*** (0.00)
$AIFTA1_{ijt}$	-0.0396 (0.11)	0.0232 (0.11)	0.3123* (0.18)	-0.0111 (0.09)	-0.3842*** (0.09)	-0.3137** (0.14)
$AIFTA2_{ijt}$	0.2349* (0.12)	-0.0157 (0.08)	-0.1216 (0.18)	-0.0690 (0.10)	-0.1583* (0.08)	-0.2769** (0.13)
$AIFTA3_{ijt}$	-0.1940* (0.10)	0.1237* (0.07)	0.0403 (0.20)	0.0511 (0.06)	-0.0251 (0.07)	-0.0051 (0.10)
Constant	-16.57*** (3.36)	-2.28 (4.78)	-6.5506 (6.19)	-13.23*** (3.32)	-15.18*** (3.77)	-14.87*** (5.72)
Obs	600	600	600	600	600	600
Pseudo R2	0.9590	0.9738	0.9639	0.9761	0.9687	0.9689

Source: Output of Stata (2022)

Result in Machinery and transport equipment (section 7), significant coefficients in the estimation of machinery and transport equipment commodities are shown in the control variable of the nominal GDP from the exporting country, the nominal GDP of the importing country and its trading across the

border of the importing country. The coefficient variable for the nominal GDP of exporting and importing countries is lead to positive and significant effect at the level of 0.01 which around 0.6663 and 0.5530.

Furthermore, the coefficient of trading across borders of importing countries is also sign

to positive and significant at the level of 0.01 which around 0.0238. In ceteris paribus condition, an increase in the nominal GDP from exporting country by 1% will increase the exports by an average of 0.66%.

An increase in the nominal GDP of the importing country by 1% will boost the value of exports by an average of 0.55%. In addition, an increase of 1 point in trading across the border of importing countries will increase the exports value by 2.38%. The coefficient for the dummy variable of $AIFTA1_{ijt}$ indicates negative and significant value of -0.3137. This could be means

that in ceteris paribus condition, Indonesia's trade with AIFTA member countries is on average level of 26.92% {= (EXP (-0.3137)-1) *100} which is lower than normal trade level.

Furthermore, the coefficient for the dummy variable of $AIFTA2_{ijt}$ appears as negative and significant value of -0.2769. The estimation results shows that there are influence occurs from trade creation and export trade diversion after the implementation of AIFTA in Indonesia's trade of machinery and transport equipment commodities. Summary of net trade creation effects presented in table 5.

Table 5. Reveals The Summary of Trade Creation Effects

Export	AIFTA1	AIFTA2	AIFTA3	Net Effect	Net Trade Creation %
Total	-0.0899	-0.2363***	0.0568	0.2363	-21.04%
Sec 0 + 1. Food, drinks, tobacco, and live animals	-0.0396	0.2349*	-0.1940*	0.0409	4.17%
Sec 2 + Sec 4. Raw materials	0.0232	-0.0157	0.1237*	0.1237	13.16%
Sec 3. Energy products	0.3123*	-0.1216	0.0403	0.3123	36.65%
Sec 5. Chemicals	-0.0111	-0.0690	0.0511	-	-
Sec 6 + Sec 8. Other manufactured goods	-0.3842***	-0.1583*	-0.0251	-0.5425	-43.31%
Sec 7. Machinery and transport equipment	-0.3137**	-0.2769**	-0.0051	-0.5906	-44.60%

Source: Output of Stata (2022)

Thus, hypothesis 1 which point out that there is positive trade creation effect from implementing AIFTA towards Indonesian trade with AIFTA trading partner which is not proven right. On the other hand, the estimation results prove that there is a significant effect from the export trade diversion. The coefficient for the dummy variable of $AIFTA2_{ijt}$ is negative with a significant level at -0.2363. This means that there are indications of a decline in Indonesia's

exports to non-member countries on average due to the implementation of AIFTA.

Thus, hypothesis 2 which point out that there is negative effect which occurs from the export trade diversion for the implementation of AIFTA towards Indonesia's exports to trading partners which are not members of AIFTA that proven right. Furthermore, the coefficient for the dummy variable of $AIFTA3_{ijt}$ as proxy for import trade diversion did not show significant

results, so there is no proof related to import trade diversion effect.

This indicates that the value of Indonesia's imports from AIFTA extra-regional countries did not experience a significant incline or decline. Therefore, the hypothesis 3 which declared that there is negative effect occurs from import trade diversion in the way of AIFTA implementation against the Indonesia's imports from trading partners which are not members of AIFTA which could not be proven right.

The results from the aggregate estimation in this study are in line with the conclusions from Khurana & Nauriyal (2017) which stated that there is significant evidence from the effect of trade diversion but there is no significant effect from trade creation cause of the implementation of AIFTA. The Evaluation study ex post from Bhattarai et al. (2017) who found that trade diversion that occurred in trade of AIFTA members was greatly influenced by external factors, namely the global recession.

The financial crisis was the reason for the decline in imports from fellow AIFTA countries member and other countries in the world (Bhattarai et al., 2017). In addition, there is a decline in Indonesia's exports and imports from the world during 2011 until 2017 by an average of 1.43% and 0.74%. Therefore, the export trade diversion that occurred in Indonesia's exports to non-AIFTA member countries did not entirely affect by the implementation of AIFTA but also due to a decrease in global demand.

For Food, drinks, tobacco and live animals (section 0 + section 1), in sectoral analysis, this research proves that there are positive effects from export trade creation (export expansion) and import trade diversion towards food, drinks, tobacco, and livestock commodities. This indicates that the export trade diversion effect

has a positive and significant impact towards Indonesia's exports of food, drinks, tobacco, and livestock commodities to non-AIFTA countries member.

The positive and significant value of the export trade diversion variable indicates that the implementation of AIFTA has created an expansion in Indonesia's exports to non-AIFTA countries member. In addition, there is manifest that the import trade diversion effect has negative and significant affect on Indonesia's imports of food, drinks, tobacco, and livestock from non-AIFTA countries member. The negative and significant value of the import trade diversion variable were indicating that there is a decrease in Indonesia's extra-regional import trade with non-member countries due to the implementation of AIFTA policies.

For Raw materials (section 2 + section 4), there is a significant positive effect of import trade diversion (import expansion) on raw materials commodities. This proven that the import trade diversion effect has positive and significant influence towards Indonesia's imports of raw materials from non-AIFTA member countries. This could refer to the AIFTA implementation which creates an increase in Indonesia's import trade with non-AIFTA countries list. According to SITC revision 3, raw materials commodities consist of commodities which are in sections 2 and 4.

Furthermore, in commodity section 4, palm oil products are combined with the harmonized system (HS) code 15.11. India is the largest importing country for Indonesian palm oil products during this observation period. In 2006, exports of palm oil products to India reached USD972 million or 27.2% from the export value of Indonesian raw materials to AIFTA member countries. This figure increased

so that in 2017 exports of palm oil products to India reached USD4.89 billion or 44% from the export value of Indonesia's raw materials commodities to AIFTA member countries.

However, this estimation results show that the implementation of AIFTA did not been able to create trade creation effect in the trade of Indonesian raw materials with AIFTA member counterparts. This likely because the high export value of Indonesian palm oil products to India since before the implementation of AIFTA in 2010. In addition, the export value of Indonesian palm oil products to non-AIFTA member countries are also high, for example to China, the Netherlands and Pakistan.

The Indonesian exports for palm oil products to non-AIFTA member countries reached USD3.21 billion or 20.5% of the total export value of Indonesian raw materials to non-AIFTA member countries in 2006. This numbers continues to increase in 2017 to USD11.78 billion or 39% from the total export value of Indonesia's raw materials commodities to non-AIFTA member countries.

On the other hand, the import value of Indonesian raw materials commodities from AIFTA member countries in 2006 reached USD503 million and increased to USD1.29 billion in 2017. The import value of Indonesian raw materials commodities from non-AIFTA member countries in 2006 reached USD3.13 billion and continuous to increased by USD7.64 billion in 2017.

For Energy products (section 3), the estimation results using disaggregated data shows that energy products have significant trade creation effect. This proven that the export value of Indonesian energy products to AIFTA member countries has increased due to the implementation of AIFTA in 2010 compared to

normal trade levels. The export value of Indonesian energy products to AIFTA member countries reached USD3 billion in 2006 and continuous increased to USD14 billion in 2012. India plays crucial as the main export destination for Indonesian energy products compared to other AIFTA member countries.

Energy products which consist of coal, oil, gas and electricity based on SITC rev 3 classifications. Meanwhile, Indonesia's coal exports to India are dominate the portion of energy products exports to AIFTA member countries. According to BPS data, the value of Indonesia's coal exports to India reached USD615.2 million or 90% from the total of Indonesia's exports of energy products to India, making India is the fourth largest importer of Indonesian coal products in 2006.

The value of Indonesia's coal exports to India experienced significant increase to around USD4.7 billion or 96% from the total of Indonesia's exports of energy products to India, making India the largest importer of Indonesian coal products in 2017. Thus, Indonesia has succeeded in increasing exports of coal products to AIFTA member countries particularly to India. For Other manufactured goods (section 6 + section 8), in other manufactured goods, there is also a sign of significant negative effect from trade creation.

This indicates that Indonesia's trade with intra-regional AIFTA countries is on average lower than that of extra-regional AIFTA countries. In addition, the estimation results were proven regarding negative effect of export trade diversion. This could be means that there is an average decline in Indonesia's exports with intra-regional AIFTA countries in other manufactured goods. For Machinery and transport equipment (section 7), these

estimation results show significant evidence of the negative effect from both trade creation and export trade diversion on trade in Indonesian machinery and transport commodities.

This indicates that there is a contraction in Indonesia's trade with intra-regional countries and the decrease in Indonesia's exports to AIFTA extra-regional countries. Through estimation results of all aggregate and sectoral analysis models, the connection between the nominal GDP of exporting countries and exports has a positive correlation.

This is proven that the increase in the nominal GDP of the exporting country as a proxy for supply increases the exports. The GDP variable of importing country also shows a similar coefficient direction. This could mean that the nominal GDP of the importing country as a proxy for demand also has a positive influence on exports.

The greater the GDP, the greater the product earned thereby it will increase the export value from exporting country. Positive correlation between these two variables are consistent with previous empirical literature that used the gravity equation in analyzing the impact of RTA (Endoh et al., 2013; Freckleton & Whitely, 2020; Jagdambe & Kannan, 2020; Urata & Okabe, 2014; Yang & Martinez-Zarzoso, 2014). Another determining factor in export performance is the remoteness between exporting and importing countries, which has positive correlation.

The estimation results indicate that the direction of coefficient of remoteness which is significant in all models which is not as expected as trade cost variable that is expected to be negative. However, this explanation has been found in the study of Eicher et al. (2014) who declared that positive coefficient of remoteness

and those countries who have large of remoteness variable tend to have high levels of trade because the options to choose trading partners are limited.

The score variable of trading across the border on exporting and importing countries as a proxy for the quality of regulations and trade facilities also shows positive results on aggregate and sectoral analysis. Faster and cheaper trade procedures (documentary compliance, border compliance and domestic transport) will increase the value of exports.

The positive influence of trading across borders between Indonesia and partner countries are in line with previous empirical studies which prove that increasing and improving trade regulations and facilities could enhance trade performance (Das et al., 2018; Gandhi & Ahmed, 2020; Sakyi et al., 2017).

CONCLUSION

An international trade agreement has significantly influenced the multilateral trade flows along to the increase in regional trade agreements in the last three decades. As one of the ASEAN countries, Indonesia is actively involved in regional agreements with partner countries. ASEAN-India Free Trade Agreements (AIFTA) is one of the agreements that have been agreed upon. The Elimination of tariffs and trade barriers which are the terms of AIFTA intra-regional trade raises important questions regarding the benefits of AIFTA for Indonesian trade.

This research was analyzing the impact of regional trade agreements between ASEAN and India on Indonesia's exports and imports by focusing on the effects of trade creation and trade diversion. This current research uses the export value of Indonesia and trading partner

countries as aggregate and disaggregated data for six types of commodity goods based on Standard International Trade Classification (SITC) revision 3 at the 1-digit section level. These six types of commodities are food-drinks-tobacco and livestock, raw materials, energy products, chemicals, other manufactured goods and machinery and transport equipment.

The value of Indonesia's exports and imports which involved trade with 6 member of countries and 19 non-member countries of AIFTA during 2006-2017. This research method could overcome endogeneity and autocorrelation problems in the calculation. In observing the impact of AIFTA, this study uses the PPML estimation method to address the problem of zero trade flows and heteroscedasticity. According to these empirical tests, this result was indicating that there is no trade creation effect from the AIFTA implementation towards Indonesia's trade with AIFTA member countries. By means that there is no significant increase in Indonesia's trade with fellow AIFTA member countries.

This proven that AIFTA has not been effective to increasing Indonesia's trade with intra-regional countries. In addition, this research also found empirical evidence from negative and significant effect of export trade diversion on Indonesia's export trade to AIFTA member countries. Meaning that there are indications of the decline in Indonesia's exports to AIFTA extra-regional countries. At the sectoral level estimation results, trade in energy products commodities has proven that significant trade creation effect.

Trade in food commodities, drinks, tobacco, and livestock has a positive effect on export trade diversion as well as to the import trade diversion. Furthermore, in raw materials

commodity there is a sign of positive effect towards import trade diversion (import expansion). The Estimation results for chemical commodity trade did not show any significant effect of trade creation or trade diversion. Those trade in other manufactured goods commodities has significantly negative effect on trade creation (trade contraction) and export trade diversion. Finally, the trade in machinery and transport equipment commodities were having significant negative effects of trade creation (trade contraction) and export trade diversion.

All significant variables at the aggregate and sectoral models show that the direction of the coefficients is in line with expectations, except for the remoteness variable as a proxy for trade costs. The remoteness coefficient is expected to be negative, but the estimation results show its positive direction. This likely happens because those countries with large remoteness tend to have high levels of trade because of the Limitedness options to choose (Eicher et al., 2014). Besides that, the nominal GDP for exporting and importing countries as a proxy for product supply and demand influences the exports positively.

The larger the economic size of the two countries, the greater the flow of trade will be. The coefficient of Trading across borders for exporting and importing countries also shows its positive direction. As a proxy for the quality of trade regulations and facilities, trading across borders has a positive impact on exports. This study uses total trade data (exports and imports) of Indonesia as well as Indonesian trade data which is divided into six types of commodities based on the Standard International Trade Classification (SITC) revision 3 section level (1 digit).

Therefore, these modeling and research scope estimation only focuses on Indonesia's trade. This research selected to use commodity classification based on SITC rev 3 section level compared to the harmonized system (HS) code to obtain the largest sample size. In addition, the AIFTA preferential tariff imposed in almost all 2007 HS codes is the reason why the aggregation of commodity trade data chooses through the SITC classification.

There is an assumption that the use level of AIFTA facilities is significant to Indonesia's trade with AIFTA member countries. Besides, the distance between the trade flows of exporting countries to importers and importing countries to exporters is assumed to be the same. This research is including as ex post analysis by means the research which conducted to examine the events that occurred.

Therefore, the effect of trade creation and trade diversion which created after observation period could be different. The observation period was limited to 2006-2017 with the purpose of capturing the effects of changes that existed before and after the implementation of AIFTA in 2010.

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