

## Trade Creation and Trade Diversion Analysis as Impact of Acfta Towards Indonesian Import

Ilham Romadona<sup>1✉</sup>, Amin Pujiati<sup>2</sup>

Economics Development Department, Economics Faculty, Universitas Negeri Semarang

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### Abstract

This study aim to determined and analyzed the impact of trade creation and diversion of ASEAN China Free Trade Area (ACFTA) on five commodity imports of Indonesian non-oil and gas. This study used a gravity model approach to estimate the flow of trade that occurs and the impact of trade creation and trade diversion. The data used in this study is secondary data, using the method of regression analysis of common effects panel data. The results showed that Indonesia's GDP and exporter countries had a positive and significant impact on Indonesian imports. Distance, population, state boundaries and Regional Trade Agreement Indonesia (RTAI) variables that explain the impact of trade creation and trade diversion significantly influence the import of Indonesian non-oil commodities. The coefficient of determination Adjusted R<sup>2</sup> in the range 68%-85% shows the independent variable explains the influence of 68%-85% to the dependent variable, the rest explained other variables outside the model. The impact of ACFTA caused the effect of trade diversion on two non-oil commodities of Indonesia, while the three commodities showed insignificant results. The import of non-oil commodities was transferred from efficient to inefficient producers in ACFTA member countries.

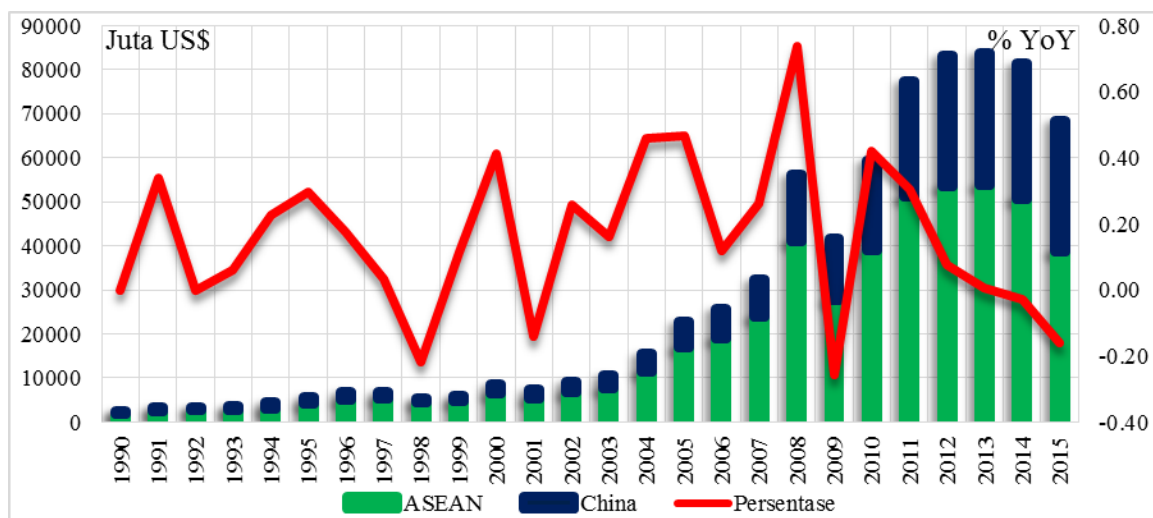
## INTRODUCING

Free Trade Area (FTA) is an economic integration that gives special treatment to member countries. This is happen due to the failure of multilateral WTO agreements. The fundamental purpose of this economic integration is to increase the volume of trade in goods and services, mobility of capital and labor, production, improve production efficiency and product competitiveness. The establishment of economic integration will increase the welfare of member states as it will lead to increased specialization of production based on comparative advantage (Lapipi, 2005).

There are two opposite effects in the formation of FTAs on the trade of its member countries: trade creation and trade diversion (Viner in Ekanayake, Mukherjee, & Veeramacheneni, 2010). Trade creation occurs when the reduction of import tariffs leads to the production of high-cost domestic goods replaced by low-cost imported goods from FTA member

countries. This will encourage increased trade values between member countries. Trade diversions occur when low-cost imported goods from non-member countries are replaced by imported goods that cost higher than member countries. (Salvatore, 2007).

Asean China Free Trade Area (ACFTA) is one of free trade agreement between ASEAN member countries and China. The ACFTA agreement will be implemented through three stages: Early Harvest Program (EHP), Normal Track and Sensitive Track. (Setiawan, 2012). ACFTA is applicable in early 2010, ACFTA member countries including Indonesia begin to open the domestic market with ACFTA member countries. The imported products of ASEAN and China will be easier to enter the member countries due to the reduction and elimination of tariffs. The elimination or reduction of tariffs will ultimately make the product more efficient and economical to meet domestic needs. Since 2010 Indonesia has eliminated 93.39% of tariff posts and 100% in 2012 (Dwinda, 2014).



**Figure 1.** Indonesian import towards ACFTA's Member

Source: BPS & UN Comtrade, 2015

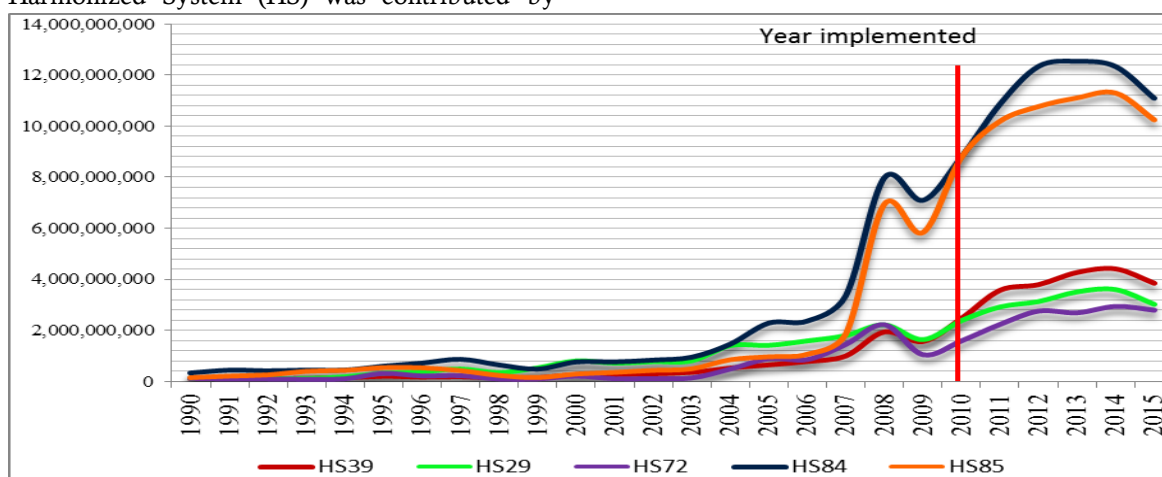
Indonesia's trade transactions with ACFTA members have increased during the year of entry into ACFTA. Based on Figure 1, it can seen that the increase in import transactions in Indonesia experienced an increase in imports

from ACFTA member countries from US \$ 9,195 million in 2002 and to US \$ 41,724 million in 2009. While the ACFTA being implemented, Indonesia imported reach US \$ 59,336 million in 2010 and became US \$ 83,701 million in 2013.

Indonesia's imports dropped from 2013 to US \$ 68.206 million in 2015. The percentage increase in imports from ACFTA member countries has declined since the introduction of the ACFTA. This is a problem, because the implementation ACFTA should increase the value of trade.

Non-oil and gas imports are growing higher than oil and gas imports. The growth of Indonesian non-oil and gas imports from commodities based on the classification of Harmonized System (HS) was contributed by

five main commodities. The highest import commodities of Indonesia are commodities of Machinery / Aircraft Mechanics (HS 84), Machinery / Electrical Equipment (HS 85), Plastics and Plastic Goods (HS 39), Iron and Steel (HS 72), Organic Chemicals (HS 29 ) and other commodities. The above five commodities contributed 49% in 2014 and 48% in 2015. In addition, 5 main commodities have a role above 5% in Indonesia's non-oil and gas imports (Figure 2.).



**Figure 2.** The import of Indonesian five main commodities from ACFTA's Member

Source : UNCOMTRADE, 2016

Five non-oil commodities have a contribution of 48% to Indonesia's non-oil and gas imports. The increase in imports in five commodities indicates the elimination of tariffs on the implementation of ACFTA has had an impact on the pattern of Indonesian trade, especially non oil and gas imports. Commodities of machineries / aircraft mechanics (HS 84) and electrical machinery / equipment (HS 85) have the highest import growth compared to other commodities. The increase in imports during 2005 to 2015 reached more than US \$ 10 million. The increase of plastic commodity and plastic goods (HS 39), iron and steel (HS 72), and organic chemicals (HS 29) are not as high as HS 84 and HS 85 commodities. However, the increase of import value from these three commodities is significant and reach each US \$ 3.7 million, US \$ 2 million, and US \$ 2.2 million within 10 years.

Based on the description after the implementation of ACFTA, it can be seen that there is an increase in imports of non-oil commodities Indonesia from member countries. The increase in imports has a positive impact with the occurrence of trade creation and negative with the occurrence of trade diversion for the Indonesian economy. The purpose of this study is to determine the impact of trade creation and trade diversion for the import of non-oil commodities Indonesia using the gravity model, and to know how effective ACFTA for Indonesian trade.

## RESEARCH METHOD

The type of research used in this study is quantitative research using panel data regression. The data in this study comes from the publication of the International Monetary Fund (IMF), the World Bank, the United Nations Commodity

Trade Division (UN COMTRADE), as well as the Center d'Etudes Prospectives et d'Informations Internationales (CEPII). The number of observations in this study were 5 commodities in 11 countries observed (cross section) for 26 years (time series) from 1990 to 2015. Commodities observed were machineries / aircraft mechanics (HS 84), electric machines / HS 85), plastics and plastic goods (HS 39), iron and steel (HS 72), organic chemicals (HS 29). The observed countries are 6 ACFTA members (Indonesia, China, Singapore, Thailand, Malaysia, Vietnam) and five trading partners (Japan, USA, South Korea, Australia, Germany). The ten countries are the main trading partners of Indonesia's non oil and gas imports in 2015.

The operational definitions of variables in this study are (1) The import of five non-oil commodities of Indonesia as measured by US Dollar units (2) The national income of importing and exporting countries to measure the economic "mass" is proxied by Gross Domestic Product (GDP) (3) Population is the number of people residing in a country territory for an importer and exporter country measured by the unit of soul (4) Distance is the proxy of the cost and time used for transportation, access to market information, and various other factors that become obstacles (6) Regional Trade Agreement Indonesia (RTAI) is a dummy variable to measure the degree of trade creation and trade diversion resulting from the application of RTA on an area.

The model that used to analyze the effects of economic integration on trade creation and trade diversion is the gravity model. This model is based on Newton's law of gravity, which states that the force of gravity between two bodies is directly influenced proportionately by the mass of the two objects and vice versa is proportionally affected by the square spacing between the two. In the context of trade, this model states that the intensity or volume of trade between the two countries will relate in proportion to the economic "mass" (national income) of each country, and inversely proportional to the distance between them (Agustina, 2012).

The general model of gravity in the trading context first used by Jan Tinbergen in 1962 is written:

$$F_{ij} = G \frac{M_i M_j}{D_{ij}^2} \dots \dots \dots (1)$$

Information :

F : Bilateral trade volume  
M : economics volume  
D : distance between bilateral countries  
G : contant

Import model in this research refers to model gravity with method of common effect by adding some dummy variable, hence model of trade flow of Indonesian commodity import is formulated:

$$\ln Impr_{ij} = \beta_0 + \beta_1 \ln GDP_i + \beta_2 \ln GDP_j + \beta_3 \ln POP_i + \beta_4 \ln POP_j + \beta_5 \ln DIST_{ij} + \beta_6 BOR_{ij} + \beta_7 RTAI + u_{ij} \dots \dots \dots (2)$$

whereas:

$\beta_0$  : intercept  
 $\beta_1, \dots, \beta_7$  : variables parameters  
 $Impr_{ij}$  : commodities import from i and j countries  
 $GDP_i$  : Gross Domestic Product i country  
 $GDP_j$  : Gross Domestic Product j country  
 $POP_i$  : i country population  
 $POP_j$  : j country population  
 $DIST_{ij}$  : distance between i and j country  
 $BOR_{ij}$  : dummy state border  
 $RTAI$  : dummy  
 $u_{ij}$  : Disturbance error.

## RESULTS AND DISCUSSION

The common effect model is used to estimate the occurrence of trade creation and trade diversion. Because heteroscedasticity occurs, white methods are used to overcome heteroscedasticity problems. The results as listed in Table 2. show adjusted R<sup>2</sup> in the range of 68% -85% shows independent variables explain the effect of 68% -85% to the dependent variable, the rest explained other variables outside the model.

**Table 1.** Data Panel Regression Output Common Effect (CE) with Variable Independent Ln Import

| Variabel                | CE HS29  |   | CE HS39  |   | CE HS72  |   | CE HS84  |   | CE HS85  |   |
|-------------------------|----------|---|----------|---|----------|---|----------|---|----------|---|
| Constant                | -25.843  |   | 5.997    |   | 56.530   | * | 31.732   | * | 70.740   | * |
|                         | (-1.028) |   | (0.462)  |   | (2.295)  |   | (2.125)  |   | (3.441)  |   |
| Ln(GDPi)                | -0.514   | * | 0.625    | * | 1.312    | * | 0.471    | * | 1.145    | * |
|                         | (-2.099) |   | (6.147)  |   | (5.520)  |   | (3.213)  |   | (4.917)  |   |
| Ln(GDPj)                | 1.701    | * | 1.282    | * | 0.588    | * | 1.706    | * | 1.391    | * |
|                         | (18.891) |   | (18.616) |   | (5.907)  |   | (18.88)  |   | (11.259) |   |
| Ln(POPi)                | 1.832    |   | -0.898   |   | -3.678   | * | -2.620   | * | -5.362   | * |
|                         | (1.119)  |   | (-1.157) |   | (-2.354) |   | (-2.747) |   | (-3.963) |   |
| Ln(POPj)                | -0.085   | * | -0.046   |   | 1.056    | * | -0.253   | * | -0.112   |   |
|                         | (-2.200) |   | (-0.945) |   | (18.91)  |   | (-5.01)  |   | (-1.254) |   |
| Ln(Dist)                | -2.694   | * | -2.481   | * | -4.216   | * | -1.949   | * | -1.814   | * |
|                         | (-24.59) |   | (-43.7)  |   | (-28.50) |   | (-15.92) |   | (-12.01) |   |
| Border                  | -0.126   | * | -0.691   | * | -1.300   | * | -0.336   | * | -0.429   | * |
|                         | (-2.381) |   | (-6.004) |   | (-8.444) |   | (-3.791) |   | (-2.920) |   |
| RTAI                    | 0.021    |   | -0.932   | * | -4.745   | * | 0.069    |   | 0.214    |   |
|                         | (0.137)  |   | (-13.03) |   | (-31.11) |   | (0.710)  |   | (1.777)  |   |
| Adjusted R <sup>2</sup> | 0.706    |   | 0.742    |   | 0.682    |   | 0.850    |   | 0.734    |   |
| Observasi               | 258      |   | 256      |   | 256      |   | 259      |   | 257      |   |
| F                       | 89.084   | * | 105.936  | * | 78.950   | * | 209.372  | * | 101.968  | * |

Information : significant level 5 percent  
= \*

The coefficient of GDP variables from both countries shows a positive and significant sign for four non-oil commodities. The positive sign on the GDP of both countries corresponds to the gravity model that trade will increase in line with the economic mass. While GDP importers on commodities of organic chemicals show a negative sign. The results of this study do not fit with the model of gravity which states that trade relations will be influenced by the "mass" of a country's economy. According to Dodaro (1993) the increase in income will increase the aggregate demand for domestic goods, so that the imported goods become less because of consuming domestic goods.

The population variable shows a negative and significant sign in most of Indonesian non-oil commodity model. This is not in accordance with the initial hypothesis that indicates a positive direction between the population and the level of trade. These results indicate that large countries may not be too involved in trade, as the need for imported goods can be met by the local population (Koo & Kennedy, 2006).

While there are also variable population that is not significant as in the commodity of organic chemicals, plastics and articles of plastics, and machinery electrical equipment. The reasons for the insignificance of population variables are caused by the ambiguity of the impacts of the population in influencing trade flows (Yang & Martinez-Zarzoso, 2014).

Distance describes the cost and time used for transportation so that it has a negative effect on trading. The distance variables in all commodities show a negative and significant coefficient at the five percent level, meaning that the greater the distance between countries the greater the cost and time of transport that will negatively affect the trade. One percent increase in distance (DIST) between the two countries will reduce the growth of Indonesian non-oil commodity imports. These results correspond to the gravity model.

The state border variable (BOR) shows a significance at the level of five percent and negatively affects the growth of imports to five non-oil commodities. Indonesia imports with countries with direct borders lower than

countries with no direct borders. The country's borders actually have a positive impact as it will increase direct neighbor trade. This may be due to the different trade rules between the directly bordering countries (Hapsari & Mangunsong, 2006). These results are supported by Kabir et al. (2010) that the same border between India and Bangladesh; India and Nepal; as well as India and Bhutan in BIMSTEC's bloc have an unfavorable effect on trade.

Indonesia's incorporation of the ACFTA framework affects the welfare of Indonesians. Trade conducted with fellow ACFTA members is expected to increase and in line with increasing welfare levels. The other side of trade among fellow members of ACFTA raises a trade diversion that lowers Indonesia's welfare level. Trade diversion also reduces world prosperity because there is no efficient trade allocation.

The results showed that the impact of ACFTA on the import of five non-oil import commodities had a trade diversion effect on the import of plastics and plastic goods (HS 39), as well as iron and steel (HS 72). Trade diversion is indicated by the significance of RTAI variables that have negative coefficients in the number - 0.932 for the import of plastics and plastic goods, and in -4.745 figures for iron and steel imports. The trade diversion effect shows that there is a trade transfer from non ACFTA member countries to ACFTA member countries. This happens because imported goods from ACFTA members are relatively cheaper than non-members. Imported goods from ACFTA members are cheaper due to the elimination of import tariffs for import after the ACFTA.

Based on the results of the research, several policies are required for ACFTA members (1) product diversification that can increase the added value and competitiveness of commodities in the international market (2) make improvements to quality control and standardization problems, related to commodities entering international markets easily (Firmansyah et al., 2017).

## CONCLUSION

. The result of regression estimation is as follows: Trade creation which is expected to occur in non oil and gas import does not happen, so there is no increase of prosperity from ACFTA. Trade diversion occurs in imports of plastics and articles of plastics and iron and steel. Non-oil commodity imports are diverted from efficient non ACFTA countries to inefficient ACFTA member states. So that ACFTA still not effective for import of non oil and gas commodity of Indonesia.

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