Examining Free Trade Agreements' Effects on Indonesian Export Performance: A Panel Data Analysis Using Fixed and Random Effect

By

LARASAKTI, Cahyani Widi

THESIS

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KDI School of Public Policy and Management

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Committee in charge:

Professor Tabakis, Chrysostomos, Supervisor _____

Professor Cho, Yoon Cheong _____

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ABSTRACT

EXAMINING FREE TRADE AGREEMENTS' EFFECTS ON INDONESIAN EXPORT PERFORMANCE: A PANEL DATA ANALYSIS USING FIXED AND RANDOM EFFECT

By

Larasakti, Cahyani Widi

The purpose of this study is to evaluate the effect of Free Trade Agreement of Indonesia on its export performance using panel data. Panel data in this study consists of relevant variables from 50 Indonesian trading partner countries between 2007-2017. The export performance based on value of two leading commodities of Indonesia and other two prioritized commodities will be treated as dependent variable. While as the independent variable this study will employ dummy Free Trade Agreement (FTA), and several variables which are observed from country partner such as Gross Domestic Product (GDP), Population, Logistic Performance Index (LPI), average tariff and the exchange rate of country partner to Indonesian Rupiah. This study conducted the multiple regression by using fixed and random effect model to analyze the panel data. Importantly, Hausman Test conducted to elect the best fitted estimation between Fixed and Random Effect regression model. Hence, this study will cast a light on how significant Free Trade Agreement affects Indonesian export performance based on the leading commodities by taking into account factors that affect trade in general. Moreover, the fitted regression results yield significant coefficient of Free Trade Agreement in improving manufactures, low-technology, and high-technology commodities export value. Whereas it does not give significant effect in food commodities. Equally important, this study conclude that diverse variables affect export value differently based on the products characteristic, consumer preference, and market condition.

Keywords: Free Trade Agreement (FTA), export commodities, random effect, fixed effect

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Chapter I
Introduction

1.1 Background

In the last three decades, studies on international trade have received substantial attention among scholars and policy makers. The importance of trade performance plays a critical role in strengthening economic power within and among countries. Salvatore (2013) proposes an international trade theory introduced by Adam Smith in the early 19th century as the absolute comparative theory. Absolute comparative theory holds that certain country tends to specialize in production in order to gain comparative cost production. Therefore, each country develops their comparative products, which leads to cross-country trade among the globe.

In the last decade, international trade activities have been growing at a pace level. Simultaneously, numbers of trade institutional support were noticeably created. One of institutional tool crucial in international trade is transnational agreements. In the economic context, institutional support refers to in the rules of the game in a society that incentivize and constrain economic activities (North, 1990). As Ingram & Silverman (2002) believes, institutions directly determine the expected outcome of trade activities. More recently, Zhang et al. (2018) upholds that regional institutional changes which focus on economic incentive stimulate firm's exports on the regional market. Hence, trade agreements as an institution facilitate cross-country trading activities to precisely achieve the outcomes.

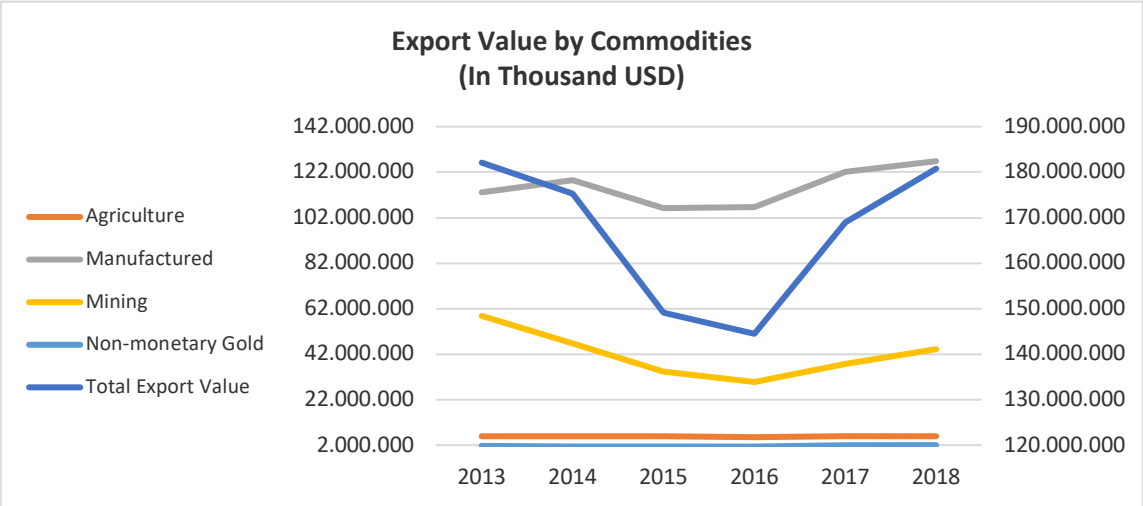
As an exporter country, Indonesia has been handling numerous trade agreements among various countries and institutions. Yang & Zarzoco (2014) maintain that since the 1990s, there

have been a noticeable surge in the trading activities among European Union and Association of South East Asian Nation (hereafter referred to as ASEAN) countries.

ASEAN's agreements also include those with the economic giant, China. Chin and Stubbs (2011) argue that ASEAN-China trade agreement is the world's largest regional trade area by population and the third largest by intraregional trade volume. Furthermore, several trade agreements have been established among Indonesia and another countries such as Indonesia-India (2011); Indonesia-Australia (2012); Indonesia-European (Iceland, Liechtenstein, Norway, Switzerland) (2011); Indonesia-Turkey (2017); Indonesia-Regional (Australia, ASEAN, China, Korea, Japan, New Zealand) (2013). However, the impact of these Free Trade Agreements in Indonesian export performances has not yet been made clear.

One of the common ways to examine Indonesian export performance is by taking into account the trend of export value as follows:

Figure 1. Export Value by Commodities in Indonesia



Source: Bank of Indonesia, 2019

In the left axis, the line graph in Figure 1 depicts the comparison of export value among four different commodities between 2013 to 2018, while the right axis presents the trend of total export value. Overall, it is apparent that manufactured products dominate export value over the period while non-monetary gold contributes the least to Indonesia export value.

It is also found that the total export value largely fluctuates over the period. Instead of experiencing steady trend like agriculture and non-monetary gold commodities, manufactured and mining commodities show varying trends. Manufactured commodities experienced significant plunge in 2015 before gaining noticeable surge in 2017 that continued until 2018. Besides, compared to the beginning of period, the value of mining export experienced setback since 2014. However, it started to rise since 2016 until reaching its peak value of 140 million USD in 2018.

Similarly, total export value experienced a plunge since 2014 from around 182 million USD to approximately 140 million USD. However, 2017 witnessed an escalation up to 168 million USD and Indonesia recovered its original level of 180 million USD in 2018. Therefore, except for agriculture and non-monetary gold commodities, Indonesian export value trends generally decline in 2014 yet significantly rise again in 2017.

The fluctuation trend may have been triggered by various factors. One of the most well-known models explaining trade factors is the Gravity Model. In this model, it is argued that distance and economic size of a certain country are keys of international trade. Moreover, Krugman et al. (2014) propose that cultural affinity, geography, borders, and multinational corporations are crucial in defining international trade.

In terms of multinational corporations, trade barriers are regarded as reducing the trade flows among countries operating under the corporations. Trade could be triggered by the easing of any trade barriers and desirable in integrating economic activities. For example, Free Trade Agreement (hereafter referred to as FTA) is the most well-known instrument to reduce trade barriers. However, considering the myriad of factors and models explaining the amount and the intention of trade, it is necessary to examine whether FTA significantly improve trades and generate higher export values in Indonesia.

1.2 Importance of the Study

A large body of studies examines the effects of Free Trade Agreement among ASEAN and other Asian countries. Bhattacharyya and Mandal (2014) conducted an estimation study of the impact of ASEAN-India FTA, particularly on Indian Industries. An *ex-ante* frictionless gravity model and tariff variable addition is used to reveal that tariffs and agreements do not significantly affect Indian industries. More recently, they conducted a continuous study about the ASEAN-India FTA using ex-post compensation principle model (2016). This study found that there were rather deteriorating trends of India's balance of trade after implementing the agreements. Consequently, the study reveals that there is a weak correlation between tariff reforms and trade expansion.

More specifically, Dianiar (2013), using the Gravity Model and other trade factors as the complementary variables, explored the effects of ASEAN Free Trade Area and ASEAN-China Free Trade Area (hereafter referred to as ACFTA) on Indonesia's agriculture trade performance. The study statistically proves that free trade agreements do not significantly affect the trade flows of the agriculture commodities. Similar study conducted by Setiawan (2012), using the ARIMA model of analysis propose that Indonesia gain less trade benefit than China under ASEAN-China Free Trade Agreements. Another study conducted by Hidayatie (2014) on the impact of agricultural trade between Indonesia and China suggests that ACFTA does not create significant effects on improving agricultural exports value. Regarding trade diversion and creation, Supriana (2011) upholds that the significant impact of ASEAN-China Free Trade Area is only benefiting China trade flows rather than Indonesia trade flows.

On the other hand, Yang and Zarzoco (2014) uphold that ASEAN-China Free Trade Area significantly generates trade between two countries. In addition, the result suggests that ACFTA significantly and positively affects the export performance on agricultural and manufactured goods among countries under the agreements. More recently, Pujiati (2017)

studied the impact of Free Trade Agreements on Indonesia and Malaysia's palm oil trade flows using gravity model and found that the agreements significantly affected the oil palm trade performance in those two countries.

Generally, most studies focus on the impact of Free Trade Agreement in the trade flows between or among countries. Besides, previous studies also give attention on how free trade agreement improve trade creation and trade diversion. Frequently used models are gravity model and Computed General Equilibrium (CGE) that examine the impact of FTA in affecting export performance. The data often contains aggregated export value.

However, there are several research gaps among Indonesian FTA studies. First, there is no previous study that examine the impact of free trade on Indonesian export performance by commodities. Most studies use aggregate export value, which could lead to bias in analyzing export performance of each commodities because each agreement may have diverse levels and characteristics of treatment. Second, studies about the combined impact of several free trade agreements on Indonesia export performance are limited.

1.3 Purpose of the Study

FTA has an important role in the dynamics of world trading system among countries, together with multilateral trade regime such as World Trade Organization (WTO). More than dozen studies examine free trade agreements from its historical emergence, its dynamics as well as its impact to export. The conventional notion is that the establishment of FTA leads to increase trade flows among countries under the agreement. However, as maintained above, the factors of trade are not solely restricted by bilateral and multilateral agreements. Therefore, by considering the cost of tariff reduction under free trade agreement, this study will estimate the degree of free trade agreement's significance in affecting export performance compared to other variables.

Thus, this study will focus on examining the impact of free trade agreement on the export performance across five leading commodities. Hence, this study will cast a new light on the significance of FTA in Indonesian export performance by taking account the leading commodities and multiple agreements.

1.4 Research Question and Hypothesis

This study collects export value from five commodities and designs a model of experiment using panel data regression. In this study, the export performance based on volume of five leading commodities of Indonesia will be treated as Dependent variable. Meanwhile, the Independent variable will include dummy Free Trade Agreement (FTA), GDP, Population (proxy of market size), Logistic Performance Index (proxy for transportation efficiency), Human Development Index, tariff, governance Index, and Global Competitiveness Index. The experiment will be used to answer the main question and test the hypothesis below:

Research Question and Hypotheses:

Is there any significant impact on Indonesian export performances among countries by signing a Free Trade Agreement?

Null Hypotheses:

$H0_1$: Free Trade Agreement does not affect manufactured export performance

$H0_2$: Free Trade Agreement does not affect food export performance

$H0_3$: Free Trade Agreement does not affect low-tech export performance

$H0_4$: Free Trade Agreement does not affect high-tech export performance

Alternative Hypotheses:

$H1_1$: Free Trade Agreement affects manufactured export performance

$H1_2$: Free Trade Agreement affects food export performance

$H1_3$: Free Trade Agreement affects low-tech export performance

$H1_4$: Free Trade Agreement affects high-tech export performance

Chapter II

Literature Review

2.1 Theoretical Review: Economic Integration

The discussion about economic integration has started since the 1970's. Balassa (1973) proposes economic integration as a dynamic and static process of removing economic barriers among states. Similarly, Molle (1991) suggests that eliminating any economic frontiers between countries is the key process of economic integration. While more generally, Jovanovic (1998) argues that international economic integration is tools as well as process used among countries to upgrade their welfare standard. Hence, theoretically, economic integration is defined as the process of eliminating economic activities' barriers among countries which are committed to integration. However, previous literature has not clearly mentioned what kind of economic activities are included in this economic integration.

More recently, Salvatore (2004) focused on the reduction of discriminative trade policy and hindrance between countries as crucial elements of economic integration. Balassa (1961) classified the level of economic integration into five level: free-trade area, custom union, common market, economic union, and complete economic integration. Salvatore (2004) specified this model of international economic integration as follows:

Table 1. The level of Economic IntegrationTable

The level of Economic Integration		
Level of Integration (lower-higher)	**Definition**	**Empirical Implementation**
Preferential Trade Arrangements (PTA)	The agreements between countries to reduce the trade barriers among countries under the PTA for certain products	British Commonwealth Preference Scheme (1932)
Free Trade Area (FTA)	The agreements where member countries commit to eliminate trade tariff and non-tariff frontiers yet, countries remain allowed to charge trade duties to another countries outside FTA's member	North American Free Trade Agreement (NAFTA) (1993); European Free Trade Association (EFTA) (1960)
Custom Union	The higher level of agreements where countries member agree to coordinate their trade policy against non-member countries. Also, member countries omit all barriers of free trade among countries member	European Union (1957)
Common Market	The commitment among countries member which goes beyond custom union by allowing the movement of capital and labour among member freely	European Union (1993)
Economic Union	The highest degree of economic integration where countries member agree to harmonize and unify member's fiscal and monetary policies	United States

Source: Salvatore, 2004

Based on Table 1, it is clear that the international economic integration ranges from limited products free trade agreements to the coordination of fiscal and monetary decision among countries under the agreements. In most previous literature, European countries pioneer the implementation of economic integration among them. However, Balassa (1961) states that Latin America also lead in the economic integration progress in America and Europe. As the

globalization becoming more prevalent, the trappings of economic integration around the globe have been noticeably growing among Asian countries as well.

However, Sally (2010) argues that the development of East Asia economic integration is only due to their linked businesses in supplying manufacture input to the global markets. Also, most Asian countries, particularly east and south Asia, are less integrated in financial market compared to their integration in trade and foreign direct investment. She also argued that under the FTA, the reduction of tariff barriers is less than the reduction of non-tariff barriers due their complicated rules of original requirements.

ADB (2018), on the other hand, upholds that regional integration among Asian countries have been noticeably strengthened by creating positive impact to the regional cooperation. Several trappings of the regional integration go beyond the traditional sense of economic integration. Trading activities among Asian countries grew faster compared to global trading activities in others region, which grew 7.1% in 2017 from 1.7% in 2016. Besides, foreign direct investment flows among countries also rose in a large rate. More importantly, there is higher financial integration and people movement among countries.

2.2 Empirical Study Review: Various Implication of Economic Integration

The fundamental aim of integrating countries' economics is to seek welfare improvement under these agreements. However, number of empirical studies reveal another fact. Instead of producing similar economic trends, Ozcan et al. (2001) suggest that capital market integration among OECD countries and United States generated asymmetric results in their production output. Likewise, study of European price dataset reveals less price convergence among countries under economic integration (Bergin & Glick, 2007). Besides, Chen & Novy (2011) argue that there are still complicated technical barriers to boost free economic activities among countries despite the economic integration commitment. Hence,

these indicate that economic integration may be hindered by several technical frontiers, producing different gain or loss for participating countries.

Economic integration can be divided into degrees, ranked from the lower to the highest in terms of integration (Balassa, 1962; Salvatore, 2004). The varying degrees of economic integration results from diverse economic conditions among countries under the commitment. Lewis et al (1995) uphold that regional trade agreement, particularly Asia-Pacific Economic Cooperation (APEC), benefits members countries as of now. However, by eliminating only one member will generate loss for all country members. Similarly, free trade area between Morocco-US increases Morocco's GDP about 1.5% (Rutherford et al, 1997). In terms of monetary agreements among OECD countries, Gil-Pareja et al (2007) reveal that more trade activities occur.

Chen (2009) proposes that preferential trade agreements (hereafter referred to as PTA) promotes Foreign Direct Investment (FDI) by taking into account the degree of market integration and comparative advantages among countries. In the like manner, Saucier & Rana (2017) argue that capital mobility and competition policy negotiation under PTA generate less significant trade compared to labor mobility negotiations. This means that even the same degree of economic integration will produce different trade outputs.

In the context of higher degree of economic integration, Ro'i & Senegas (2012) uphold that implementing common currency trade activities will strengthen economic integration among countries. On the other hand, FTA between European Union and Chile generate slight economic benefits for Chile (Jean et al, 2014). Similarly, Qi & Zhang (2018) suggest that China-Australia free trade agreements benefit both parties holistically from their GDP, export volume, prices and overall welfare. However, it also generates loss for other parties due to the emerging trade diversion in New Zealand under the same agreements.

2.3 Related Conclusions

Empirical studies show significant variance in the impacts of economic integration under several degrees. It could also be stated that economic integration promotes positive impact in an ambiguous direction and level. Indeed, economic integration, particularly in the context of trade, may create gain for one side and loss for another side. This is supported by studies which reveal the unequal gain between countries under certain economic integration. For example, India experiences deterioration in their balance of trade under the ASEAN-India Free Trade Agreements (Bhattacharyya & Mandal, 2016).

It is this paper's conclusion that the effects of economic integration have not been generally defined. Empirical studies prove that even the same degree of economic integration produces diverse development results. This implies that the degree of economic integration, such as preferential trade agreements or economic union, could yield an inverse result. Similarly, the degree of economic integration cannot broadly explain the real level of integration among countries.

Chapter III

Data and Methodology

3.1 Variable definition and Data Source

This study will assess the effect of free trade agreement on Indonesian export performance, particularly in four leading commodities. This study will use panel data in examining and testing the hypothesis. Panel data is a set of data that presents several sets of observations within the same sample of individuals over certain period of time (Hsiao, 2003). Therefore, it will give stronger variable explanation and estimation to the study. This study‘s panel data consists of cross-section elements from 22 trading countries under FTA and 28 countries which do not have agreements with Indonesia. The panel data covers the cross-sectional variable between 2007 to 2017.

Data used in this study are secondary data from several official sources. Export volume of four leading commodities will be treated as dependent variable explaining the export performance of Indonesia. On the other hand, the study employs sorts of independent variables. Based on Gravity model, Gross Domestic Products (GDP) and distance could be assigned to define the value of trade between countries (Krugman et al, 2004). Besides, population will be employed as the proxy variable of market size, which is theoretically supported by the gravity model. Equally important, Hoekman & Nicita (2010) uphold that trade flows are positively driven by logistic performance index, which measures the cost of transportation. Thus, Logistic Performance Index will be employed as the proxy of transportation efficiency. In order to make the model robust, this study will also employ tariff and exchange rate as the common trade barriers, while the FTA will be treated as the dummy variable. The following table details the variables used in this study:

Table 2. Variable Definition and Source

Variable	Definition	Source
Export Value (ex[commodityname])	Total export (annual USD)	International Trade Center in Current US$ annual series
Gross Domestic Products (gdp)	Gross Domestic Product total (annual USD)	World Bank (World Development Indicator)
Population (pop)	Total population (annual)	World Bank (World Development Indicator)
Logistic Performance Index (lpi)	Logistic performance index: overall score (1=low to 5=high)	World Bank (World Development Indicator)
Tariff (tariff)	Weighted mean of applied tariff rate by imported product correspond to each partner country	World Bank (World Development Indicator)
Countries' Distance (dist)	Distance (Kilometers) of country partner from Indonesia	Indonesia.distanceworld.com
Free Trade Agreement	Ratified Agreement between Indonesia and Country Partner	World Trade Organization www.wto.org

3.2 Model Estimation

This study will conduct static panel data regression, particularly the *one-way error* component regression model. Based on Baltagi (2005), panel data regression differs from cross-section or time series regression which derives the model as follows:

According to Baltagi (2005), one-way error mostly measured for panel data applications. In the sense of its error, this model employ disturbances with :

More importantly, there are several models to derive results from the panel data, which are :

a. The Fixed Effect Model

This model assumes that there are individuals and time effects. Therefore, individuals and time effects will be part of the intercept, which give the Fixed Effect Model as follows:

$$y_{it}=\alpha_i+\tau_i+X_{it}\beta+\mu_{it}$$

The estimation result from this model allows us to describe the variations between individuals (individuals heterogeneity) due to its intercept distinction α for each *i.* The Fixed Effect Model estimation is calculated by using several techniques, which are the *Pooled Least Square* (PLS), *Least Square Dummy Variable* (LSDV) or also known as *Least Square* (Baltagi, 2005), and *Within Group* (WG). Hansen (2007) believes fixed effects estimation will be robust only if N and T are large.

b. The Random Effect Model

Inversely, the random effect model is used in the condition where there is no correlation between individuals and time effects. Thus, this model is utilized in random individuals and time effects. Similarly, Mundalk (1978) claim that all regressor in random effect model is assumed to have the exogeneity with the individual effects while in the fixed effect it is inversely assumed. However, Baltagi (2005) believes that choosing between these two model has been generating long debate among scholars. Fortunately, Hausman test is already founded to test the best estimator between fixed and random effect.

c. **Model Compatibility Test**

Both model above represent the estimator effect to the panel data estimation results. However, it should be clear whether using fixed or random effect is the most effective for analysing the selected panel data set.

There are several statistics test to examine the best-fit method and model for panel data. The most widely acknowledged test to choose between Fixed and Random Effect Model is the *Hausman Test*. *Hausman Test* is based on the fixed and random effects estimators differences (Baltagi, 2005). Hypothesis in *Hausman test* are defined as follow:

H_0 : Random Effect Model Accepted

H_1 : Fixed Effect Model Accepted

The decision rule is based on the comparation between Hausman value with *Chi-Square Table*. H_0 will be rejected if p-value is less than α.

The model compatibility test should pass several assumptions as follow:

1. Autocorrelations

In order to satisfy this assumption, *Durbin-Watson* test will be employed to test whether there is correlation between variable in estimation model or time changes. This test also reveals whether disturbance in the model is freely paired or auto-correlation paired. *Durbin-Watson* test employs the hypothesis below:

Ho: $\rho = 0$ (there is no autocorrelations)

H1: $\rho \neq 0$ (there is autocorrelations)

The decision rules in *Durbin-Watson* test are as follow:

Durbin-Watson Value	Decision
$4\text{-}d_L<DW<4$	Reject H0: negative autocorrelation
$4\text{-}d_U<DW<4\text{-}\ d_L$	Uncertain
$d_U<DW<4\text{-}d_U$	Accept H0: there is no autocorrelation
$d_L<DW<\ d_U$	Uncertain
$0<DW<\ d_L$	Reject H0: positive autocorrelation

Source: Juanda, 2009

2. Heteroskedasticity

Heteroskedasticity is the common assumption that should be passed in the regression estimation model. This assumption test focuses on examining the similarity variances among observations in the linear regression model. This assumption should be satisfied in order to have valid regression model estimation. There are several statistical techniques to test heteroskedasticity, which are *Goldfeld-Quandt* test, *Breusch-Pagan* test, and *White* test. In *Breusch-Pagan* test, Ho will be rejected only if *chi-table* exceeds the *chi-stat*.

3. Multicollinearity

Multicollinearity is the condition where there is a strong correlation among dependent variables in the same multiple regression model. This condition will obstruct the interpretation process by affecting the variable predictions to the model. One of the most case triggering multicollinearity is the use of more than one dummy variable in a regression model. We test the collinearity by the means of F -test.

4. **Normality**

The last assumption is the mandatory assumption to pass in the parametric test. In the linear regression, the object of normality test is its residual. The normality test aims to reveal whether the residual disturbance is normally distributed or not. One of the most common tools to examine this assumption is using residual histogram and *Jarque-Bera* test by considering the Ordinary Least Square residue. The decision rule is if Jarque-Bera value exceeds 5% confidence interval, the variable's residue is normally distributed.

However, Gujarati (2012) upholds that panel data analysis does not need to pass those classic tests. Gujarati believes that panel data could minimize bias, gives more information, variation, and degrees of freedom. The panel data could better detect and estimate the impact than the cross section and time series. Panel data captures more complex behaviour in the model, therefore, it can ignore the classic assumption tests (Gujarati & Porter, 1992)

3.3 Model Specification

The model employed in this study follow this empirical model of panel form, where *i* refer to the country and *t* refer to the time period:

$$Exp_{it} = \alpha + \beta_1 gdp_{it} + \beta_2 pop_{it} + \beta_3 lpi_{it} + \beta_4 tariff_{it} + \beta_6 er_{it} + \beta_7 dist_{it} + \beta_8 fta_{it} + \varepsilon_{it}$$

Where Exp_{it}, refers to the total value export, gdp_{it} to the variable of total Gross Domestic Product of each country; $\beta_2 pop_{it}$ refers to country partner population size; lpi_{it} is an overall score of Logistic Performance Index (LPI) ranging from 1 (lowest) to 5 (highest); $dist_{it}$ is variable describing countries' distances from Indonesia in kilometres; $tariff_{it}$ refers to average tariff imposed by country partner; er_{it} refers to country partner exchange rate to

Indonesian rupiah; fta_{it} refers to the classification of Indonesian trading partners which are labelled 0 (for country without FTA) and 1 (for country with FTA); ε_{it} is error term in this model.

This study employs 50 export destination countries as the observation. Equally important, this model will be implemented into three different models based on differing commodities, that is, food, manufacture, low-tech and high-tech. Thus, each commodities will have specific model for itself. These commodities are classified using the Standard International Trade Classification (SITC). Therefore, this study will produce four different estimation models based on commodities and the result will be analysed based on those three different models.

Chapter IV

Empirical Results

4.1 Model Parameter Summary

This chapter discusses the panel regression results of each regression models consisting of manufacture, food, low-technology, and high-technology commodities. This study employs eleven years' panel data observed in 50 countries as trading partners of Indonesia. Panel data set used in this study are strongly balanced panel dataset. Sum of each panel data set are described below:

Table 3. Summary of Manufacture Commodities Variable

Variable		Mean	Std. Dev	Min	Max	Observations	
Manufacture	Overall	11166186	1894110	50.42	1.10e+07	N	550
	Between		1874250	694.2818	9918182	n	50
	Within		374344.1	-851996.1	3957095	T	11
Gdp	Overall	1.21e+12	2.57e+12	-1.10e+12	1.70e+13	N	550
	Between		2.58e+12	-7.92e+11	1.58e+13	n	50
	Within		2.97e+11	-1.42e+12	3.98e+12	T	11
Population	Overall	1.04e+08	2.56e+08	311566	1.40e+09	N	550
	Between		2.58e+08	323994.4	1.35e+09	n	50
	Within		1.08e+07	5.15e+07	1.51e+08	T	11
Lpi	Overall	3.228423	.7400833	0	4.23	N	550
	Between		.704957	.5218182	4.117273	n	50
	Within		.2449413	1.15115	5.576605	T	11
Distance	Overall	8337.887	4998.802	4.38	18637	N	550
	Between		5045.917	4.458585	18637	n	50
	Within		.009119	8337.808	8337.998	T	11
Tariff	Overall	6.780575	7.133182	-7.16	46.61	N	550
	Between		7.031731	0	40.97636	n	50
	Within		1.534962	-7.874879	13.11421	T	11
Ex rate	Overall	3534.436	5383.11	.36	34774.1	N	550
	Between		5284.815	.5409091	28071.49	n	50
	Within		1252.091	-3788.348	10237.05	T	11
Fta	Overall	.2745826	.4467183	0	1	N	550
	Between		.4278083	0	1	n	50
	Within		.1412061	-.6345083	.729128	T	11

The table above summarize the variables parameter in manufacture commodity regression model. Overall. the structure of the data is strongly balanced and consist of 11 years-time series observation as well as eight cross-sectional variables. In addition, the variable summary of food commodities is as follow:

Table 4. Summary of Food Commodities Variables

Variable		Mean	Std. Dev	Min	Max	Observations	
Food	Overall	580075.6	930751.1	0	5700000	N	550
	Between		892943.4	114.3409	4427273	n	50
	Within		288917.3	-1347197	2225530	T	11
Gdp	Overall	1.21e+12	2.55e+12	-1.10e+12	1.70e+13	N	550
	Between		2.56e+12	-7.92e+11	1.58e+13	n	50
	Within		2.96e+12	-1.43e+12	3.97e+12	T	11
Population	Overall	1.08e+08	2.53e+08	311566	1.40e+09	N	550
	Between		2.55e+08	323994.4	1.35e+09	n	50
	Within		1.07e+07	5.33e+07	1.53e+08	T	11
Lpi	Overall	3.168564	.754358	0	4.23	N	550
	Between		.7145944	.5218182	4.117273	n	50
	Within		.2602158	1.091291	5.516745	T	11
Distance	Overall	8024.698	4355.659	598	17729	N	550
	Between		4395.878	598	17729	n	50
	Within		1.831176	7983.789	8028.789	T	11
Tariff	Overall	6.8028	5.173037	0	21.79	N	550
	Between		4.994843	0	21.13182	n	50
	Within		1.505421	-5.479018	15.17735	T	11
Ex rate	Overall	3413.423	5334.239	.36	34774.1	N	550
	Between		5288.41	.5409091	28071.49	n	50
	Within		998.1245	-1867.468	10116.03	T	11
Fta	Overall	.2690909	.443891	0	1	N	550
	Between		.4251973	0	1	n	50
	Within		.1397843	-.64	.7236364	T	11

The table above summarizes the variables parameter in food commodity regression model. Similar to manufacture commodities dataset, the structure of this data is strongly balanced and also consist of 11 years-time series observation and eight cross- sectional variables.

Table 5. Summary of Low-Technology Commodities Variable

Variable		Mean	Std. Dev	Min	Max	Observations	
Low Tech	Overall	389146.5	874977.2	3.9	7000000	N	550
	Between		864357.4	274.0364	5881818	n	50
	Within		179109	-892671.6	2089106	T	11
Gdp	Overall	1.18e+12	2.55e+12	-1.10e+12	1.70e+13	N	550
	Between		2.56e+12	-7.92e+11	1.58e+13	n	50
	Within		2.96e+11	-1.46e+12	3.94e+12	T	11
Population	Overall	1.04e+08	2.53e+08	311566	1.40e+09	N	550
	Between		2.55e+08	323994.4	1.35e+09	n	50
	Within		1.08e+07	4.99e+07	1.51e+08	T	11
Lpi	Overall	3.231764	.7404848	0	4.23	N	550
	Between		.7011568	.5218182	4.117273	n	50
	Within		.2562257	1.154491	5.579945	T	11
Distance	Overall	8388.88	4971.369	4.38	18637	N	550
	Between		5014.072	4.458182	18637	n	50
	Within		177.5521	7992.244	12355.24	T	11
Tariff	Overall	6.904382	7.189347	-7.16	46.61	N	550
	Between		7.025888	0	40.97636	n	50
	Within		1.795204	-7.751073	15.27893	T	11
Ex rate	Overall	3570.774	5359.498	.36	34774.1	N	550
	Between		5258.62	.5409091	28071.49	n	50
	Within		1254.925	-3752.01	10273.39	T	11
Fta	Overall	.2818182	.4502947	0	1	N	550
	Between		.4265003	0	1	n	50
	Within		.1554869	-.6272727	.7363636	T	11

The table above summarizes the variables parameter in low-technology commodity regression model. Overall, the structure of the data is strongly balanced and consist of 11 years-time series observation as well as eight cross-sectional variables. In addition, the variable summary of high-technology commodity is as follow:

Table 6. Summary of High-Technology Commodities Variable

Variable		Mean	Std. Dev	Min	Max	Observations	
Hightech	Overall	152828.7	358741.7	0	2800000	N	550
	Between		351810.5	.1163636	2190909	n	50
	Within		84731.64	-438080.3	761919.7	T	11
Gdp	Overall	1.15e+12	2.55e+12	-1.10e+12	1.70e+13	N	550
	Between		2.56e+12	-7.92e+11	1.58e+13	n	50
	Within		2.94e+11	-1.48e+12	3.92e+12	T	11
Population	Overall	1.04e+08	2.53e+08	311566	1.40e+09	N	550
	Between		2.55e+08	323994.4	1.35e+09	n	50
	Within		1.07e+07	4.97e+07	1.50e+08	T	11
Lpi	Overall	3.168564	.7386393	0	4.23	N	550
	Between		.7023128	.5218182	4.117273	n	50
	Within		.2476472	1.112691	5.538145	T	11
Distance	Overall	8432.769	5074.62	4.38	18637	N	550
	Between		5121.478	4.458182	18637	n	50
	Within		1.831176	7983.789	8028.789	T	11
Tariff	Overall	6.905073	7.09357	-7.16	46.61	N	550
	Between		6.992582	0	40.97636	n	50
	Within		1.520913	-7.750382	13.23871	T	11
Ex rate	Overall	3283.567	5292.576	.36	34774.1	N	550
	Between		5193.956	.5409091	28071.49	n	50
	Within		1235.139	-4039.217	9986.178	T	11
Fta	Overall	.2672727	.4429387	0	1	N	550
	Between		.4241846	0	1	n	50
	Within		.1397843	-.6418182	.8127273	T	11

The table above summarizes the variables parameter in high-technology commodity regression model. As in the food commodity dataset, the structure of this data is strongly balanced and also consist of 11 years-time series observation and eight cross-sectional variables.

4.2 Fixed and Random Effect Model Comparison

Panel data could be analyzed using several estimations model. There are two estimations model compared in this study, which are Fixed Effect and Random Effect. In the fixed effect, the predictor variables could be influenced by entity's individual characteristics. Equally important, the time invariant assumption in fixed effect model is unique to certain individuals and cannot be correlated with another individual characteristic. However, by employing the fixed effect model, all time-invariant differences among individual will be

controlled. Thus, the coefficient in the estimation result cannot be biased due to the omitted time-invariant characteristic (Kohler et al, 2009).

On the other hand, random effect has different assumption compared to fixed effect. In short, there is no correlation between predictor variables and the individual characteristic. Also, the variation among entities is assumed to be random (Greene, 2008). Both fixed and random effect employs four different regression models to study the significance impact of FTA. This study employs four fixed effect regression models, which are Manufactured commodities, Low-Technology commodities, Food commodities, and High-Technology commodities. Furthermore, the variables' comparisons based on fixed and random effect are as follow:

Table 7.Regression Result Comparison

Model	**Fixed Effects**				**Random Effects**			
Commodities	**Manufactures**	**Food**	**Low-Tech**	**High-Tech**	**Manufactures**	**Food**	**Low-Tech**	**High-Tech**
GDP	**.06*** **	**.12*** **	**.07*** **	**.02**	**.09*** **	**.12*** **	**.11*** **	**.11*** **
	.01	.03	.02	.01	.01	.02	.02	.03
Pop	**1.35*** **	**4.52*** **	**.51**	**-.82*** **	**.60*** **	**.82*** **	**.42*** **	**.63*** **
	.29	.56	.39	.24	.08	.13	.09	.14
LPI	**.45*** **	**-.02**	**.80 *** **	**.22**	**.71*** **	**.50**	**.99*** **	**.57**
	.17	.33	.23	.14	.17	.31	.22	.38
Distance	**8.14**	**902.8*** **	**3.01*** **	**-5.49**	**-.16**	**-.48**	**-.06**	**-.16**
	7.31	198.87	1.51	6.21	.11	.28	.12	.18
Tariff	**-.03**	**-.16**	**-.03**	**-.04**	**-.07*** **	**-.17**	**-.09*** **	**-.16*** **
	.03	.13	.04	.02	.03	.11	.03	.05
Exchange Rate	**.04*** **	**-.03**	**-.01**	**-.01**	**.06*** **	**.05**	**.03**	**.03**
	.02	.07	.03	.01	.02	.05	.02	.04
FTA	**.25*** **	**.20**	**.44*** **	**.16** **	**.334*** **	**.31**	**.42*** **	**-.10**
	.11	.21	.13	.09	.11	.21	.13	.15

Panel data from four commodities tested by fixed and random regression model as presented in table above. In manufacture commodities, fixed and random regression yield slightly different estimation result. Overall, it is immediately apparent that random effect signifies more predictor variables than fixed effect. The significant variables in fixed effect models are Gross Domestic Product (GDP) of country partner, population of country partner, Logistic Performance Index (LPI), Exchange rate of country partner to Indonesian Rupiah and FTA while the insignificant variables are country's partner average tariff. Additionally, among seven variables only tariff is negatively correlated to the outcome variable.

In contrast, random effect signifies six significant variables within the model. The significant variables are GDP of country partner, population of country partner, LPI of country partner, average tariff of country partner, exchange rate of country partner to Indonesian Rupiah, and FTA. While insignificant variable is distance of country partner to Indonesia. Slightly different to fixed effect estimation, distance variable negatively affects dependent variable along average tariff of country partner even though distance is not statistically significant. Equally important, both fixed and random effect in manufacture regression model signify the significance of FTA in promoting manufacture export value.

In food commodities model, regression result compares the significance among predictor variables in the fixed effect and random effect regression models. Overall, it can be noted that both fixed and random effect signify the insignificant effect of FTA in promoting food export value. In fixed effect model there are four insignificant variables, while the remaining variables are significant. The significant variables in this fixed effect regression model are Gross Domestic Product (GDP) of country partner, population of country partner and distance of country partner. Conversely, the insignificant variables are Performance Index (LPI) of country partner, average tariff in country partner, the exchange rate of country partner

to Indonesian Rupiah and FTA. Importantly, among the significant variables, only GDP of country partner and distance have negative coefficient.

On the other hand, random effect model gives slightly different estimation. There are also four insignificant predictor variables and three significant variables at the 95% and 99% confidence interval. The significant variables in this model are population of country partner, distance of country partner, and exchange rate. While The four remaining, insignificant variables are Gross Domestic Product (GDP) of country partner, tariff of country partner, Logistic Performance Index (LPI) of country partner, and the Free Trade Agreement (FTA). In addition, among significant variables, only distance which is negatively correlated to food export value.

Afterwards, in low-tech commodities, fixed and random effect also bring different estimation. Overall, in fixed effect model, it can be noted that there are several significant variables in the 99% degree of confidence. In addition, in random effect model, the significant and insignificant variables for low-tech commodities model are substantially similar. The significant variables in fixed effect model are Gross Domestic Product (GDP) of partner countries, Performance Index (LPI) of countries partner between Indonesia and the country partner, distance, and the FTA. Meanwhile, the insignificant variables are the population of country partner, exchange rate of country partner to Indonesian Rupiah and average tariff of country partner. Moreover, all the significant variables are positively correlated to low-technology export value.

In random effect model, the significant variables are Gross Domestic Products (GDP) of country partner, Population of country partner, Logistic Performance Index (LPI) of country partner, average tariff of country partner and the FTA. While distance, and exchange rate are not significant. In addition, almost all the significant variables produce the positive coefficients except country's partner average tariff.

Differ to other commodities regression model, fixed and random effect yield substantial different estimation results for high-tech commodities. Both fixed and random effect signify the insignificant of FTA in promoting high-technology export value. Fixed effect regression witnesses more insignificant variables. There are six insignificant variables and only one significant variable. The significant variable is population of country partner while the remaining six variables which are GDP, LPI, average tariff, exchange rate, distance of country partner, and FTA are not statistically significant. In addition, population of country partner is positively correlated with high-tech export value.

Conversely, there are four insignificant variable and only three significant variables at 99% level of confidence resulted from random effect estimation. The insignificant variables are Logistic Performance Index (LPI) of country partner, distance, exchange rate of country partner to Indonesian Rupiah and FTA. While GDP, population, and average tariff of country partner are significant. Among the significant variables, only average tariff of country partner is negatively correlated to high-tech export value.

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4.3 Hausman Test

Hausman test is conducted to elect the best estimation model between Fixed Effect Model and Random Effect Model. The hypothesis null in Hausman Test is Random Effect, thus, if the null hypothesis rejected in at least the 95% confident interval, the Fixed Effect Model estimation should be selected. Hausman Test table below summarizes the chi-square probability to reject the null hypothesis, which lead the study to select the compatible model estimation.

Table 8. Hausman Test Results

Commodities	Sig	Fitted Model
Manufactures	0.000***	Fixed Effects
Food	0.000***	Fixed Effects
Low Tech	0.000***	Fixed Effects
High Tech	0.000***	Fixed Effects

The table above depicts the comparison of chi-square significance among four differences commodities. Overall, it can be noted that all commodities are fit to use fixed effect model to estimate and analyze the variables.

Chapter V
Discussion and Conclusion

5.1 Discussion

In the previous section, the Hausman test result signified the best estimation model between Fixed and Random effect. The fitted model will be used to analyze the coefficient and the significance of each variables in the model. Based on the Hausman test results, all commodities models are fit to use Random Effect Model (REM). Therefore, the following analysis of each variable among commodities are as follows.

First, Fixed effect in manufacture, food, and low-technology commodities signifies that Gross Domestic Product (GDP) of country's partner affect the export value of the three commodities. While in high-technology commodity, GDP of country partner is not statistically significant affect its export value. These significance effect in manufacture, food and low-technology fixed effect model strengthen the logic behind the Gravity Model (Krugman, 2005). The positive coefficient and significance of Gross Domestic Product (GDP) reveal that as country's partner GDP grow in a certain level, the export value will increase among the three commodities. This is because the growth of GDP indicates the surge in consumer purchasing power due to the improvement of income distribution. Previous study supports this argument that larger GDP leads to larger probability of trade creation (Baier & Bergstrand, 2004). More recently, Baier et al (2019) upholds that there are substantial effects of GDP into trade flows among countries.

However, the insignificant effect of GDP in creating high-technology export value differs from Gravity Model prediction and previous study. This finding supported by Debaere (2005) by concluding that gravity model is not one fits all model. Meaning that, gravity model could produce different effect among diverse context of bilateral trade. Other reason is the fact

that Indonesia is relatively new-comer in high-technology industry which become the barrier for Indonesia to set its foot in high-technology market which mostly played by developed country with the high GDP. Importantly, as Helpman (1981) stated that larger bilateral trade volume will be created as the more similarity countries GDP. This indicates that in typical commodities such as high-technology based production, countries will trade among their similar GDP country partner. Thus, the Indonesian export value of high-technology rely more to other variables.

Furthermore, population affects each commodity differently. Fixed effect in manufactures, food, and high-technology commodities signify the significant effect of country partner population while low-technology export value is not significantly affected by country partner population. Importantly, country partner population variable in manufacture and food hold positive coefficient while negative under high-technology fixed effect model. Significant and positive correlation of population under manufacture model confirm the basic assumption that larger population size will demand greater amounts of products which will create greater volume of trade. This is because population represents the quantity of good demanded through trade from country partner.

Inversely, population of country partner in high-technology commodities hold negative coefficient. The negative relation yet significant population variable in high-technology commodity based on Standard International Trade Classification (SITC) are consists of relatively intermediate product such as inorganic chemical, computer equipment, transmission equipment, electrical equipment etc. Thus, more sophisticated country will import bigger high-technology based product from Indonesia to further process the product in to more advanced product as their population decrease and their economy shift from labor intensive production into more capital and technological intensive production.

Equally important, Logistic Performance Index (LPI) of country partner is positively significant in manufacture and low-technology commodity. However, this coefficient is not statistically significant to improve food and high-technology export value. This finding partially supports Gani (2017), who believes that logistic performance index is expected to give positive, significant effect to trade flows. Devlin & Yee (2005) also claim that logistic performance is playing the significant role in creating trade among Middle East and North African (MNA) region. Similarly, Lopex-Calix et al (2010) proposed that by reducing cost to improve logistic performance, Middle East and North African (MNA) could take greater advantage from European market.

However, those study is not perfectly supported due to insignificant effect of Logistic Performance Index (LPI) under food and high-technology commodity. Even though some products from Indonesia is classified under high-technology commodity but the products classified under high-technology commodities in this study consist of relatively intermediate products, which do not require special treatment on their shipment. Similarly, products which are classified under food commodity such as beverages, tobacco, oil seeds, vegetables oils do not require special logistic treatments. Also, LPI becoming insignificant might be due to characteristic of products and producer itself, which have endogenous comparative advantage. Thus, regardless the level of LPI, trade flows will be created due to another factor.

Moreover, distance variable also produces different effects to the regression models. Fixed effect in food and low-technology commodities signify the positive and significant effect of distance. However, distance of country partner is not significant in promoting manufacture and high-technology commodities. The positive and significant correlation between export value and distance contrast with the basic concept of gravity model. However, the reason could be based on the comparative advantage of Indonesia in producing relatively labor-intensive products which mostly categorized under low-technology products. As the largest which

owned the biggest population among Association of Southeast Asian Nation (ASEAN), Indonesia has its comparative advantage in terms of labor force. While Indonesian minimum wage also contributes in gaining the comparative advantage to produce labor-intensive products.

Similar in low-technology commodities, distance hold significant yet positive coefficient for food export value. This means that the further the country partner the higher food export value will be created. This finding also contrasts with basic assumption within gravity model which expect to have significant and negative coefficient. Referring to the products characteristic of food, it could be made sense because the products under food commodity classification are consist of raw and intermediate product which will be further processed into more sophisticated products. Also, most of Indonesia trading partner mainly consist of developed country from European Union and United States and some Asian developed country such as Japan and South Korea which have high possibility to use imported food products from Indonesia as one of the materials to produce something else.

In the same manner, fixed effect model signifies that tariff is not significantly affecting export value in all commodities. Tariff is expected to give significant and negative effect to export value. Lin (2015) proposes that there is a significant negative correlation between tariff reduction and trade flows. Meaning that the more average tariff of country partner reduced, the bigger value of export will be created. However, the insignificant effect of tariff reduction as shown in the results is due to the most types of tariff reduction is based on multilateral agreement instead of bilateral. Thus, Indonesia still have to share the preferential treatment along with other parties such as ASEAN member country while it has to compete with other country products and price at the same time.

The sixth predictor variable of this study is exchange rate. Theoretically, as the exchange rate of country's partner is stronger to Indonesian Rupiah, it will inversely create bigger export value. Fixed effect model for food, low-technology, and high-technology commodities shows that exchange rate is not statistically significant to improve their export value. However, fixed effect signifies the positive and significant effect of exchange rate in improving manufactures export value. Meaning that, as country partner exchange rate get stronger to Indonesian rupiah, the bigger value will be created which confirms the general assumption.

Lastly, FTA is expected to bring significant and positive hike in export value. However, this study success rejects the null hypothesis in this study only for manufactures, low-technology, and high-technology commodity. While in food commodity model, null hypothesis fails to be rejected. As expected, export value of manufactures, low-technology, and high-technology commodity is significant and positively correlated with Free Trade Agreement (FTA). Whilst, FTA is not significant in increasing food commodity export value. The reason could be due to Indonesian comparative advantage in producing some products under food classification as stated earlier. Thus, without FTA, these products still can compete with another products from others country.

5.2 Conclusion

This study collected trade-related panel indicators data between 2007-2017 from 50 Indonesia's country trade-partners. Also, it carried out empirical tests on the significance of Free Trade Agreement (FTA) in promoting Indonesian export value. Besides, this study employs six others variables to broadly explain the creation of export value. The empirical test conducted among two biggest exported commodities and two others commodities which are prioritized by Indonesian development policy. Besides, to elect the best estimation, this study employs Hausman test to choose between fixed and random effect model.

Empirical study in this paper demonstrate varying significance among variables within four different commodities. More importantly, not all model within those four commodities signify the positive and significant effect of FTA in generating export value. Fixed effect regression model of food fails to reject the null hypothesis and conclude that FTA is not statistically significant to increase food export value. However, other remaining three fixed effect regression model confirm the positive and significant effect of FTA in boosting manufacture, low-technology, and high-technology export value. Meaning that three alternative hypotheses are accepted.

Equally important, this study yield empiric findings that other six remaining variables affect commodities differently. Those six remaining variables are country's partner GDP, population size, Logistic Performance Index (LPI) of country partner, distance of country partner from Indonesia, average tariff of country partner, and country partner exchange rate to Indonesian Rupiah. These could be explained in terms of products characteristic in certain commodities as well as market condition and consumer preference to its group of products. Therefore, certain commodities require specific approach in terms of these five remaining variables. Equally important, empirical test among six different predictors variables in this study draws some suggestion for Indonesian trade policy and development of the industries.

Gross domestic product (GDP) is expected to have significant and positive correlation in boosting export value. GDP in this context represent the size of demanded good from country partner, thus as it is getting bigger, the bigger value of exported good will be created. This is also supported by Krugman et al (2015) that country with large GDP represent the larger economy size tends to spend more in importing good due to their high income. Thus, in order to boost export value of manufacture, food, and low-technology commodities Indonesian government should take into account its sensitivity with economic growth of the country partner. While the trade policy for high-technology should pay more attention to others variables rather than GDP of country partner.

In terms of population, it is expected to also have positive and significant effect to export value. However, not all models signify this predictor variable. This study found that the value of manufacture and food is positively sensitive to country partner population size while high-technology is negatively sensitive. These findings draw an important basis to forecast the potential market for manufacture, food, and high-technology products. Regarding the products classified under manufactures and food, it will be optimally sold in the country partner with growing population rate while high-technology export value will gain significant surge in the inversely way. Therefore, it is also important to take into account population condition of country partner for those three commodities while low-technology commodities could pay more attention to other variables.

Further, Logistic Performance Index (LPI) is also expected to give positive and significant effect on creating export value. However, only fixed effect model for manufactures and low-technology signify its significance. The different on the significance of LPI among commodities is due to the diverse characteristic of products which are classified under the commodities. LPI is significant in the exporting activities for manufactures and low-technology commodities rather than for food and high-technology commodities. Therefore, in order to

optimally improve manufactures and low-technology export value, it should take into account country partner level of LPI.

Based on gravity model of trade, distance is expected to give a significant yet negative effect to export value. In the same manner to other variables, only fixed effect for food and low-technology which are signify its significance. Similarly, this different result is due to the diverse characteristic of products which are classified under commodities. The interesting result from this study is the opposite correlation compare to its expected. The further country partner distance, the bigger food and low-technology export value will be created. However, the reason is made sense based on the characteristic of products which. Products of food and low-technology commodities are relatively labor and land-intensive thus, compare to Indonesian trading partner which mostly consist of European, and American country, Indonesia has comparative advantage in producing such goods. Also, it makes sense to yield such positive correlation because beside having the comparative advantage on labor and land-intensive products, its food and low-technology products also become inputs of further production in developed country which way further from Indonesia.

Fixed effect model for all commodities signify the insignificant of average tariff of country partner in hindering export value. Regardless the more liberalized trade activities, this insignificant effect of tariff is due to the types of free trade agreement where Indonesia get the tariff reduction from country partner. Almost all of Indonesian FTA is created within Association of Southeast Asian Nation (ASEAN) which is based on multilateral level thus, that preferential tariff under FTA should be shared among ASEAN country while Indonesian commodities still have to compete with others country commodity. Therefore, the reduction of tariff is not remaining the significant variable.

Exchange rate only positively significant in creating manufactures commodities while it is not significant for the three remaining commodities. The interesting findings is that

significant effect of country partner exchange rate only significant in manufactures commodities. The reason is made sense by taking into account that manufacture commodities is relatively new commodities produced from Indonesia which have not gain large market and have not gain strong comparative advantage. Thus, its sales trend is still relying on country partner exchange rate to Indonesian Rupiah.

Lastly, this study gives substantial support for Indonesian Government to strengthen existing free trade agreement particularly on those three commodities examined in this study with respect to its significance and positive effect on the export performance. Equally important, the formulation of certain export policy particularly which are related to variables other than FTA should be carefully assessed by taking into account difference characteristic of products, consumer preference, and market condition.

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