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Analysis of Indonesia's Non-Oil and Gas Export Potential with Non-Traditional Countries

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ABSTRACT

This study aims to identify Indonesia's non-oil and gas export potential with non-traditional countries and to see the effect of the Trade Agreement on the value of Indonesi non-oil and gas exports to non-traditional countries. The research sample consists of 20 non-traditional countries in the period 2012-2021. The estimation method uses PPML. The aggregate data estimation results show that the Trade Agreement has a significant positive effect on Indonesia's non-oil and gas exports to non-traditional countries. In disaggregate data, the results show that the Trade Agreement has a positive and significant effect on non-oil and gas export commodities HS 40, has a negative and significant effect on non-oil and gas exports HS 61, HS 62, HS 64, HS 84, HS 85, and HS 87 The estimation results of potential predictions reveal the untapped potential of 13 non-traditional countries. The government needs to conduct trade negotiations, regulations, and trade licenses that apply in traditional countries.

1. Introduction

International trade plays an important role in spurring economic growth. Within the scope of Indonesia's international trade, increasing export activities is a top priority in generating foreign exchange needed for the country's development. The non-oil and gas sector is a sector that has potential for Indonesian trade, until now Indonesia's export structure is still dominated by the non-oil and gas sector (Hotsawadi & Widyastutik, 2020). Indonesia has considerable non-oil and gas trade potential

with non-traditional countries that has not been fully explored. Non-traditional countries are countries that have not previously been Indonesia's main trading partners, but have the potential to become significant trading partners (Ministry of Trade, 2020).Indonesia's non-oil and gas exports have a higher value than oil and gas exports during the 2012- 2021 period. The highest value of non-oil and gas exports occurred in 2021, amounting to 219.26 billion USD, while the highest value of oil and gas exports occurred in 2021 at 12.25 billion US. This shows that there is good export potential in the non-oil and gas sector. Indonesia's non-oil and gas exports to traditional countries (export destination countries), namely China, the United States, Japan, India, Singapore, Malaysia, South Korea, the Philippines, Thailand and Taiwan have an export share value of 67.97% of Indonesia's total non-oil and gas exports to the world. Meanwhile, the export share of non- traditional countries amounted to 32.03% of Indonesia's total non-oil exports to the world compared to oil and gas exports during the period 2012-2021. This fact indicates that Indonesia's non-oil and gas export market still tends to be focused or dominated by certain countries. The development of non-oil and gas exports can help increase foreign exchange earnings and the trade balance. Therefore, to encourage and improve trade performance, Indonesia must carry out and establish new strategies in trade. (Hotsawadi & Widyastutik, 2020).

Chart 1. Percentage Growth Value of Non-Oil and Gas Exports of Traditional Countries and Non-Traditional Countries for the Period 2017-2021

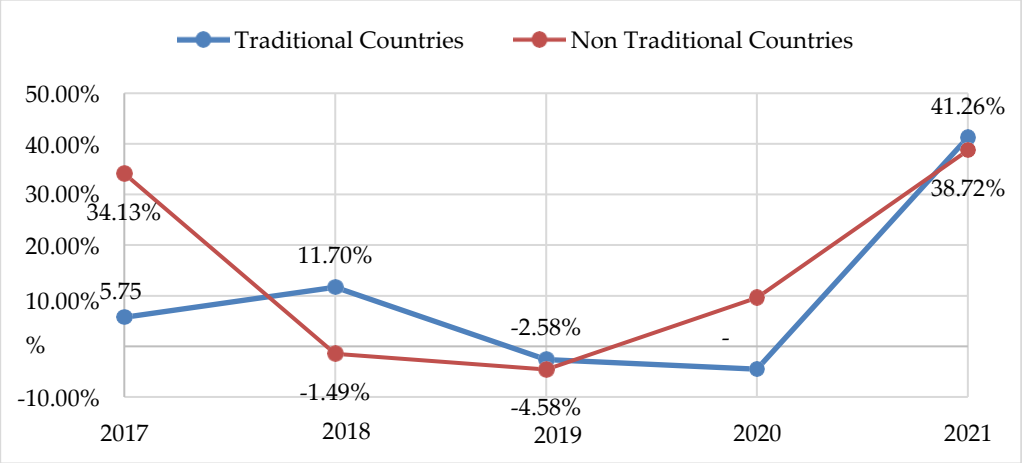

Chart 2 shows the percentage growth value of non-oil and gas exports to traditional countries and non-traditional countries during the 2017-2021 period. There is a significant difference in the average growth value of non-oil and gas exports to the 20 non-traditional countries with 10 traditional non-oil and gas countries of Indonesia. The data shows that the average growth value of non-oil and gas exports to non-traditional countries reached 15.27%, while the average growth value of non-oil and gas exports to traditional countries was 9.19%. This shows that non-oil and gas exports to non-traditional countries experienced higher growth than non-oil and gas exports to traditional countries during the 2017-2021 period. The type of commodity exported has a significant influence on the value of non-oil and gas exports. The selection and focus on certain types of commodities can affect a country's non-oil and gas export performance.

Amid the trade war between the United States and China, Indonesian trade is trying to concentrate on non-traditional countries. If Indonesia only targets traditional markets or important markets such as the US, China, Japan, and India as export destinations, it may experience global pressure. (Ministry Of Trade, 2020). One of the Ministry of Trade's strategic plans is to maintain the non-oil and gas trade balance surplus through the expansion of export destinations to prospective markets (redefinition of non-traditional markets) consisting of 20 (twenty) countries outside the main markets. The 20 (twenty) non-traditional countries or prospective markets are the United Kingdom, France, Canada, Mexico, Belgium, United Arab Emirates, Switzerland, Russia, Turkey, Poland, Brazil,

Sweden, Hungary, South Africa, Egypt, Chile, Argentina, Algeria, Nigeria, and Myanmar. (Ministry of Trade, 2020).However, the development of Indonesia's non-oil and gas exports to the twenty non-traditional countries tends to fluctuate, the highest export value occurred in 2014 amounting to 17.28 billion USD. The lowest export value occurred in 2018 amounting to 15.28 billion USD. The implementation of the Ministry of Trade's Strategic Plan related to expanding non-oil and gas exports by exporting to prospective markets will provide its own opportunities and challenges in an effort to maintain Indonesia's non-oil and gas trade balance surplus.

Indonesia has taken strategic steps included in economic policy to expand access to international trade and investment opportunities. One of the concrete forms of this step is by establishing trade agreements with various trading partner countries. Through Trade Agreements, Indonesia seeks to create a conducive investment climate, reduce trade barriers, increase legal certainty, and open new opportunities for businesses to develop a wider trade network. Thus, this step is an important part of Indonesia's strategy to realize sustainable economic growth and improve Indonesia's position in the global trading system. However, in the research conducted by Masood et al., (2022) regarding Pakistan's trade potential with South Asian countries stated that the trade agreement in the form of the South Asian Free Trade Agreement SAFTA did not increase trade between Pakistan and South Asian countries.

With the Trade Agreement, Indonesia can access new markets and reduce dependence on trade with traditional countries. This provides an opportunity to increase Indonesia's non-oil and gas exports to potential and unexplored markets. Trade Agreements also encourage an increase in the competitiveness of Indonesia's non-oil and gas commodities in non-traditional markets. Referring to the introduction and problem formulation in this study, further research is needed to identify Indonesia's non-oil and gas export potential with non-traditional countries and see the effect of trade agreements which are an influential component in the continuity of Indonesia's non-oil and gas commodity trade.

2. State of the Art

2.1. Economic Integration

Economic integration occurs when several countries come together to form a larger economic entity, where there are special ties between the members (Appleyard & Field, 2014). The principles and mechanisms of economic integration are similar to those of free trade, in that they are formed by member states agreeing to enter into agreements either regionally or on a special interest basis. These agreements can take the form of trading systems such as preferential trade agreements (PTAs), Free Trade Agreements (FTAs), and Comprehensive Economic Partnership Agreements (CEPAs) that have the common goal of reducing tariffs and addressing non-tariff barriers. Economic integration theory refers to trade policies that selectively reduce or remove trade barriers that have been agreed upon by member countries in order to form an integrated economy (Salvatore, 2013). The main objectives of economic integration are to increase the volume of trade in goods and services, expand capital and labor mobility, increase production, improve production efficiency, and increase product competitiveness.

2.2. Trade Creation

The definition of trade creation is a term that refers to the condition in which a commodity that was previously domestically produced in each member country and not traded due to tariffs, becomes traded and produced by the partner country of the trade agreement member that is most efficient in its production as a result of the elimination of tariffs and trade barriers within the trade agreement area (Gandolfo, 1998). This condition can improve the welfare of member countries because it will encourage increased specialization in production based on comparative advantage (Salvatore, 2013).Trade Diversion

Trade diversion occurs when lower-cost imports from a non-member trade agreement

country are replaced by higher-cost imports from a member trade agreement country. (Salvatore, 2013). A non-member country that has the highest production efficiency in a particular commodity may lose its competitiveness due to discriminatory import tariffs (Gandolfo, 1998). Thus, trade diversion leads to inefficient resource allocation and a shift in production away from comparative advantage. Trade diversion is favorable for exporting countries as it directs trade at higher prices and larger quantities to importing countries.

2.3. Trade Potential

The concept of trade potential refers to the maximum trade flow for a set of trade determinants under minimum trade frictions (Khan Miankhel et al., 2009), According to (Bhattacharya & Das, 2014) Potential trade is defined as maximum bilateral trade, in the presence of "natural" constraints, without the effect of policy-induced trade restrictions, i.e. without "behind the border" and "beyond the border" barriers. "Beyond-border" barriers are those that are beyond the control of the importer, as opposed to "within-border" barriers, which are under the control of the exporter.

Trade potential is defined as the ratio between the predicted and actual value of trade (between two regions or countries, based on their economic, geographic, and cultural characteristics, if both are market economies). Most studies apply coefficient estimates to the explanatory variables to calculate the trade potential predicted by the gravity model, such as Montanari (2005), Batra (2006), Gul & Yasin (2011), Kaur & Nanda (2011), dan Van Trung et al (2016). Thus, referring to Abbas & Waheed, (2015), trade potential can be calculated as follows: Predicted Trade Flows - Actual Trade Flows (P-A). The difference between the predicted (P) and actual (A) level of trade. A positive value of P-A indicates that there is a possibility of future trade expansion, while a negative value indicates that the trade potential has exceeded the trade potential. Predicted Trade Flows/Actual Trade Flows (P/A). The ratio of the predicted trade value (P) will be compared to the actual trade value (A). If the P/A value exceeds one, then there is potential for trade expansion with the country concerned and vice versa. Based on the research that has been done in looking at the trade potential of a country. In general, the research stage is carried out by estimating the factors or determinants that affect the exports and imports of a country. Gravity models have been widely used in empirical research to explore the behavior of trade and capital flows across countries and/or regional boundaries.

Previous studies have mixed results, research conducted by Abbas & Waheed, (2019) aims to investigate the macroeconomic behavior of trade flows and explore potential trade markets for Pakistan using an extended gravity model on a large panel of 47 countries from 1980 to 2013. Research conducted Abbas & Waheed, (2019) using factors or determinants as variables, namely GDP, GDP of trading partners, geographical distance, Real Exchange Rate, common language dummy, Landlocked dummy, Border dummy, as well as South Asian Free Trade Agreemenet (SAFTA) dummy and Bilatera Trade Agreement (BFTA) dummy variables. The results of the SAFTA dummy show a significant negative impact, which implies its ineffectiveness in creating trade for Pakistan, whereas the BFTA dummy has created considerable trade.

In terms of estimating trade potential, the results show that the potential has been utilized with major trading partners and there is a need to diversify trade with countries that are considered to have potential. The study concluded that Pakistan can diversify its trade from potential countries through individual BFTAs and multilateral free trade agreements. South Asian countries should overcome their disputes and revisit SAFTA which aims to increase trade and growth.

In the research conducted by Masood et al, (2022), The gravity model includes Pakistan's trade agreements with other countries, especially countries in South Asia. The model not onlyhelps to understand the facts and figures of trade and economic growth, but also includes insights into the GDP growth of each country concerned. Masood et al. (2022) combined the

comprehensive gravity model from the ESCAP analysis portal with the addition of several variables to the gravity model one of which is the Regional Trade Agreement (RTA) dummy variable. The results showed that more RTAs among South Asian countries such as SAFTA will bring positive results on Pakistan's total trade. If South Asian countries are involved in other RTAs, this will increase Pakistan's trade.

In general, research related to the potential for trade between countries uses the Gravity Model to measure trade flows between countries at a macro level, such as research conducted by Masood et al. (2022), Van Trung et al. (2016), Gul & Yasin (2011), Batra (2006), Montanari (2005). A gravity model is a type of modeling used in trading that is based on Newton's Law of Gravity. This model was modified by (Tinbergen, 1962) to be used in the field of economics, especially trade. The Gravity Model was later modified by different economists and became one of the models used to analyze various elements of international trade and continues to evolve today.

In this study, the scope of trade flows is only seen from the side of Indonesia as a country that exports to 20 (twenty) non-traditional countries, so that the gravity model cannot be applied in this study. However, most studies related to trade potential explain that to predict the trade potential of both exports and imports of a country, research is carried out by estimating GDP and distance variables that affect bilateral trade between Indonesia and non-traditional countries. Therefore, this study applies panel data analysis by using GDP and distance variables and several variables that can affect bilateral trade between countries, including Trade Agreement dummy variables. Based on the mechanism and results in previous studies that have been conducted in various countries, this study was conducted to identify the effect of the Trade Agreement on non-oil and gas exports and the potential for Indonesia's non-oil and gas exports with non-traditional countries. Based on previous research, the hypothesis in this study is that the Trade Agreement can increase the export value of Indonesia's top 15 non-oil and gas commodities to 20 (twenty) non-traditional countries that occurred during the period 2012-2021.

3. Data and Research Method

3.1. Data

The data used in this study is secondary data in the form of panel data. The endogeneity problem in analyzing can be overcome well through the panel data approach (Baier et al., 2005). The observation period in the study is for 10 years, namely the period 2012-2021. The population data in this study consists of aggregate and disaggregate data. Aggregate data is the export value of the top 15 non-oil and gas commodities in Indonesia. However, according to Okabe Misa et al., (2010) Aggregate data is not enough to explain the impact of RTAs because RTA preference tariffs are different. In the scope of this study there is a Dummy Trade Agreement variable, so this study also uses disaggregate data at the commodity level in the form of export values of 15 commodities based on the Harmonized System (HS) 2 Digit Tariff Post code in 2017, namely, HS 03 (Fish and Shrimp), HS 15 (Animal / Vegetable Fats & Oils), HS (26) (Metal Ore, Crust, and Ash), HS 38 (Various Chemical Products), HS 40 (Rubber and Rubber Products), HS 44 (Wood, Wood Products), HS 48 (Paper/Cartons), HS 61 (Knitted Goods), HS 62 (Non-knitted Apparel), HS 64 (Footwear), HS 71 (Jewelry/Gems), HS 72 (Iron and Steel), HS 84 (Mechanical Machinery/Aircrafts), HS 85 (Electrical Machinery/Equipment) and HS 87 (Vehicles and Parts).

Tabel 1 Data Table and Data Source

The sample countries used are 20 (twenty) non-traditional countries or prospective markets,

Data	Source	Unit
Total Export of Non-Oil and Gas Products ($EXPORT_{jt}$)	Export Import Statistics Information System (Ministry of Trade)	US$
Gross Domestic Product (GDP) Indonesia ($GDPIND_t$)	*World Integrated Trade solution* (WITS)	US$
Gross Domestic Product (GDP) Non traditional Countries (GDP_{jt})	*World Integrated Trade solution (WITS)*	US$
Distance ($Dist_j$)	*GeoDist Database*	KM
Real Exchange Rate (RER_{jt})	*International Financial Statistics (IMF)*	Satuan
Population (POP_{jt})	*World Development Indicator*	Jiwa
Trade Agreement *(Dummy)* (TA_{jt})	*Free Trade Agreement Center, Ministry of Trade*	*Dummy*
Developing/Developed Countries (Dummy) ($Develop_{jt}$)	*World Economic Situation Prospect (United Nation)*	*Dummy*

namely the United Kingdom, France, Canada, Mexico, Belgium, United Arab Emirates, Switzerland, Russia, Turkey, Poland, Brazil, Sweden, Hungary, South Africa, Egypt, Chile, Argentina, Algeria, Nigeria, and Myanmar.

3.2. Research Method

This study applies panel data analysis to provide more efficient parameter estimation. (Hsiao 2007, Baltagi 2008) Panel data (pooled data) is a data set that contains sample data of individuals (countries) at a certain period of time. Panel data analysis has several advantages over cross-section and time-series in overcoming Omitted Variable Bias which cannot be solved in cross-section or time series. (Baltagi, 2008). In addition, panel data can account for individual heterogeneity to reduce the risk of biased results (Hsiao 2007, Baltagi 2008). The estimation of the regression model was carried out using the Stata/MP 17 application. With reference to research conducted by (Abbas & Waheed, 2019) and (Masood et al., 2022), also applying the panel data model in this study. then the empirical model used in this study is expressed in Equation (1).

$$ln(EXPORT_{jt}) = \beta_0 + \beta_1 ln(GDPIND_t) + \beta_2 ln(GDP_{jt}) + \beta_3 ln(Dist_j) + \beta_4 \ln(RER_{ijt}) + \beta_5 ln(POP_j) + \beta_6 (TA_{jt}) + \beta_7 (DEVELOPjt_{jt}) + \mu_{jt} \quad (1)$$

Where the dependent variable $EXPORT_{jt}$ is the export value of 15 commodities of Indonesia's non-oil and gas products with non-traditional country trading partners, independent variables $GDPIND_t$ is GDP (USD) Indonesia, GDP_{jt} is GDP (USD) Trading partner countries, $Dist_j$ is the bilateral distance in kilometers (km) between the capital city of Indonesia and the capital city of the trading partner country., RER_{ijt} is Indonesia's real exchange rate with respect to trading partners, POP_{jt} Trade partner country population is used as a proxy for market size, TA_{ij} is a Trade Agreement dummy variable, $DEVELOPjt_{jt}$ is a dummy variable that shows the condition of the country, namely developed country or developing country from non-traditional countries., and μ_{jt} is error term

Real exchange rate (RER_{jt}) Indonesia's bilateral relations with its trading partners are not directly available, based on the study of Abbas & Waheed, (2019) RER is generated using the consumer price index. Equation (4) presents the equation used to calculate the RER.

$$RER_{ijt} = ER_{itj} \left(P_{jt} / P_{it} \right) \quad (2)$$

Where RER_{ij} is the bilateral exchange rate, P_j is the consumer price index of the trading partner country, P_i is the consumer price index of the trading country. An increase in the RER reflects a depreciation of the domestic currency and is positively associated with exports and negatively associated with imports.

Referring to research conducted by Masood et al., (2022) The equation used to estimate trade potential is presented in the following equation:

$$EP_{ijt} = \frac{Predicted\ Trade_{ijt}}{Actual\ Trade_{ijt}} \quad (3)$$

Where EP_{ijt} shows the non-oil and gas export potential between Indonesia (i) and non-traditional countries (j)., $Predicted\ Trade_{ijt}$ is the prediction of non-oil and gas export trade flows, the predicted value of non-oil and gas export trade flows is obtained from the estimation results of equation (3), while $Actual\ Trade_{ijt}$ is the actual non-oil export trade flow. Index value greater than 1 ($EP_{ijt} > 1$) shows that the actual non-oil and gas export trade flow is smaller than expected, this shows the untapped potential of non-oil and gas exports, while the value of non-oil and gas exports is lower than expected ($EP_{ijt} < 1$) means that actual non-oil and gas export trade flows are greater than potential, indicating that the potential for non-oil and gas export trade has been utilized. ($EP_{ijt} = 1$) indicates that actual trade flows are equal to predicted trade flows.

One of the challenges often faced in estimating gravity equations is the presence of zero trade flows in trade flows between country pairs. In a study by Head & Mayer, (2014) using Monte Carlo simulation, concluded that the method of Poisson Pseudo Maximum Likelihood (PPML) proposed by Santos Silva & Tenreyro, (2006) PPML method is one of the suitable methods to overcome the problems of heteroscedasticity and zeros in trade flows. Therefore, the PPML method is used as the estimation method in this study.

4. Results

4.1. Descriptive Statistics

The dependent variable observed in this study is the total export of 15 non-oil and gas commodities from Indonesia to non-traditional countries. The number of countries used as objects in this study is 20 non-traditional countries. The research time was 10 years and the data used in this study consisted of 200 observations. The average, standard deviation, minimum value, and maximum value of the variables used in this study as whole are presented in Table 2

Tabel 2 Variable Descriptive Statistics

Variabel	Obs	Mean	SD	Min	Max
Total Export of Non-Oil and Gas Products (Millions USD)	200	812.58	533.03	58.32	2501.39
Free *Trade Agreement* (*Dummy*)	200	0.25	0.43	0	1
GDP Indonesia (Juta USD)	200	993.57	102.33	860.85	1186.09
GDP Non Tradisional Countries (Juta USD)	200	928.82	825.66	58.318	3131.37
Distance (km)	200	11248.92	3384.85	2803.96	16863.46
Real Exchange Rate	200	0.0109376	0.0238256	0.0000404	0.1325753
Population (soul)	200	65.64	58.38	7.99	214.32

Source: Import-Export Statistical Information System (Ministry of Trade), WITS, IMF, FTA Center. Processed

The average value of Indonesia's non-oil and gas exports to non-traditional countries is 800 million USD. The average value of the Trade Agreement Dummy variable is 0.20 which indicates that most of the non-traditional countries that are observed do not have a Trade Agreement with Indonesia. There are only 5 countries that have Trade Agreements with Indonesia, namely Chile, Egypt, Myanmar, Switzerland and Turkey. The average value of Indonesia's GDP is 993.57 million USD, with a minimum value of 860 million in 2015, and a maximum value of 1.18 billion USD in 2021. The real average value of GDP of 20 non-traditional countries is 928.83 Million USD, the minimum value is 58.32 Million USD owned by Myanmar in 2012, and the maximum value is 3.12 Billion USD owned by the United Kingdom in 2021.

For the distance variable, the average value of the distance traveled for Indonesia's non-oil and gas exports to non-traditional countries is 11,248 km. The traditional country with the farthest distance from Indonesia is Mexico with a distance of 16863 km, the traditional country with the closest distance from Indonesia is Myanmar with a distance of 2803 km. For the real exchange rate (RER) variable, the average real exchange rate of non-traditional countries is 2957.36. The lowest real exchange rate is 9.99 in Myanmar in 2017, while the highest real exchange rate is 17364.91 in the UK in 2014. The population variable for non-traditional countries has an average value of 65.64 million. The lowest population value was obtained by Switzerland in 2012 by 8 million people, while the highest population value was obtained by Brazil in 2021 by 214.33 million people. The average value of the Developed/Developing Country dummy variable is 0.50, which indicates that 10 of the 20 non-traditional countries observed are developed countries.

4.2. Estimation Result

The analysis of the determinants of export trade flows of 15 Indonesian non-oil and gas commodities in this study is carried out by estimating panel data using equation (3), this study uses 1 dummy variable to explain the impact of the Trade Agreement at the aggregate level. At the aggregate level, this study uses the PPML method in estimating panel data models to overcome heteroscedasticity and zero trade flow problems. The disaggregate data uses the export trade value of the top 15 types of Indonesian non-oil and gas commodities. The empirical results of the aggregate data are shown in tables 3-5.

Tabel 3. PPML Estimation Results Table

	PPML
TAjt	0.210*
	(-0.113)
lnGDPINDt	0.317
	(-0.291)
lnGDPjt	0.483***
	(-0.058)
lnRERijt	0.111***
	(-0.027)
lnPOPj	0.018
	(-0.049)
lnDistj	-1.018***
	(-0.102)
DEVELOPjt	-0.269***
	(-0.071)
_cons	6.94
	(-8.534)
Obs	200
Pseudo R2	0.5668

Source: STATA 17 output, processed.

The estimation results show that the Trade Agreement dummy variable has a positive and significant effect, Trade Agreement with non-traditional countries will increase Indonesia's non-oil and gas exports by 0.21 million USD. This value proves that trade cooperation is effective in increasing the export value of 15 Indonesian non-oil and gas commodities. The estimation results show that the Trade Agreement is able to provide encouragement for Indonesia to conduct non-oil and gas exports to non-traditional countries. The results of this study are in line with the direction and significance of the research conducted by Masood et al, (2022) and is in accordance with the hypothesis in this study.

At the disaggregate level, the regression model uses the PPML method by including zero trade observation data. The dependent variable is export value in non-log form. The estimation results are shown in Table 4 to Table 6.

Tabel 4 Estimation Results of 15 Commodities

	HS 03	H 15	HS 26	HS 38	HS 40
TAjt	-0.107	0.168	-0.978	0.276	0.379**
	(-0.338)	(-0.346)	(-0.768)	(-0.255)	(-0.174)
lnGDPINDt	-0.790	1.600**	5.297	1.945***	-0.721
	(-0.773)	(-0.726)	(-5.595)	(-0.728)	(-0.495)
lnGDPjt	1.475***	-0.010	-0.203	0.208	0.481***
	(-0.11)	(-0.155)	(-0.447)	(-0.153)	(-0.079)
lnRERijt	-0.110**	0.201***	0.352**	0.154**	0.160***
	(-0.054)	(-0.071)	(-0.179)	(-0.066)	(-0.041)
lnPOPj	-0.367***	1.039***	-0.149	0.428***	0.092
	(-0.095)	(-0.154)	(-0.336)	(-0.124)	(-0.069)
lnDistj	-0.141	-1.756***	-0.071	-0.550**	-0.617***
	(-0.333)	(-0.399)	(-0.643)	(-0.262)	(-0.183)
DEVELOPjt	1.061***	-0.207	-0.080	0.008	-0.164
	(-0.157)	(-0.314)	(-0.675)	(-0.195)	(-0.103)
_cons	4.434	-29.017	-126.972	-47.032**	16.059
	(-22.763)	(-20.624)	-148.078	-20.616	(-14.031)
Obs	200	200	200	200	200
Pseudo R2	0.6896	0.6123	0.2064	0.2829	0.4941

Source: STATA 17 output, processed.

Tabel 5 Estimation Results of 15 Commodities (2)

	HS 44	H 48	HS 61	HS 62	HS 64
TAjt	-0.057	0.031	-1.082***	-0.948***	-0.825***
	(-0.267)	(-0.216)	(-0.246)	(-0.248)	(-0.28)
lnGDPINDt	0.461	-0.027	-0.123	-0.712	0.575
	(-0.87)	(-0.543)	(-0.499)	(-0.536)	(-1.086)
lnGDPjt	0.981***	0.574***	1.199***	1.197***	1.146***
	(-0.136)	(-0.119)	(-0.112)	(-0.105)	(-0.158)
lnRERijt	0.274***	-0.064	0.01	0.011	-0.245***
	(-0.085)	(-0.051)	(-0.05)	(-0.053)	(-0.07)
lnPOPj	-0.138	-0.155*	-0.654***	-0.615***	-0.618***
	(-0.112)	(-0.08)	(-0.073)	(-0.078)	(-0.131)
lnDistj	-1.186***	-1.123***	-0.458***	-0.06	-1.198***
	(-0.298)	(-0.163)	(-0.177)	(-0.191)	(-0.221)
DEVELOPjt	0.087	-1.133***	0.248**	0.126	0.421***

	(-0.145)	(-0.132)	(-0.104)	(-0.116)	(-0.143)
_cons	-11.859	16.270	-5.722	15.068	-28.362
	(-24.53)	(-15.068)	(-14.62)	(-15.302)	(-30.877)
Obs	200	200	200	200	200
Pseudo R2	0.5231	0.3518	0.2064	0.6637	0.4305

Source: STATA 17 output, processed.

Tabel 6 Estimation Results of 15 Commodities (3)

	HS 71	H 72	HS 84	HS 85	HS 87
TAjt	0.075	0.797	-0.666***	-0.911***	-1.356***
	(-0.528)	(-0.553)	(-0.185)	(-0.201)	(-0.341)
lnGDPINDt	1.688	1.089***	-0.253	0.385	1.628**
	(-1.706)	(-2.141)	(-0.492)	(-0.668)	(-0.749)
lnGDPjt	-1.572**	0.658**	0.672***	0.956***	0.402*
	(-0.693)	(-0.305)	(-0.112)	(-0.145)	(-0.209)
lnRERijt	3.534***	0.219**	0.274***	-0.065	0.225**
	(-0.858)	(-0.088)	(-0.085)	(-0.05)	(-0.092)
lnPOPj	-1.039***	-0.057	0.227***	-0.136**	0.109
	(-0.268)	(-0.141)	(-0.076)	(-0.066)	(-0.12)
lnDistj	-6.509***	-1.146***	-1.463***	-0.790***	-0.826**
	(-1.299)	(-0.382)	(-0.196)	(-0.162)	(-0.377)
DEVELOPjt	0.601	-1.080***	-0.485***	-0.076	-1.775***
	(-0.748)	(-0.359)	(-0.15)	(-0.123)	-0.153
_cons	61.108	-23.354	15.631	-8.643	-33.428
	(-44.619)	(-63.76)	(-13.322)	(-17.967)	(-22.214)
Obs	200	200	200	200	200
Pseudo R2	0.7875	0.5098	0.4565	0.5364	0.5280

Source: STATA 17 output, processed.

The coefficient of the Trade Agreement dummy variable shows a positive and significant value. The estimation results indicate that the Trade Agreement can increase the value of Indonesia's non-oil and gas exports of HS 40 commodities to non-traditional countries that have Trade Agreements with Indonesia. The coefficient of the dummy variable Trade Agreement does not show significant results on commodities HS 03, HS 15, HS 26, HS 38, HS 44, HS 48, HS 71, and HS 72. The estimation results indicate that, Trade Agreement has no effect on the value of Indonesia's non-oil and gas export commodities. The coefficient of the dummy variable Trade Agreement has a negative and significant effect on commodities HS 61, HS 62, HS 64, HS 84, HS 85, and HS 87. The estimation results indicate that the Trade Agreement can reduce the value of Indonesia's non-oil and gas exports.

4.3. Determine Non-Oil Export Potential of Non-Traditional Countries

The estimation results from Equation (1) are used to predict the non-oil and gas export potential of traditional countries by estimating the results using Equation (3). The estimation results of non-oil export potential using Equation (3) are presented in Table 7.

Tabel 7 Indonesia's Non-Oil and Gas Export Potential

Non Traditional Country	Obs	Mean	SD	Min	Max
Afrika Selatan	10	0.85981	0.28388	0.44382	1.22914
Aljazair	10	1.67421	0.28601	1.27696	2.14668
Argentina	10	1.69768	0.34286	1.20854	2.41735
Belgia	10	0.35490	0.03305	0.30460	0.42861

Brazil	10	0.85712	0.11303	0.65781	1.07270
Chili	10	1.5589	0.3692	1.1981	2.2931
Hongaria	10	2.8132	0.3823	2.1740	3.2010
Inggris	10	1.02919	0.12135	0.85873	1.19115
Kanada	10	1.45671	0.11395	1.25341	1.59443
Meksiko	10	0.80236	0.15752	0.56949	1.08395
Mesir	10	0.76130	0.10733	0.60012	0.93232
Myanmar	10	1.18759	0.54202	0.72568	2.61629
Nigeria	10	1.15820	0.18657	0.83450	1.46966
Perancis	10	1.20881	0.09464	1.03092	1.32542
Polandia	10	1.57198	0.16800	1.17674	1.78562
Rusia	10	0.96465	0.21702	0.65806	1.28036
Swedia	10	3.44929	0.32521	2.67096	3.77730
Swiss	10	3.22794	4.24680	0.33065	12.28162
Turki	10	1.26137	0.16496	0.98655	1.54320
Uni Emirat Arab	10	0.98065	0.16010	0.65021	1.22754

Source: STATA 17 output, processed.

Based on the estimation results in table 4.6, during the period 2012 to 2021 there are 13 non-traditional countries, namely Algeria, Argentina, Chile, Hungary, United Kingdom, Canada, Myanmar, Nigeria, France, Poland, Sweden, Switzerland, and Turkey that have a potential value of non-oil and gas exports greater than 1 ($EP_{ijt} > 1$) During the observation year period, this indicates that the actual non-oil and gas export trade flow is smaller than expected and illustrates the potential of Indonesian non-oil and gas exports to these countries has not been utilized. There are 7 non-traditional countries, namely, South Africa, Belgium, Brazil, Mexico, Egypt, Russia and the United Arab Emirates that tend to have a potential value of non-oil and gas exports smaller than 1 ($EP_{ijt} < 1$) s During the period of observation, it indicates that the actual non-oil and gas export trade flow is greater than the predicted potential value, which illustrates that Indonesia's non-oil and gas export potential to these countries has been utilized.

5. Conclusions

Indonesia has the potential to trade with non-traditional countries that have not been fully utilized. One of the policy instruments that can be used to encourage economic growth and trade between countries is Trade Agreements. This study analyzes the effect of Trade Agreements on the export of 15 Indonesian non-oil and gas commodities, as well as analyzes the potential of Indonesia's non-oil and gas trade with 20 non-traditional countries. The results of the research on aggregate data show that the existence of Trade Agreements has a positive impact on the value of Indonesia's non-oil and gas exports, it can be utilized to create a dynamic profit effect in the long run, which can increase the competitiveness of non-oil and gas products. The implementation of the Trade Agreement has the opportunity to increase exports for Indonesian non-oil and gas commodities, so as to increase the competitiveness of the domestic industry against foreign products. The government needs to expand export markets, need to find and increase exports to potential countries that can receive Indonesian export products. The government also needs to pay attention to trade facilities from the implementation of the Trade Agreement.

Based on the predicted value of Indonesia's non-oil and gas trade potential with 20 non-traditional countries, it was found that there are still potential Indonesian non-oil and gas exports that are still not

utilized by non-traditional countries, namely Algeria, Argentina, Chile, Hungary, United Kingdom, Canada, Myanmar, Nigeria, France, Poland, Sweden, Switzerland, and Turkey. The government also needs to assess the potential of non-oil and gas exports with other countries and conduct trade negotiations with countries that have export potential and pay attention to the regulations and trade licensing that apply in traditional countries to ensure the export trade process and requirements are met in order to facilitate trade flows, this needs to be done in order to increase Indonesia's trade balance surplus.

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