Analysis of Determining Factors for Indonesian Coal Exports to 11 Regional Comprehensive Economic Partnership (RCEP) Countries

Sahda Ardelia Nisa & Eka Puspitawati

Abstract
This study aims to determine export price, real GDP, exchange rates, geographic distance, and coal reserves of export destination countries on Indonesia coal export value to 11 RCEP countries for period 2010-2019 and describe the growth of Indonesian coal export value to 11 RCEP countries for period 2010-2019. The eleven RCEP countries are China, Australia, Japan, Korea, New Zealand, Singapore, Malaysia, Thailand, Philippines, Vietnam, dan Cambodia. This study used quantitative data with panel data regression. The results of the simultaneous significance test indicate that globally the independent variables in the model significantly affect the dependent variable. These results are supported by the partial test that export price, real GDP, and exchange rates has a positive significant effect on value of Indonesia coal export, while geographic distance and coal reserves of export destination countries has a negative significant effect on Indonesia coal export value.

Key Words: Export, Coal, RCEP, Panel Data

Cite this article:

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History
Submission: 1 December 2021
Review Completed: 22 December 2021
Accepted: 27 December 2021
Available Online: 30 December 2021


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INTRODUCTION

The main problem in economics is scarcity, namely the problem of shortage or scarcity. The problem of scarcity is due to an imbalance between needs (consumption) and available resources (production). Limited resources cannot meet relatively unlimited needs (Sukirno, 2016). In the macroeconomic aspect, the problem of scarcity can also occur in the country’s economic activities. With this situation, countries can carry out international trade, namely imports and exports, to overcome the problem of scarcity. As quoted in Ragimun (2018), several factors that encourage international trade include fulfilling domestic demand for goods and services, the desire to earn profits and increase national income, and differences in the ability of science and technology to manage economic resources and the existence of a surplus of products. Domestically so that new markets are needed. Although it is not the only factor that affects economic growth, if international trade is carried out effectively by knowing the trade opportunities of a country, then international trade has an essential role as an engine that drives a country's economic growth, trade as an engine of growth (Salvatore, 2013).

In the practice of international trade, all countries impose some restrictions on the flow of free trade or free trade. This restriction is better known as a trade policy to protect the welfare of the national economy. However, this is a barrier or obstacle for traders. Based on Salvatore (2013), economic integration is carried out, which refers to trade policies, namely reducing or eliminating trade barriers between countries that join together in an agreement. The Free Trade Agreement and the Comprehensive Economic Partnership Agreement are forms of economic integration where the agreement reduces or eliminates trade barriers between member countries, but each country continues to apply these barriers to trade with non-member countries (Ragimun, 2018).

Indonesia has joined various FTAs and CEPAs, for example, the Association of Southeast Asian Nations (ASEAN) and the Indonesia-Australia Comprehensive Economic Partnership Agreement (IA-CEPA). In addition, in November 2020, a new trade pact was signed, namely the Regional Comprehensive Economic Partnership (RCEP), involving 15 countries consisting of 10 ASEAN countries and 5 FTA Dialogue Partners, namely Indonesia, Malaysia, Singapore, Philippines, Thailand, Vietnam, Myanmar, Lao People’s Democratic Republic, Cambodia, Brunei Darussalam, China, South Korea, Japan, Australia, and New Zealand. The potential benefits from the formation of RCEP are the opening of market access from the spillover effect of the opening of markets between fellow FTA partners, as
well as bilateral FTAs of each RCEP country with non-RCEP as well as trade efficiency between member countries through the Rules of Origin (ROO), and schemes. Other RCEP trade facilitation. In addition, RCEP also encourages the entry of Foreign Investment (PMA) (Gultom, 2020).

The economic potential resulting from the integration of the RCEP market is approximately 30% of the world’s population, 30% of the world’s gross domestic product (GDP), 27% of world trade, and 29% of world foreign investment (FDI). It is believed that the formation of this trade pact will positively influence the economies of ASEAN countries, including Indonesia (Gultom, 2020). Even though the RCEP agreement occurred when the world economy was not doing well and even in a recession due to the Covid-19 pandemic, all RCEP member countries could commit to immediately work together to recover the world economy by continuing to develop trade and global economic relations.

![Figure 1](image_url)

**Figure 1.** Total Exports of All Commodities in the RCEP Area in 2019
Source: UN Comtrade (2019)

Based on Figure 1, the total value of Indonesia's exports to the 14 RCEP member countries ranks 9th with an export value of US$ 95.4 billion or around 4%. The most significant RCEP country's export contribution was occupied by China (31%), and the smallest was Cambodia (0.18%). This shows that Indonesia still has the potential to increase exports of its oil and gas and non-oil and gas products in the RCEP area. Based on data from the Central Statistics Agency (BPS) in 2019, the total value of Indonesia's non-oil and gas exports to the world was much greater than the value of its oil and gas exports, which was US$ 130.8 billion, while the total value of oil and gas was only US$ 7.2 billion. At the press conference for the signing of the RCEP, the Ministry of Trade (2020) explained that in the same year,
Indonesia's total non-oil and gas exports, including the mineral and coal mining sector, to the RCEP area represented 56.51% of Indonesia's total exports to the world, which amounted to US$ 84.4 billion. Therefore, the contribution of non-oil and gas exports from Indonesia to the RCEP area to total exports is enormous.

According to data from the Ministry of Trade of the Republic of Indonesia, Indonesia's primary export sector is the mining sector. In 2019, the mining sector dominated 16% of Indonesia's exports. This figure is the highest contribution figure compared to the contribution of other sectors to Indonesia's exports. Coal is the largest export contributor commodity in the mining sector, contributing 22% of the entire mining sector in the same year. In addition, in terms of energy consumption in the Asia Pacific region, where the majority of countries are RCEP member countries, based on data from the British Petroleum (BP) (2020) report, the most significant energy consumption in 2019 was coal, which was 77.4 percent of its total consumption. Meanwhile, oil and gas energy consumption was only 37.1 percent and 22.1 percent, respectively. The utilization of coal energy sources is also increasing along with the decline in oil production. The large consumption of coal indicates that coal is widely used for electricity generation and functions as a vital energy source for metal smelting, cement, and other industries (Gunara, 2017).

![Figure 2. Value of Indonesian Coal Exports to 15 RCEP Countries 2010-2019](Source: ASEANstats (2019))

Most coal commodities are exported from Indonesia to East Asian and Pacific countries, most RCEP member countries. Based on Figure 2, the value of Indonesia's coal exports to 15 RCEP countries in the last five years has increased quite significantly and decreased slightly from 2018 to 2019. The rise and fall in the
value of Indonesian coal exports were caused by internal and external factors, such as policies in the country, policies of coal-consuming countries, and geopolitical issues.

The World Coal Institute explains the high demand for coal because it has many important uses. Coal is the single largest source of electricity in the world, producing nearly 40% of electricity. Electricity is one of the needs of every country and even individuals to carry out various activities. Coal will still contribute 22% in 2040 while remaining the most significant contributor. According to Hendra Sinadia at the Minerba Virtual Expo (2020), although many developed countries voiced clean energy campaigns and began to reduce or even stop the use of coal, the demand for coal in the Pacific region, especially China, is one of the primary coal consumers, is expected to continue to grow. Increase. According to the China Electricity Council (CEC), electricity consumption in China will increase by 7% in 2020 and continue to increase yearly. This is because the energy shift in the world’s central coal-consuming countries takes a long time. In addition, along with the decline in the production of petroleum as the primary energy, the demand for coal is increasing because coal is an alternative energy source of primary energy (Silalahi & Saragih, 2010).

Even though Indonesia supplies coal, Indonesia still supports using clean energy. According to the Ministry of Energy and Mineral Resources, Indonesia is taking strategic steps such as encouraging clean coal technology and co-firing biomass coal to reduce emissions.

![Figure 3. Total Coal Exports in the 2019 RCEP Area](source: UN Comtrade (2019))
Figure 3 shows the contribution of coal exports in the RCEP area. The immense contribution was occupied by Australia (65 percent), and the most negligible contribution was Brunei Darussalam. The contribution of Indonesia's coal exports to RCEP member countries is the second largest, which is US$ 11.68 billion or 31 percent. Therefore, coal commodities play a significant role in Indonesia's export activities to RCEP member countries.

Coal mining also provides royalties included in the Indonesian State Revenue and Expenditure Budget (APBN) as Non-Tax State Revenue (PNBP). Realization of revenue until November 2020 reached IDR 18.94 trillion or 97.87 percent of the target, and this was supported by the increase in Indonesian coal prices due to increasing global market demand (Ministry of Finance of the Republic of Indonesia, 2020). According to Law Number 9 of 2018, several objectives of PNBP management are to support Government policies to improve people's welfare, increase quality economic growth, and improve income distribution. Therefore, the significant contribution of coal to Indonesia's exports can be used as a reference to optimize the potential for coal exports from Indonesia to the RCEP area.

Indonesia must be able to prepare superior export products with high-quality standards and affordable prices to compete with other countries considering that Indonesia is not the only producer and exporter of coal in RCEP, especially in continuously accessing international markets. Therefore, this study analyzes the development of Indonesia's coal exports to 11 RCEP member countries from 2010-2019? Moreover, What is the factors influencing Indonesia's coal exports to the 11 RCEP countries?

**Literature Review**

**International Trade**

International trade is when countries sell goods and services to other countries. International trade occurs because the exchange of goods or services provides benefits between trading countries (Krugman & Obstfeld, 2003). Based on Salvatore in Tilova (2012), the benefits that can be obtained from international trade include:

1. A country can obtain goods that cannot be produced domestically to meet the demand for goods or services that cannot be produced locally due to limited production capabilities.
2. A country can specialize in a commodity, which can later be exported with cheaper products in exchange for expensive commodities if produced locally but cheaper by other countries.

3. There will be an expansion of demand and supply of a country so that national income will increase. This can increase economic growth, create new jobs and increase wages for the world's population, generate foreign exchange, and enable the transfer of technology that was not previously available domestically.

Krugman & Obstfeld (2003) state that the country's gains from trade are due to two fundamental reasons. First, countries trade because each country has different factors of production and technology. Second, countries trade to achieve economies of scale, meaning that if each country only produces a certain number of goods, they can produce these goods on a larger scale, and therefore production is more efficient than the country's efforts to produce all types of goods.

The export activities of a country's commodities occur because of the difference between domestic supply and domestic demand, known as excess supply. In other countries, excess supply is an import demand for other countries or is excess demand.

Theoretically, country A will export a commodity to another country (e.g., country B). A domestic price is lower because country A's production exceeds its domestic consumption or there is overproduction. Therefore, country A has the opportunity to export excess production to country B. Meanwhile, there is a supply shortage in country B because country B's domestic consumption exceeds its domestic production, so prices in country B are higher. In this condition, country B will buy the commodity from country A, whose price is relatively lower. Then there will be trade between the two countries so that the price received is the equilibrium price. Figure 2.1 explains the mechanism for the occurrence of international trade (Salvatore, 2013).

**The Export Determinants**

Exports are influenced by internal and external factors. According to Ekananda & Mahyus (2014), internal factors that affect exports are the number of products and domestic prices. Meanwhile, external factors influence international prices, exchange rates, and GDP of export destination countries. In addition, according to (Lubis, 2010), internal factors include production capacity, prices in the domestic market, and various domestic policies. On the other hand, external factors that influence price in the international market, exchange rates, and the demand side of
the importing country can be seen from the production capacity of the destination country. In this study, the focus is more on external factors that affect exports. Distance between countries is also essential in international trade because it will affect the number of export costs incurred (Mankiw, 2010).

**METHOD**

This research will use annual secondary data from 2009 to 2019. This study focuses on eleven RCEP member countries. The countries in question are Australia, China, the Philippines, Japan, South Korea, Malaysia, New Zealand, Singapore, Thailand, and Vietnam.

The secondary data used in this analysis were obtained from various sources. The value of coal exports in US$ from Indonesia to eleven RCEP countries and export prices are obtained from the United Nations International Trade Statistics Database (UN Comtrade). Then the 2010 constant Real GDP and the exchange rate between the destination country’s currency and US$ were obtained from the World Bank, the distance between Indonesia and each destination country was obtained from Indonesia Distance World, and coal reserves were obtained from the US Energy Information Administration.

This research uses the descriptive analysis method and panel data regression using the gravity model to determine the effect of independent variables on the dependent variable. The parameters used in this study are the value of Indonesian coal exports as the dependent variable, and the independent variables are coal export prices, real GDP, exchange rates, geographical distances, and coal reserves of destination countries. The data processing was carried out using Stata software and Microsoft Excel.

**RESULT AND DISCUSSION**

**Result**

At the end of 2020, Indonesia will achieve economic integration by joining the RCEP FTA. RCEP will substantially remove tariff and non-tariff barriers on all trade in goods. Therefore, RCEP can provide several advantages that make it easier for Indonesia to export, such as opening market access and encouraging the entry of foreign investment (Gultom, 2020).
From 2010 to 2011, coal exports increased by 3.95 billion USD. One of the triggers was that Japan, as one of the central destination countries for Indonesia's coal exports, imposed restrictions on coal exports from China to Japan. The export restrictions are due to China prioritizing coal for its domestic development needs. So Indonesia's coal exports have increased (Petromindo, 2009). However, from 2011 to mid-2016, global economic activity weakened. This has caused China, the largest export destination for Indonesian coal commodities, to experience a slowdown in economic growth marked by a decline in its GDP. This slowdown was due to a decline in foreign demand, especially in the United States, due to economic instability after the global crisis. The weakening of China's economic growth caused the level of Indonesian coal exports to decline due to the low purchasing power of the Chinese people. Hence, the demand for coal in Indonesia decreased (Mardiana & Husaini, 2017). In the second half of 2016, coal prices soared, thus providing potential for the mining sector again.

This price increase was triggered by recovering crude oil prices, increasing domestic coal demand in Indonesia, and the return of new coal-fired power plants. In addition, China, as a competitor to Indonesia, has decided to make a policy to cut the working hours of its domestic coal production. This policy was implemented because China wanted to increase coal prices due to the high ratio of non-performing loans (NPL) in China's banking sector due to Chinese coal mining companies having difficulty paying their debts to banks (Indonesia Investments, 2018). Then from 2018 to 2019, there was a decline in Indonesia's coal exports because the Ministry of Energy and Mineral Resources (ESDM) determined that the sale of coal for domestic purposes or the Domestic Market Obligation (DMO) in 2018 was 25 percent (more significant). Then the previous year). Throughout 2017, the absorption of coal DMO was recorded at 97 million tons. This number is lower than the target required in the 2017 DMO, as much as 121 million tons. This means that as many as 364 million tons, or 78.96 percent of the total production in 2017, are still exported by miners. In 2018, the Ministry of Energy and Mineral Resources targeted domestic coal utilization 2018 could reach 121 million tons or a minimum of 114 million tons. If the miners do not reach the target, they will be subject to sanctions in the form of production cuts and a reduction in export quotas in 2019.

**Data Estimation Results**

In determining the best model, it is necessary to test the suitability of the model through several stages of testing involving the estimation of PLS, FEM, and REM. The results of this model suitability test can be seen in Table 4.1. The first test must be the Chow test to determine the best model between PLS and FEM. In this study,
the results of the Chow test showed that the value of the probability in the model is 0.0000, where this value is lower than the significance level with a significance level of five percent (0.05), then H0 is rejected. So the best estimation model in this test is FEM. The next stage is the Hausman Test to determine the best model between FEM and REM. The Hausman test results in this study indicate that the probability in the model is 0.0808, where this value is greater than the significance level with a significance level of five percent (0.05), meaning that H0 is accepted. So the best estimation model in this study is REM. The last test is the Lagrange Multiplier test to determine the best model between PLS and REM. In this study, the Lagrange Multiplier test results show that the probability value in the model is 0.0000, where the value is smaller than the significance level with a significance level of five percent (0.05), then H0 is rejected. Then the best estimation model in this test is REM. From the three model suitability tests, it can be concluded that the best model in this study is REM.

Table 1. Model Conformity Test Results

<table>
<thead>
<tr>
<th>Chi-square Probability Model Fit Test</th>
<th>Chi-square probability</th>
<th>Best Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow Test</td>
<td>0.0000*</td>
<td>FEM</td>
</tr>
<tr>
<td>Hausman Test</td>
<td>0.8080*</td>
<td>REM</td>
</tr>
<tr>
<td>Lagrange Multiplier Test</td>
<td>0.0000*</td>
<td>REM</td>
</tr>
</tbody>
</table>

Information: )* = Significant with a significance level of five percent (0.05)

After testing the suitability of the model, then it is necessary to test the classical assumptions. The classic assumption test in this study is the autocorrelation and multicollinearity test. In this study, the test normality and heteroscedasticity are not needed because the estimation model used is REM, where this model has the assumption that it is generally distributed if the number of research observations is more significant than thirty (N > 30) and the component of REM error at each level of the independent variable is the same (homoscedastic) (Gujarati, 2003).

The autocorrelation test is used to see whether there is a correlation between errors in a certain period (et) and the previous period (et-1). This study uses the Woodridge Test to detect autocorrelation problems. The results of the autocorrelation test in this study showed a probability value of 0.0048, where this value was less than the five-level significance percent, then H0 is rejected. The results of this test indicate that the model indicates an autocorrelation problem. If
there is a correlation between independent variables, then the multicollinearity test is used.

The multicollinearity test in this study used the Pearson Correlation Test. The model does not indicate multicollinearity if the correlation value is not greater than |0.8|. On the contrary, if the correlation value is more significant than |0.8|, then the model indicates the existence of multicollinearity. The results of the Pearson Correlation Test in this study can be seen in Table 4.2. These values are smaller than |0.8|. Therefore this model does not indicate multicollinearity.

**Table 2. Multicollinearity Test Results**

<table>
<thead>
<tr>
<th></th>
<th>Ln_X</th>
<th>EP</th>
<th>Ln_GDP</th>
<th>Ln_KRS</th>
<th>DIST</th>
<th>Ln_CAB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ln_X</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EP</td>
<td>0,200</td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln_GDP</td>
<td></td>
<td></td>
<td>1,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln_KURS</td>
<td>0,3301</td>
<td>0,0383</td>
<td>1,0000</td>
<td>0,7123</td>
<td>-0,106</td>
<td>1,0000</td>
</tr>
<tr>
<td>DIST</td>
<td>0,1633</td>
<td>0,3283</td>
<td>0,7123</td>
<td>0,1422</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Ln_CAB</td>
<td>-0,454</td>
<td>-0,189</td>
<td>0,2916</td>
<td>-0,328</td>
<td>0,024</td>
<td></td>
</tr>
</tbody>
</table>

The results of the model suitability test show that the best estimation model that can be used in this study is REM. After testing the classical assumption, the test results show that the model indicated an autocorrelation problem. Repair of classical assumptions for this model is carried out using the Generalized Least Square (GLS) method. GLS efficiently estimates data with model errors autocorrelation (GLS) (Iswati, Syahni, & Maiyastri, 2014).

**Table 3. REM Classic Assumption Improvement Results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP</td>
<td>32,34966*</td>
<td>0,021</td>
</tr>
<tr>
<td>Ln_GDP</td>
<td>1,417285**</td>
<td>0,000</td>
</tr>
<tr>
<td>Ln_KURS</td>
<td>0,1641398*</td>
<td>0,024</td>
</tr>
</tbody>
</table>
Based on Table 3, the results of the regression equation are as follows:

From the regression results above, it can be interpreted:

\[ \ln X = -15.221 + 32.3497 \text{EP} + 1.4173 \ln GDP + 0.1641 \ln KURS - 0.0004 \text{DIST} - 0.6424 \ln CAB \]

1. The value of Indonesian coal exports to 11 RCEP countries is -15.22 percent if the variables of export prices, real GDP, exchange rates, geographical distances, and coal reserves of destination countries are zero, ceteris paribus;

2. An increase in export prices by one USD/kg or one USD/ton, significantly increasing the value of Indonesian coal exports to 11 RCEP countries by 3234.96 percent or 3.23 percent, ceteris paribus;

3. An increase in the real GDP of the destination country by 1 percent, significantly increasing the value of Indonesia's coal exports to the 11 RCEP countries by 1.41 percent, ceteris paribus;

4. An increase in the exchange rate by 1 percent, significantly increasing the value of Indonesia's coal exports to the 11 RCEP countries by 0.16 percent, ceteris paribus;

5. Increasing the geographical distance by 1 km, significantly reducing the value of Indonesia's coal exports to the 11 RCEP countries by 0.044 percent, ceteris paribus;
6. Increase in coal reserves of destination countries by 1 percent, significantly reducing the value of Indonesia's coal exports to 11 RCEP countries by 0.64 percent, ceteris paribus.

After improving the model, the next step is to perform statistical tests on the model simultaneously or partially by using the simultaneous significance test (F-test), partial test (t-test), and the coefficient of determination test (R²). The final regression results in this study can be seen in the results of improving the classical assumptions of REM estimation in Table 4.3. In the regression results, the significance test simultaneously shows a probability value (Prob>F) of 0.0000 at a five percent significance level. The probability value indicates that globally the independent variable in the model affects the variable tied up. These results are supported by the results of the partial test (t-test), where all independent variables have a significant influence on the dependent variable, where the probability value of each variable is 0.0021 (EP), 0.009 (GDP), 0.000 (EXCHANGE), 0.005 (DIST), and 0.000 (CAB) with a significance level of five percent. Then the R² value in the estimation results shows a figure of 0.5032 or 50.32 percent. The value of R² states that the independent variables in this model can explain the dependent variable by 50.32 percent. While other variables outside the model can explain 49.68 percent.

**Discussion**

The Effect of Export Prices on the Value of Indonesian Coal Exports. Based on the research hypothesis, export prices positively affect the value of Indonesian coal exports. The results of previous studies (Muharami & Novianti, 2018) and (Hakam & Firmansyah, 2019) state that an increase in export prices illustrates a commodity's quality. An increase in prices will encourage the value of commodity exports to increase in the international market. According to (Mejaya, Fanani, & Mawardi, 2016), if the price in the global market is more significant than that in the domestic market, the number of commodities exported will increase. Thus the value of exports and export prices have a positive correlation. In this study, the export price variable has a significant positive effect on the value of Indonesian coal exports. These results indicate that an increase in export prices by 1usd/kg or 1 USD/ton will increase the value of Indonesian coal exports by 3234.96 percent or 3.23 percent, assuming all other independent variables are constant. The accordance with a hypothesis in this study is regarding the relationship between export prices and the value of Indonesian coal exports to 11 RCEP countries.

The Effect of Real GDP on Indonesia's Coal Export Value. Real GDP is capable and more accurate in representing a country's ability to meet the needs of its population.
The hypothesis in this study, the real GDP of the destination country has a positive effect on the value of Indonesia's coal exports. Previous research supports that export destination countries' real GDP can increase exports' value. Indonesia. According to research by Muharami & Novianti (2018), Nopeline (2018), Ni'mah (2018), and Amrullah (2020), increasing the real GDP of importing countries will encourage people to consume more goods so that demand for imported goods and services from destination countries exports are getting bigger. In the gravity model, trade flows between two countries are determined by economies of scale and distance. Trade flows should be positively related to economies of scale, measured by GDP, and negatively related to the distance between the two countries (Chaney, 2011).

In this study, the real GDP variable significantly positively affects the value of Indonesia's coal exports. These results indicate that an increase in export prices of 1 percent will increase the value of Indonesian coal exports to the 11 RCEP countries by 1.41 percent, assuming all other independent variables are constant. This is following the hypothesis on this study examines the relationship between real GDP and the value of Indonesia's coal exports to 11 RCEP countries.

Effect of Real Exchange Rate on Indonesian Coal Export Value. The exchange rate is the price of one country's currency against another. The exchange rate is an essential factor in international trade, both imports and exports because it can express the rate at which we can trade goods from one country for goods from other countries. Therefore, the greater or the smaller the real exchange rate will affect the amount of trade carried out by a country. Based on research (Hakam & Firmansyah, 2019), if the LCU strengthens against the USD, the demand for coal exports will increase. On the contrary, if the LCU weakens against the USD, the demand for coal exports will decrease. In this study, an increase in the exchange rate of the destination country against the USD by 1 percent will increase the value of Indonesia's coal exports to the 11 RCEP countries by 0.16 percent, assuming all other independent variables are constant. These results are under the hypothesis built previously, namely, the real exchange rate of 11 coal export destination countries (LCU) against the USD has a positive effect on the value of Indonesia's coal exports. If the LCU strengthens against the USD, the price of domestic goods becomes relatively more expensive so that the domestic population will buy a lot of imported goods from exporting countries (Mankiw, 2010).

The Effect of Geographical Distance on the Value of Indonesian Coal Exports The distance between two trading countries is one of the obstacles to international trade practices. Distance is a proxy for transportation costs between the two countries.
Based on the gravity model, distance has a negative relationship to exports. The gravity model has been used in several studies on international trade, especially for exports. Based on research by Wahyudi & Anggita (2015), Binh, Duong, & Cuong (2013), Chaney (2011), and Li, Song, & Zhao (2007), when the distance between the exporting country and the importing country is getting further, it will reduce the value of exports.

In this study, the distance variable harms the value of Indonesia's coal exports. The results show that the distance between Indonesia and the destination country by 1 km will reduce the value of Indonesia's coal exports to the 11 RCEP countries by 0.044 percent, assuming all other independent variables are constant. These results follow the hypothesis that was built previously. Therefore, as an exporting country, Indonesia must decide on the best trading partner to make costs efficient for transportation and logistics.

The Effect of Destination Coal Reserves on Indonesia's Coal Export Value. A country's coal reserves are an indicator of the country's coal energy security. According to the Asia Pacific Energy Research Center (APERC), energy security is a condition of ensuring the availability of energy and public access to energy at affordable prices in the long term.

In this study, the coal reserves of the destination country have a significant adverse effect on the value of Indonesia's coal exports. These results show that every increase in reserves destination country's coal by 1 percent will increase the value of Indonesia's coal exports to the 11 RCEP countries by 0.64 percent, assuming all other independent variables are constant. Thing this follows the hypothesis in this study regarding the relationship between coal reserves and the value of Indonesia's coal exports to 11 RCEP countries. Based on BP data (2020), coal reserves in Australia is the largest RCEP area, with 149,049 million tons in 2019. Due to the ample coal reserves in Australia, Australia exports more than imports.

**CONCLUSION**

The RCEP area has enormous economic potential. The potential resulting from this market integration is approximately 30% of the world's population, 30% of the world's gross domestic product (GDP), 27% of world trade, and 29% of world foreign investment (FDI). The signing of the RCEP has signalled to the world that its 15 member countries are highly committed to working together to strive for the recovery of the world economy and that global trade and economic relations are still developing. It is believed that the formation of this FTA will positively impact the
economies of ASEAN countries, including Indonesia. The benefit of RCEP for Indonesia is the potential for opening up market access and encouraging the entry of FDI. With the benefits of this economic integration, Indonesia must know what factors affect exporting its leading commodities to RCEP member countries.

This study analyzes the influence factors that influence coal exports from Indonesia to 11 RCEP countries to export optimally with the following conclusions: first, an increase in the export price variable increases the value of coal exports to 11 RCEP countries, namely Australia, and China, the Philippines, Japan, South Korea, Malaysia, New Zealand, Singapore, Thailand, Vietnam, and Cambodia. Second, the real GDP variable increased the value of coal exports to 11 RCEP countries: Australia, China, the Philippines, Japan, South Korea, Malaysia, New Zealand, Singapore, Thailand, Vietnam, and Cambodia. In this study, real GDP used is real GDP at constant 2010 prices. Third, an increase in the exchange rate variable increases the value of coal exports to 11 RCEP countries are Australia, China, the Philippines, Japan, South Korea, Malaysia, New Zealand, Singapore, Thailand, Vietnam, and Cambodia. In this study, the exchange rate is the exchange rate of the domestic currency of the export destination country against the exchange rate of the United States dollar as a reference for international trade. Fourth, an increase in the geographical distance variable reduces the value of coal exports to 11 RCEP countries: Australia, China, the Philippines, Japan, South Korea, Malaysia, New Zealand, Singapore, Thailand, Vietnam, and Cambodia. In this study, the geographical distance used is the distance between Indonesia and the export destination country in kilometres. Fifth, an increase in the variable coal reserves decreased the value of coal exports to 11 RCEP countries: Australia, China, the Philippines, Japan, South Korea, Malaysia, New Zealand, Singapore, Thailand, Vietnam, and Cambodia. In this study, the coal reserves of export destination countries are the coal reserves as an indicator of energy security.

REFERENCES


