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ANALYSIS INDONESIAN COAL EXPORT TO THE TOP LARGEST IMPORTING COUNTRIES

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ABSTRACT

Indonesia with abundant natural resources optimizes its superior commodities in trade in the global market. This lesson aims to analyze the factors that affect the value of Indonesian coal exports as a superior commodity. The research method uses panel data regression analysis in 2009 - 2022 and a cross-section of the ten largest destination countries for Indonesian coal exports. The comes about appeared that in part the sum of production, Indonesian GDP, and reference coal cost had a noteworthy and positive impact on trade value, framework had a noteworthy and negative impact on send out value, GDP of bringing in nations and swelling had no noteworthy and positive impact on send out value, trade rate, the populace of bringing in nations had no noteworthy and negative impact on send out value and at the same time the free factors together had an impact on the subordinate variable. This research can be used as a strategic guide in increasing production, maintaining exchange rate stability, encouraging economic growth, and improving infrastructure to support Indonesia's coal export sector. The shortcomings of this lesson are that it does not consider data stationarity and influence in the short and long term.

Keywords: *Coal Export Value, Exchange Rate, GDP, Infrastructure*

ABSTRAK

Indonesia dengan kekayaan alam melimpah melakukan optimalisasi komoditas unggulannya dalam perdagangan di pasar global. Penelitian ini memiliki suatu tujuan yakni untuk melakukan analisis atas faktor-faktor yang mempengaruhi nilai ekspor batubara Indonesia sebagai komoditas unggulan. Metode dalam penelitian menggunakan analisis regresi data panel pada tahun 2009 - 2022 dan cross section sepuluh negara tujuan terbesar ekspor batubara Indonesia. Penelitian dilakukan dengan menggunakan bantuan oleh sebuah perangkat lunak bernama Eviews 12. Hasil penelitian ini mempresentasikan bahwa secara parsial jumlah produksi, GDP Indonesia, Harga Batubara Acuan (HBA) memiliki pengaruh signifikan dan positif terhadap nilai ekspor, infrastruktur memiliki pengaruh signifikan dan negatif terhadap nilai ekspor, GDP negara importir dan inflasi tidak memiliki pengaruh signifikan dan positif terhadap nilai ekspor, nilai tukar, populasi negara importir tidak memiliki pengaruh signifikan dan negatif terhadap nilai ekspor dan secara simultan variabel independen bersama-sama memiliki pengaruh terhadap variabel dependen. Penelitian ini dapat dijadikan sebagai panduan strategis dalam meningkatkan produksi, menjaga stabilitas nilai tukar, mendorong pertumbuhan ekonomi, dan meningkatkan infrastruktur untuk mendukung sektor ekspor batubara Indonesia. Adapun kekurangan dari penelitian ini yaitu kurang mempertimbangkan stasioneritas data dan pengaruh dalam jangka waktu pendek dan panjang.

Kata Kunci: Nilai Ekspor Batubara, Nilai Tukar, GDP, Infrastruktur

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Introduction

Indonesia's abundant natural resources in both the land and sea sectors make Indonesia a maritime and agrarian country (Atmaja, 2022; Pujiriyani, 2022). This form of wealth is a privilege for the country and its people. The utilization of natural resources needs to be done optimally to be able to encourage a better level of the country's economy as measured by economic growth indicators (H. Huang *et al.*, 2024; Shah *et al.*, 2022; Wang *et al.*, 2023; Zhong & Su, 2023). Economic growth is a very overriding indicator in the development and development of economy in a country which can then increase the level of prosperity and welfare of society at the per capita income level. The success of a country for its economic development is usually seen from the description of its economic growth conditions (Hodijah & Angelina, 2021).

The form of contribution to supporting economic growth can be made through the leading commodity trade sector in the global market share (Anggraini *et al.*, 2022). Based on the official Trade Maps page (2022), Indonesia's superior products are in classification number 2701 which directly refers to coal commodity products. Trade in the global market, especially coal-superior products, not only contributes to increasing the country's foreign exchange but is indeed a contributor to driving the country's economic growth rate as well (W.Q. Huang & Liu, 2023; Lyu *et al.*, 2023; Yahya *et al.*, 2020). Such activities provide benefits for Indonesia, which participates in global trade activities, especially since Indonesia's territory is strategically located at the intersection of the main routes between the Indian Ocean and the Pacific Ocean. Thus, export activities have a great opportunity to contribute to the growth and stability of the Indonesian economy (Reddy & Lakshmi, 2020)

Table 1 Indonesia's coal export growth in the last 10 years to global markets

Year	Exports Value	Growth
2013	22.773.242.167	-
2014	18.697.799.883	-3,43%
2015	14.717.264.659	-14,20%
2016	12.898.709.758	-3,22%
2017	17.876.972.294	13,32%
2018	20.634.196.110	6,20%
2019	18.957.159.558	-6,82%
2020	14.534.016.528	-2,40%
2021	26.538.187.719	37,36%
2022	46.739.251.756	33,13%

Table 1 shows the condition of Indonesia's coal export movement which is still experiencing a decline in the first three years of the last ten-year period. Then, it experienced a significant

increase from 2021 to the last data of 2022. Based on Alfred Mashall's theory in the commodity market, there is also a supply and demand, so it can be seen from the data that coal demand has increased in the global market in the last year.

Previous research related to coal export analysis by Azizah & Soelistyo (2022). The method applied in his research is the panel data regression of 2014-2020 time series and a cross-section of the seven primary countries of Indonesia's export destinations processed with Eviews 9 software. The outcomes of their research represent that the independent variables of Indonesian GDP, the population of the destination countries, exchange rates, and inflation have a significant impact on the dependent variable of Indonesian coal exports, while the independent variables of distance and the importing countries GDP do not have a significant influence on the dependent variable of Indonesian coal exports.

Barasyid & Setiawati (2023) have also conducted similar research related to Indonesian coal exports. The method used is multiple linear regression with independent variables of exchange rates, inflation, and Reference Coal Prices (HBA) and the dependent variable of Indonesian coal exports to China in 2009-2021. The outcomes of their lesson state that the exchange rate, inflation, and Coal Reference Price (HBA) have a significant impact on the value of exports.

There is also research by Hanif & Taufiq (2023) who conducted similar research related to coal exports. The method used in the lesson is an analysis of multiple linear regression which is processed using the help of Eviews 12 software. The independent variables used include exchange rates, production volumes, HBA, and global oil prices and the dependent variable is the value of Indonesian coal exports in the 2011-2021 annual time series. The outcomes of his research state that the exchange rate has an insignificant effect on the value of Indonesian coal exports, while production volume, reference coal price, and global oil prices exert a significant impact on the value of Indonesian coal exports.

The previous studies mentioned are three different studies in terms of methods, variables, and processing tools used. Research conducted by Barasyid & Setiawati (2023) dan Hanif & Taufiq (2023) is research conducted using multiple linear regression analysis methods with analysis data for the last year 2021. This analysis method is considered insufficient in controlling individual factors because each cross-section unit may have unique characteristics and the object of analysis year is not the latest year. Hanif & Taufiq (2023) researchers provide suggestions written in their articles aimed at future researchers to add new variables or samples as a novelty. Meanwhile, Azizah & Soelistyo (2022) research has

used panel data which can reduce individual factors with the need for research with novelty, but the object of the last year of analysis is 2020 which is not the latest year.

Thus, this research is urgent to immediately get research outcomes that can become a reference or the latest guidelines that are so important in determining government policy on Indonesian coal exports. This effort is a form of moving faster in optimizing the Indonesian economy. The novelty presented in this research is, firstly, employing time series analysis and focusing on the top ten importing countries with latest data. Secondly, there is an incorporation of variables that were not emphasized in previous research related to commodity exports, specifically the infrastructure of exporting nations. According to Walt Rostow in maintaining and improving the economic development of a country, it is necessary to evolve, so in this lesson, one of the novelties is the addition of exporter infrastructure variables that can be used as a form of evolution of the country to develop the economy.

By highlighting the problems that have been described, this research will focus on the central question: " What are the factors that influence to Indonesian coal exports on the ten largest export destination countries?". This question serves as the foundation for the primary objective of this lesson, which is to analyze the interrelationship of factors affecting the value of Indonesia's coal exports. By detailing these factors, it is supposed that this research will be able to make a positive of contribution to the understanding of the dynamics of Indonesian coal exports. In addition, the outcomes are expected to provide practical guidance for the government in dealing with the complex challenges associated with coal exports, thereby supporting more effective decision-making.

Method

This lesson uses secondary data sourced from the UN Comtrade database, Global Infrastructure Hub, and the World Bank. The data used are the 10 countries with the highest exports of Indonesian coal from 2009 to 2022. This selection was made due to the limitations of the available data for all variables as well as adjusting to meet the needs of data processing in Eviews 12 software. The independent variables incorporated in the analysis encompass the production volume, the exchange rate of the importing countries, Indonesia's GDP, the GDP of the importing countries, the inflation of the importing countries, the HBA (Coal Reference Price, the population of the importing countries, and infrastructure of Indonesia, while the dependent variable is the value of Indonesia's coal exports.

The equation model of panel data used in this lesson is as follows:

$$y = \beta_0 + \beta_1.X_1^2 + \beta_2.X_2^2 + \beta_3.X_3^2 + \beta_4.X_4^2 + \beta_5.X_5^2 + \beta_6.X_6^2 + \beta_7.X_7^2 + \beta_8.X_8^2 + f(\varepsilon) \ldots (1)$$

Which is then linearized as follows:

$$logy = \beta_0 + \beta_1.logx1 + \beta_2.logx2 + \beta_3.logX3 + \beta_4.logX4 + \beta_5.logX5 + \beta_6.logX6 + \beta_7.logX7 + \beta_8.logX8 + \varepsilon \quad \text{..... (2)}$$

Where:

logy: Indonesia coal export's value to the ten j-countries in the year

Logx1: total Indonesian coal production in year-t

Logx2: country-j's currency exchange rate against the dollar in year-t

Logx3: Indonesian GDP in year-t

Logx4: GDP of country-j in year-t

Logx5: country-j's population in year-t

Logx6: inflation of country-j in year-t

Logx7: reference coal price (HBA)

Logx8: Indonesia's infrastructure

β: Constant

j: India, China, Japan, Philliphina, Malaysia, Republic of Korea, Thailand, Hong Kong,Vietnam, Bangladesh

t: 2009 - 2022

Ɛ: Error term

Next, estimate the equation in Eviews 12 with the Common Effect Model (CEM), fixed effect Model (FEM), and Random Effect Model (REM).

Common Effect Model (CEM)

Utilizing in this lesson disregards variations in the dimensions of individuals over time. In other words, it assumes that the behavior of the data remains consistent across individuals in different periods.

Fixed effect Model (FEM)

This model assumes that each individual has a distinct intercept, while the slope between individuals remains fixed (unchanged).

Random Effect Model (REM)

This model assumes that each individual possesses a unique intercept, treated as a random or stochastic variable.

To determine the most appropriate model for this lesson, various model determination tests have been employed, including the Chow test, Hausman test, and Bresuch-Pagan Lagrange Multiple (LM) test. These tests aim to assess and select the optimal model based on the characteristics of the data and the assumptions underlying each model type.

Chow Test

This test is designed to identify the individual effects in the panel data that needs to be modeled. The result of this test is used to choose the better regression model between FEM and CEM, with the following hypotheses:

H0 = CEM is more suitable

H1 = FEM is more suitable

If the resulting p-value is less than the significance level of 0.05, it can reject H0, and it can be concluded that FEM is more suitable for the given data.

Hausmann Test

This test is conducted to determine whether the individual effects in the panel data are random or fixed. The conclusion of this test is used to choose a better regression model between FEM and REM with the hypothesis:

H0 = REM is more suitable

H1 = FEM is more suitable

If the resulting p-value is less than the α value of 0.05, it can reject H0, so it can be concluded that the FEM is more suitable.

LM Breusch-Pagan Test

This test is established to determine the best model between REM and CEM with the hypothesis:

H0 = CEM is more suitable

H1 = REM is more suitable

If the resulting p-value is less than the α value of 0.05, it can reject H0, so it can be concluded that REM is more suitable.

After identifying the best model through the t-test and considering the t-count possibility value associated with the chosen model. The hypothesis asserts the influence of the independent variable if the t-count possibility value falls below the alpha level (0.05) 5%. Subsequently, the examination of the coefficient of determination (R2) involves assessing R-squared value.

Classical Assumption Test

1. The classical of assumption test is enforced to get BLUE (Best Linear Unbiased Estimator) estimation outcomes, so the estimate must fulfill several related assumptions. Panel data has advantages including:
2. Panel data can provide more information regarding degrees of freedom and can reduce collinearity between variables.
3. Panel data can control for different places and times as well as individual heterogeneity.

Result and Discussion

The best analysis model is required in analysis of panel data regression research. The best model is generated from the Chow test, Hausman test, and LM breach-pagan test as follows:

Table 2 Outcomes of the Chow test, Hausman test, and LM Breusch-Pagan

Test	Prob	Result
Chow Test	0,0000	Menolak H0
Hausman Test	0,7107	Menerima H0
LM Breusch-Pagan Test	0,0000	Menolak H0

Based on the outcomes of the above tests, the Chow test shows a probability of 0.0000 <0.05 (alpha level), which means rejecting H0 and accepting H1, namely the Fixed Effect Model is more suitable. The Hausman test shows a probability of 0.7107> 0.05, meaning that it accepts H0 and rejects H1, namely the Random Effect Model is more appropriate. The LM test shows a probability of 0.0000 <0.05, which means rejecting H0 and accepting H1, namely the Random Effect Model is more appropriate. So, the best model conclusion that can be drawn from the table above is the Random Effect Model. Them, the next step will to do is to estimate the classical assumption test to get BLUE research outcomes.

The first assumption of classic test performed is the normality test. Based on the normality test above, the probability value of the normality test shows a value above 0.05, namely 0.082059. So that the data in this lesson can be declared to be normally distributed.

Figure 1 Normality Test

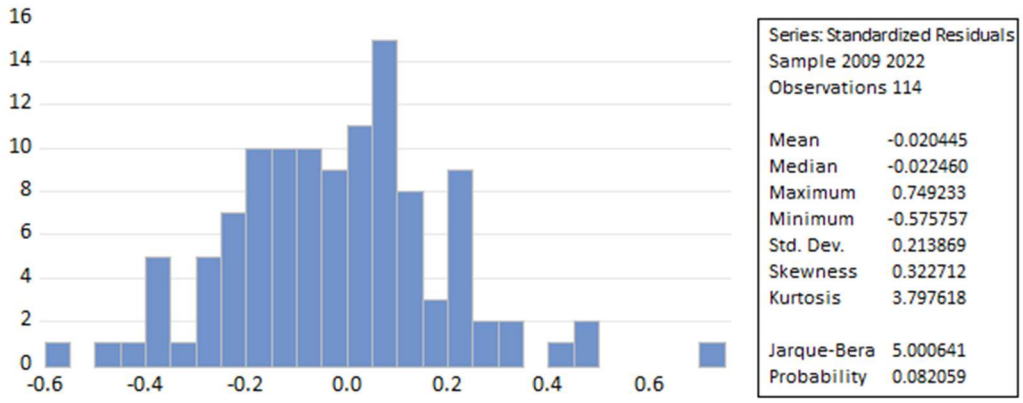

Table 3. Multicollinearity Test

	LOGX1	LOGX2	LOGX3	LOGX4	LOGX5	LOGX6	LOGX7
LOGX1	1,000000	-0,282570	0,240211	0,712164	0,434246	-0,215710	0,063794
LOGX2	-0,282357	1,000000	-0,004417	-0,168422	0,012254	0,211271	0,017931
LOGX3	0,240211	-0,004417	1,000000	0,221490	0,027668	-0,025086	0,560804
LOGX4	0,712164	-0,168422	0,221490	1,000000	0,677575	-0,165558	0,053908
LOGX5	0,434246	0,012254	0,027668	0,677575	1,000000	0,313186	-0,003335
LOGX6	-0,215710	0,211271	-0,025086	-0,165558	0,313186	1,000000	0,116464
LOGX7	0,063794	0,017931	0,560804	0,053908	-0,003335	0,116464	1,000000
LOGX8	0,130688	0,026044	0,732564	0,161812	0,040774	-0,118334	0,405167

The multicollinearity test outcomes are carried out to determine the impress between independent variables. The correlation value of this test, the multicollinearity test is 0.08. If the correlation value of the multicollinearity test outcomes between independent variables is below 0.08, it can be said that the relationship between variables is free from multicollinearity. If on the other hand, the correlation value is above 0.08, then the independent variables are indicated to be multicollinear, which makes it difficult to separate these variables. Based on the table above, the correlation coefficient between each independent variable shows that the relationship between variables in this lesson is free from multicollinearity because the coefficient value is <0.08.

Based on the outcome of the two tests in Table 4, it be able be determined that the top model in this learn for regression analysis is the Common Effect Model. The constant coefficient value in the above outcomes is -13.10589, meaning that if the amount of commodity production, rupiah exchange rate, Indonesian Gross Domestic Product (GDP), importer GDP, importer population, importer Inflation, Reference Coal Price (HBA), and

Indonesian infrastructure are zero or constant, then the Indonesian's coal exports value to the primary destination countries will mitigate by 13.10%. The coefficient value of the amount of production is 0.989497, meaning that for every 1% addition to the amount of coal production, the value of coal exports will increase by 0.98%. The coefficient value of the importer exchange rate against the dollar of -0.002477 means that for every 1% addition to the coal exchange rate, the value of coal exports will increase by 0.002%. The coefficient value of the Indonesian GDP is 0.645015, meaning that for every 1% addition to the Indonesian GDP, the value of coal exports will increase by 0.64%. The importer GDP coefficient value of 0.047054 means that for every 1% addition to the importer GDP, the value of coal exports will increase by 0.04%, the importer population coefficient value of -0.067755 means that every 1% addition to the importer population, the value of coal exports will increase by 0.06%, the importer inflation coefficient value of 0.010666 means that every 1% addition to the importer GDP, The coefficient value of HBA of 0.593044 means that every 1% addition to the Importer's GDP, the value of coal exports will increase by 0.59%, The coefficient value of Indonesian infrastructure of -0.519952 means that every 1% addition to Indonesian infrastructure, the value of coal exports will increase by 0.51%.

Table 4. Calculation Outcomes of Panel Data Estimation Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Probabilities
C	-13,10589	3,023936	-4,334050	0,0000
LOGX1	0,989497	0,029381	33,67785	0,0000
LOGX2	-0,002477	0,033658	-0,073594	0,9415
LOGX3	0,645015	0,159090	4,054408	0,0001
LOGX4	0,047054	0,085100	0,552925	0,5815
LOGX5	-0,067755	0,071996	-0,941092	0,3488
LOGX6	0,010666	0,027887	0,382463	0,7029
LOGX7	0,593044	0,048273	12,28517	0,0000
LOGX8	-0,519952	0,077695	-6,692211	0,0000
R-squared		0,959816		
Adjusted R-squared		0,956754		
F-statistic		313,4982		
Prob(F-statistic)		0,000000		

The probability value of the F test is 0.00000 where this value is <0.05. This shows that the amount of commodity production, rupiah exchange rate, Indonesian Gross Domestic Product (GDP), importer GDP, importer population, importer Inflation, Reference Coal Price (HBA), and Indonesian infrastructure jointly affect the value of Indonesian coal exports. The probability value of the t-variable test of the amount of production is 0.0000 <0.05, meaning that the amount of Indonesian coal production has a significant and positive impact on the value of Indonesian coal exports. The probability value of the t-test of the importer exchange rate against the dollar is 0.9415> 0.05, meaning that the importer exchange rate against the dollar has insignificant and negative impact on the value of Indonesian coal exports. The

probability value of the t-test of the Indonesian GDP variable is 0.0001 <0.05, meaning that Indonesian GDP has a significant and positive impact on the value of Indonesian coal exports. The probability value of the t-test of importer GDP variables is 0.5815 > 0.05, meaning that importer GDP has insignificant and positive impact on the value of Indonesian coal exports. The probability value of the t-test of the importer population variable is 0.3488> 0.05, meaning that the importer population has insignificant and negative impact on the value of Indonesian coal exports, the probability value of the t-test of the importer inflation variable is 0.7029> 0.05, meaning that importer inflation has insignificant and positive impact on the value of Indonesian coal exports, The t-test probability value of the HBA variable is 0.0000 <0.05, meaning that the HBA has a significant and positive impact on the value of Indonesian coal exports, The t-test probability value of the Indonesian infrastructure variable is 0.0000 <0.05, meaning that Indonesian infrastructure has a significant and negative impact on the value of Indonesian coal exports. The estimation outcomes obtained an R-squared value of 0.959816. This value shows that changes in the value of Indonesian coal exports can be explained by the amount of commodity production, the rupiah exchange rate, Indonesia's Gross Domestic Product (GDP), importer GDP, importer population, importer inflation, Reference Coal Prices (HBA) and Indonesian infrastructure as much as 95.98%, while the remaining 3.40% is explained by other variables not explained in this lesson.

Total production against Coal export value

Based on the final result above indicates that the amount of coal production to be exported has a significant and positive impact on the value of Indonesian coal exports. When the amount of production exported to the global market increases, the value of Indonesian coal exports will also increase, and vice versa. The amount of production of a commodity is usually determined by the quality of the product produced. The better the level of product quality, the higher the level of interest or interest of buyers or offers for products on the global market. This is by research conducted by Hanif and Taufiq (2023) which states that the variable amount of coal production has a significant and positive impact on the value of Indonesian coal exports. The research was conducted with 2011-2021 time series research data with the help of Eviews12 software and with multiple linear regression models. Research from Alam and Rosjadi (2021) also states that the amount of production has a significant impact on the value of exports. The research was conducted with time series data from 2014-2017 with the help of SPSS 22.0 software and with multiple linear regression models. Other research is also harmonized by Adriansyah & Rozaini (2023) with time series data from 2005-2015. However, there is another lesson from Purba (2021) that says that

the amount of production has insignificant impact on the value of exports, which means that any increase in the amount of production of the product will reduce the export volume of the product. The lesson used the 1990-2019 time series with a multiple linear regression model. The increase shows a result that contradicts Adam Smith's theory.

Exchange Rate to Export Value of Coal

The outcomes of this lesson indicate that the exchange rate of the currency of the importing countries to the dollar has insignificant or negative impact on the value of Indonesian coal exports. A declining exchange rate indicates that goods in Indonesia are worth less than in foreign countries (Akdoğan *et al.*, 2023; Tran *et al.*, 2020; Urgessa, 2024). The outcomes of this lesson are not by previous studies that have been conducted such as Barasyid and Setyawati (2023) who said that the exchange rate variable has a significant impact on the value of exports. The research was conducted with time series data from 2009-2021 with SPSS 26 processing tools. The corresponding research by Azizah and Soelistyo (2022) states that the exchange rate variable has a significant and positive impact on the value of Indonesian coal exports. This research was conducted with panel data consisting of the 2014-2020 time series and cross-section in the form of 7 countries. The corresponding research was conducted by Maulani & Wahyuningsih (2021) which states that the exchange rate does not affect the value of exports. The research conducted focused on Indonesian coffee commodities with panel data consisting of a time series of 2009-2018 and a cross-section of 6 countries processed using Stata 16. This happens because of the value of the export destination currency which may be higher than the currency of the importing countries. The absence of the impact of exchange rates on the value of exports can be due to the higher market demand for commodities so that the exchange rate of the importing countries experiences depreciation or appreciation which does not affect the amount of commodity demand because coal is a superior product in Indonesia even though the price becomes relatively more expensive.

Indonesia's GDP to Coal Export Value

The outcomes of this lesson indicate that the relationship between Indonesia's GDP and export value is significant and positive. An increase in the GDP of an exporting country can be one of the potential increases in investment in research, and development, improving the quality of export products, and production efficiency. Such factors support the increase in export value. The outcomes of this lesson are by research conducted by Azizah dan Soelistyo (2022) which states that the Indonesian GDP variable has a significant and positive impact on the Indonesian coal export's value. This research was conducted with

panel data consisting of the 2014-2020 time series and cross-section in the form of 7 countries. However, there is conflicting research from Suprapto *et al.*, (2023) with the outcomes of his research which say that Indonesia's GDP has insignificant impact on the value of exports. The commodities in this lesson focused on Indonesian palm oil. The research used panel data including a time series from 2016-2021 with a cross-section of 3 countries which are the main export destinations.

Importer GDP to Coal export value

The outcomes of this lesson indicate that the GDP of importers or destination countries has insignificant and positive impact on the Indonesian coal export's value. The size of the GDP of the importing countries of coal exports does not determine the Indonesian coal export's value. This can happen because people do not directly use coal. Export activities will continue regardless of whether the GDP of the importing countries is experiencing an increase or decrease. The outcomes of this lesson are the outcomes of previous research by Azizah & Soelistyo (2022) who also conducted research related to coal exports using panel data processed with the help of Eviews software. Other appropriate research by Pratomo *et al.*, (2022) with panel data from a cross-section of 6 Asian countries that are Indonesia's main export destinations and a 10-year time series from 2011-2020 on palm oil commodities. This research uses Eviews software to help the research process. Another lesson by Da Silva *et al.*, (2023) also states that importer GDP has insignificant impact on exports. His research focuses on Indonesian frozen tuna commodities with panel data from a time series of 16 years 2005-2020 and a cross-section of four export destination countries. However, Pramastya (2023) states that the GDP of the importing countries affects the value of exports. The research used panel data with time series 2001-2020 and cross-section data of 6 export destination countries which were processed using Stata software.

Importer Population on Coal Export Value

The outcomes of this lesson indicate that the importer population has insignificant or negative impact on the value of exports. The outcomes of this lesson are not to the previous theory which states that the higher the population the higher the level of demand. The outcomes of this lesson may not directly affect the individual population because people who are not direct consumers of coal commodities. The outcomes of the lesson here are research conducted by (Rahmah, 2020) with 2003-2017 time series panel data on five export destination countries. The research focused on Indonesia's tropical wood export commodities. The outcomes of this lesson are not by research conducted by Azizah and Soelistyo (2022) which states that the importer population variable has a significant and

positive impact on the Indonesian coal export's value. This research was conducted with panel data consisting of the 2014-2020 time series and cross-section in the form of 7 countries. Other research outcomes that are also inconsistent with the outcomes of this lesson are from Wijaya *et al.*, (2023) with quarterly time series data from 2005 to 2021 which are processed with the help of SPSS software**.**

Importer Inflation on Coal Export Value

The outcomes of this lesson indicate that importer inflation does not affect the value of exports. This happens because there are people who still need to meet their needs, especially through exports on the international market. So, the rise and fall of inflation has insignificant impact on the value of exports. This is by the research of Hutabarat *et al.*, (2023) which states that inflation has insignificant impact on the value of exports. The research was conducted with time series data from 2016-2021 which was processed with Eviews software. The corresponding research is also from Manilet *et al.*, (2023) which uses 2008-2022 time series data with the help of the Eviews data processing tool. This research focuses on total exports by North Sulawesi province. Zahrianti Erika & Fadly, (2022) also states that inflation has insignificant impact in either the long or short term on the value of exports. The research data used is time series data with monthly time intervals in 2016-2020 which is analyzed by Auto-Regressive Distributed Lag Models (ARDL). However, the outcomes of this lesson are not by previous research by Barasyid and Setyawati (2023) which states that inflation variables have a significant impact on export values. The research was conducted with time series data from 2009-2021 with SPSS 26 processing tools. Another lesson that did not match was by Sitanini *et al.*, (2020) with annual time series research data from 1989 to 2018. The analysis in this lesson uses multiple linear regression models through the ECM approach with Indonesian coffee commodities.

HBA on the Export Value of Coal

The outcomes of this lesson indicate that the HBA has a significant and positive influence on the Indonesian coal export's value. The increase in HBA has contributed to the increase in royalties and mineral taxes calculated based on the HBA. If the HBA increases, coal companies can set higher coal selling prices (Lean & Smyth, 2010; Moreira, 2014). This affects the amount of revenue from coal sales. Conversely, if the HBA decreases, the revenue earned by coal companies is smaller with a small selling price benchmark. The outcomes of this lesson are by research conducted by Hamdani *et al.*, (2023) with 1991-2021 time series data processed using Eviews 12 with Indonesian coconut commodities. His research uses independent variables of coconut production, world coconut prices,

rupiah exchange rates, and dependent variables of Indonesian coconut exports. Another appropriate lesson by Trirahayuni *et al.*, (2023) used a combination of panel data from the 2005-2020 time series and a cross-section of five Asian countries destined for Indonesian Arabica coffee exports. However, research from Suprapto *et al.*, (2023) with the outcomes of his research which says that the reference price has insignificant impact on export value. The research used panel data including time series from 2016-2021 with a cross-section of 3 countries.

Indonesia's Infrastructure on Coal Export Value

The outcomes of this lesson state that the infrastructure variable which is a novelty in this lesson has a significant impact on the Indonesian coal export's value. This shows the fact that infrastructure facilities have an important nature in supporting the increase in the Indonesian coal export's value. Therefore, efforts to increase investment in export-supporting infrastructure facilities need to be increased if it is desired to increase the value of exports.

Conclusion

Based on the outcomes of the research that has been done, simultaneously the independent variables of total production, exchange rate, Indonesian GDP, importer country GDP, importer population, importer inflation, reference coal price, and inflation in this lesson affect the dependent variable of Indonesian coal export value. Partially, the amount of production, Indonesian GDP, and reference coal price have a significant and positive impact on the export value, infrastructure has a significant and negative impact on the export value, importer country GDP and inflation have insignificant and positive impact on the export value, exchange rate, importer country population has insignificant and negative impact on export value. The disadvantage of this lesson is that it does not take into account the stationarity of the data as well as the long-term and short-term impacts. So, further research is recommended to consider data stationarity as well as the impact of independent variables to the dependent variable in the long and short term.

Reference

Adriansyah, T., & Rozaini, N. (2023). Analisis Pengaruh Nilai Kurs dan Jumlah Produksi Terhadap Ekspor Batubara Indonesia (Tahun 2005-2015). *Jurnal Ilmiah Multidisipline*, *1*(4), 2986–6340. https://doi.org/10.5281/zenodo.7913445

Akdoğan, K., Bağır, Y. K., & Torun, H. (2023). Heterogeneous effect of exchange rates on firms' exports: Role of labor intensity. *Central Bank Review*, *23*(3). https://doi.org/10.1016/j.cbrev.2023.100130

Anggraini, D., Purnama, N. I., & Harahap, S. H. (2022). *Meningkatkan Perekonomian Masyarakat Dengan Memanfaatkan Sumber Daya Alam Melalui Media Sosial Di Desa Timbang Lawan*. https://doi.org/https://doi.org/10.53695/jas.v3i3.766

Atmaja, I. D. G. (2022). Indonesian Marine Resources Law Perspective of Marine Tourism Development. In *Journal Equity of Law and Governance* (Vol. 2, Issue 2). https://doi.org/10.55637/elg.2.2.5766.103-110

Azizah, I. A., & Soelistyo, A. (2022). Analisis Faktor-Faktor yang Mempengaruhi Ekspor Batubara Indonesia Tahun 2014-2020. In *Jurnal Ilmu Ekonomi (JIE)* (Vol. 6, Issue 4). https://doi.org/https://doi.org/10.22219/jie.v6i4.22608

Barasyid, A. I., & Setiawati, R. I. (2023a). *Analisis Pengaruh Kurs, Inflasi, dan Harga Batubara Acuan Terhadap Eskpor Batubara Indonesia ke China* (Vol. 11, Issue 1). https://doi.org/http://dx.doi.org/10.24127/pro.v11i1.7854

Barasyid, A. I., & Setiawati, R. I. S. (2023b). *Analisis Pengaruh Kurs, Inflasi, dan Harga batubara Acuan Terhadap Ekspor Batubara Indonesia ke China* (Vol. 11, Issue 1).

Da Silva, V. do C., Krisnamurthi, B., & Harmini. (2023). Analisis Faktor-Faktor Yang Memengaruhi Ekspor Ikan Tuna Beku Indonesia. *Forum Agribisnis*, *13*(2), 164–178. https://doi.org/10.29244/fagb.13.2.164-178

Hamdani, R., Supristiwendi, & Saragih, F. H. (2023). Faktor-faktor yang Mempengaruhi Ekspor Kelapa (Cocos Nucifer L) di Indonesia. In *Bisnis dan Akuntansi* (Vol. 2, Issue 6). http://bajangjournal.com/index.php/JEMBA

Hodijah, S., & Angelina, G. P. (2021). Analisis Pengaruh Ekspor dan Impor Terhadap Pertumbuhan Ekonomi di Indonesia. *Jurnal Manajemen Terapan Dan Keuangan*, *10*(01), 53–62. https://doi.org/10.22437/jmk.v10i01.12512

Huang, H., Cheng, X., Wei, L., Liu, D., & Deng, M. (2024). Are natural resources a driving force for financial development or a curse for the economy? Policy insight from Next-11 countries. *Resources Policy*, *88*, 104466. https://doi.org/10.1016/j.resourpol.2023.104466

Huang, W.-Q., & Liu, P. (2023). Cross-market risk spillovers among sovereign CDS, stock, foreign exchange and commodity markets: An interacting network perspective.

International Review of Financial Analysis, *90*, 102875. https://doi.org/10.1016/j.irfa.2023.102875

Hutabarat, A. H., Lubis, F. A., & Nasution, J. (2023). Pengaruh Produksi, Nilai Tukar dan Inflasi Terhadap Ekspor Lemak dan Minyak Hewan/Nabati di Sumatera Utara. *Jurnal Ekonomi Dan Bisnis Islam (JEBI)*, *3*(1), 213–228. https://doi.org/10.56013/jebi.v3i1.2022

Lean, H. H., & Smyth, R. (2010). Multivariate Granger causality between electricity generation, exports, prices and GDP in Malaysia. *Energy*, *35*(9), 3640–3648. https://doi.org/10.1016/j.energy.2010.05.008

Lyu, C., Xiao, Z., & Pu, Y. (2023). Financial openness and firm exports: Evidence from Foreign-owned Banks in China. *International Review of Financial Analysis*, *87*, 102614. https://doi.org/10.1016/j.irfa.2023.102614

Manilet, M. S., Kumenaung, A. G., & Rompas, W. F. I. (2023). *Analisis Pengaruh Produk Domestik Regional Bruto Per Kapita, Investasi, dan Inflasi Terhadap Total Ekspor di Provinsi Sulawesi Utara Tahun 2008-2022*. https://ejournal.unsrat.ac.id/v3/index.php/jbie/article/view/50308

Maulani, R. D., & Wahyuningsih, D. (2021). Analisis Ekspor Kopi Indonesia pada Pasar Internasional. *Pamator Journal*, *14*(1), 27–33. https://doi.org/10.21107/pamator.v14i1.8692

Moreira, R. R. (2014). Commodities Prices Volatility, Expected Inflation and GDP Levels: An Application for a Net-exporting Economy. *Procedia Economics and Finance*, *14*, 435–444. https://doi.org/10.1016/s2212-5671(14)00732-1

Pramastya, A. F. (2023). *Analisis Faktor-Faktor yang Mempengaruhi Ekspor Udang Indonesia Terhadap Enam Negara Tujuan*.

Pratomo, G., Clara, O., & Saputra, C. (2022). *Analisis Determinan Ekspor Minyak Kelapa Sawit Indonesia Pada Negara Asia-6 Tahun 2011-2020* (Vol. 04, Issue 1). Pratomo, G., & Saputra, O. C. C. (2022). Analisis Determinan Ekspor Minyak Kelapa Sawit Indonesia Pada Negara Asia-6 Tahun 2011-2020 (Vol. 04, Issue 1).

Pujiriyani, D. W. (2022). *Deagrarianization Problem and The Implications on Agricultural Policy in Indonesia*. https://doi.org/10.29313/mimbar.v0i0.9

Rahmah, A. E. (2020). *Analisis Determinan Ekspor Kayu Tropis Indonesia dengan Pendekatan Gravity Model*.

https://etd.usk.ac.id/index.php?p=show_detail&id=79914#:~:text=ANALISIS%20DETERMINAN%20EKSPOR%20KAYU%20TROPIS%20INDONESIA%20DENGAN,Inggris%20%C2%B7%20Tulisan%20Relevan%20%C2%B7%20Detail%20Cantuman.

Reddy, T. K., & Lakshmi, V. D. M. V. (2020). Role of Exports in Economic Growth: Evidence from India. *Economic Affairs (New Delhi)*, *65*(4), 481–490. https://doi.org/10.46852/0424-2513.4.2020.2

Shah, Z., Zaman, K., Khan, H. ur R., & Rashid, A. (2022). The Economic Value of Natural Resources and Its Implications for Pakistan's Economic Growth. *Commodities*, *1*(2), 65–97. https://doi.org/10.3390/commodities1020006

Sitanini, A., Sutanto, A., & Wijayanti, I. K. E. (2020). *Faktor-faktor yang Mempengaruhi Volume Ekspor Kopi Indonesia ke Jepang*. https://jurnal.unej.ac.id/index.php/JSEP

Suprapto, Y., Amanda, N., & Studi Manajemen, P. (2023). YUME: Journal of Management Analisa Hubungan Harga CPO Dunia, GDP Indonesia dan Produksi Sawit Indonesia terhadap Nilai Ekspor Indonesia. In *YUME: Journal of Management* (Vol. 6, Issue 2). https://journal.stieamkop.ac.id/index.php/yume/article/view/3981/2598

Suprapto, Y., Kelvin, Amanda, N., & Melissa. (2023). YUME: Journal of Management Analisa Hubungan Harga CPO Dunia, GDP Indonesia dan Produksi Sawit Indonesia terhadap Nilai Ekspor Indonesia. In *YUME: Journal of Management* (Vol. 6, Issue 2).

Tran, T. A. D., Phi, M. H., & Thai, L. (2020). Global value chains and the missing link between exchange rates and export diversification. *International Economics*, *164*, 194–205. https://doi.org/10.1016/j.inteco.2020.10.001

Trirahayuni, Anwar, K., Sari, C. P. M., & Usman, U. (2023). *Faktor-faktor yang mempengaruhi Ekspor Kopi Arabika ke Asia*. https://doi.org/10.29103/jepu.v6i1.12298

Urgessa, O. (2024). Effects of real effective exchange rate volatility on export earnings in Ethiopia: Symmetric and asymmetric effect analysis. *Heliyon*, *10*(1). https://doi.org/10.1016/j.heliyon.2023.e23529

Wang, H., Hao, L., Wang, W., & Chen, X. (2023). Natural resources lineage, high technology exports and economic performance: RCEP economies perspective of human capital and energy resources efficiency. *Resources Policy*, *87*, 104297. https://doi.org/10.1016/j.resourpol.2023.104297

Wijaya, D., Handayani, S., Lesmana, I., Pertumbuhan, A., & Indonesia, E. (2023). Analisis Pertumbuhan Ekonomi Indonesia, Nilai Tukar, Inflasi, Jumlah Penduduk, dan

Pertumbuhan PDB Terhadap Nilaia Ekspor Alas Kaki Indonesia Tahun 2005-2021. In *Accounting Cycle Journal* (Vol. 4, Issue 1).

Yahya, M. Th., Sabah, O. H., & Hamdoun, M. R. (2020). The Reality of Developing Country Exports and its Impact on Economic Growth For the Period 1995-2018. *TANMIYAT AL-RAFIDAIN*, *39*(127), 103. https://doi.org/10.33899/tanra.20

Zahrianti Erika, S., & Fadly, W. (2022). *Pengaruh Inflasi dan Nilai Tukar terhadap Ekspor Produk Halal Indonesia Periode 2016-2020*. https://www.salaamgateway.com/specialcoverage/SGIE20-21.

Zhong, S., & Su, B. (2023). Assessing factors driving international trade in natural resources 1995–2018. *Journal of Cleaner Production*, *389*, 136110. https://doi.org/10.1016/j.jclepro.2023.136110