Determinants Of Indonesian Exports To Australia For The Period 2000-2022

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ABSTRACT
The purpose of this research is to measure of Indonesia's GDP, Exchange Rate and Inflation Rate, on Indonesian exports to Australia for 22 years from 20 00 to 202 2. The data used are secondary data obtained from, World Bank, Bank of Indonesia, BPS and Ministry of Trade. This research uses secondary data with time series data used Multiple Linear regression. The results of this research show that Indonesia's GDP, Inflation Rate, has a positive and significant influence on Indonesian exports to Australia, while Exchange Rate has a negative and significant Indonesian export to Australia.

INTRODUCTION

Globalization has accelerated in the last thirty years, making world trade seek wider market opportunities (Kalaycıoğlu & Keskin, 2019). Developing countries achieving success in international markets abandoned import substitution policies throughout the world by adopting export-oriented growth policies (Aulakh et al., 2011). Indonesia has long established trade relations with other countries to gain benefits from other countries, especially when the Indonesian economy was in decline. Indonesia remains committed to strengthening bilateral and multilateral relations with other countries, including Australia. (Rinaldi, 2021) explain that international agreements are made based on dependency between one country with other countries which is determined by the level of excellence in each country.

The International Cooperation Agreement between Indonesia and Australia, namely IA-CEPA or the Indonesia-Australia Comprehensive Economic Partnership Agreement, was officially launched on July 5 2020. Based on this agreement, the Indonesian and Australian governments are exploring joint opportunities in trade in goods, services and investment, providing and increasing resource capacity, and expanding market access. IA-CEPA also supports efforts to accelerate the recovery of the Indonesian economy after the COVID-19 pandemic (Bappenas, 2021). Indonesia's trade balance with Australia tends to be negative. BPS noted that the value of Indonesia's exports to Australia in 2019 was only 2,820 million US$, while Indonesia's imports to Australia reached 5,515 million US$ (BPS, 2022). Figure 1 explains the development of the value

of exports and imports between Indonesia and Australia in millions of US$, where from 2007 to 2012 the gap between Indonesia's exports and imports to Australia was not too big. From 2007 to 2022, the difference in the export-import gap between Indonesia and Australia is getting bigger and even Indonesia's imports are increasing towards Australia. Since the IA-CEPA agreement, total trade between Indonesia and Australia in the January – August 2022 period was recorded at USD 8.59 billion or an increase of 8.34 percent compared to the same period the previous year. Of this value, Indonesia's exports to Australia amounted to USD 2.34 billion. Meanwhile, Indonesia's imports from Australia amounted to USD 6.25 billion.

Figure 1 Development Of Indonesia-Australia Export-Import Values 2007-2022
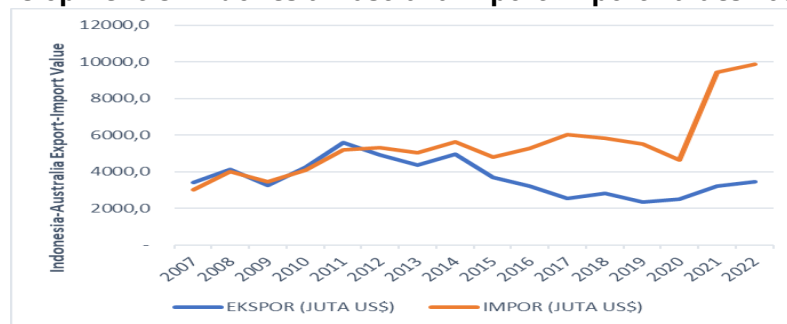
Source: Central Statistics Agency, 2023 (processed data)

This data shows that Indonesia imports more goods to Australia such as coal, aluminum, zinc, brown sugar, wheat seeds, iron ore and milk (Ministry of Trade, 2020). The gap between Indonesia-Australia's exports and imports began in 2013 and the highest gap occurred in 2021. The formation of *IA-CEPA* which was formed with the concept of " Economic Power Generation " is expected to open up opportunities for Indonesia not only to utilize raw material imports from Australia but also increasing exports to Australia, including petroleum, textiles and textile products, wood and furniture, rubber, communications equipment and electronic equipment. Indonesia is expected to not only export raw materials but increase the added value of export commodity goods. The Indonesian Ambassador to Australia Siswo Pramono explained that by optimizing the implementation of IA-CEPA, existing opportunities could be used to encourage Indonesian exports to Australia, including through the small and medium enterprises (UKM) sector which is the backbone of the national economy.

Table 1 Value Of Indonesian Commodity Exports To Australia

No	Commodity	Export Value
1	Electrical, electronic equipment	$328.82 M
2	Machinery, nuclear reactors, boilers	$303.02 M
3	Fertilizers	$263.18 M
4	Mineral fuels, oils, distillation products	$262.74 M
5	Wood charcoal, Wood and articles of wood	$201.99 M
6	Footwear, gaiters and the like	$183.96 M
7	Articles of apparel, not knit or crocheted	$182.30 M
8	Plastics	$143.95 M
9	Articles of iron or steel	$121.29 M
10	Paper and pulp	$120.30 M

Source: Trending Economics, 202 2 (processed data)

The table 1. above shows that the largest export commodity made by Indonesia to Australia in 2022 is electronic equipment, amounting to $328.82 billion, followed by exports of machinery and nuclear fuel amounting to $303.02 billion. According to *IDX Channel* data, Indonesia has many superior export products apart from oil and gas and coal commodities, including fisheries and marine products, footwear and textiles. Non-oil and gas products that make a significant contribution to export growth in October 2023 include precious metals (export value increased by 43.10% to $691.3 million) and footwear (export value increased by 39.55% to $589 million). Australia is recorded as exporting shrimp, rubber and rubber products, textiles and rubber products, electronics and furniture from Indonesia.

Previous research conducted by (Utami et al., n.d.) found that several variable factors influenced Indonesia's non-oil and gas exports, such as gross domestic product (GDP), exchange rate (exchange rate), and foreign capital investment (PMA). Alvaro R (2019) shows that the exchange rate, inflation and GDP together positively influence the value of Indonesia's copper exports. Empirical research related to factors influencing exports has also been carried out by Hasanah N and Fairuz M (2022) explaining that inflation can have an impact negatively significant to the value of Indonesia's exports to China, but the exchange rate (exchange rate) does not affect the value of Indonesia's exports to China, at the same time, inflation and the exchange rate (exchange rate) affect the amount of Indonesia's exports to China.

Research conducted by (Mahendra & Kesumajaya, 2015) shows that the determinants that influence Indonesian exports include: inflation rate, exchange rate (exchange rate), investment and loan interest rates. Previous empirical studies found that there were differences in the influence between the variables GDP growth, exchange rate, and inflation. Therefore, the aim of this research is to determine the influence of the Rupiah exchange rate variable against the US dollar, Indonesian GDP, and the inflation rate on the performance of Indonesian exports to Australia

LITERATURE REVIEW

Absolute Advantage Theory

The theory of absolute advantage was the first theory coined by Adam Smith. According to him, absolute advantage *is* the basis of trade between two countries. This means that two countries can both gain benefits when a country is more efficient than another country in producing a commodity, but less efficient than another country in producing another commodity, then each country can specialize and produce a commodity that has an absolute advantage. and exchanging them for other commodities that have absolute losses (Salvatore, 1997).

With this process, resources from both countries can be used in the most efficient way and can increase the output produced.

Comparative Advantage Theory

According to David Ricardo, written in his book entitled Principle of Political Economy and Taxation in 1817 (Salvatore, 1997), there is a basis for conducting international trade that can benefit both parties from each country when a country is less efficient or has an absolute loss compared to other countries. with other countries in producing two commodities. The country

must import commodities that have a greater absolute loss, and export commodities that have a smaller absolute loss and specialize in producing.

Exports And Gross Domestic Product

According to Mankiw (2003), exports are defined as various types of goods and services produced by a country and sold to other countries. GDP is an economic statistic that is considered the best parameter of a society's prosperity. This is based on the fact that GDP measures the total income of all economic participants and the total expenditure of a country on the simultaneous purchase of goods and services in the economy (Paramita, 2022). An increase in GDP has an impact on increasing the purchasing power of people who buy goods both domestically and imported from other countries.

On the one hand, increasing GDP facilitates society's capacity to encourage its production process and ultimately export abroad. In an open economic system, as is known, there is an equation {GDP = C + I + G + (XM)}, where the net result of reducing exports from imports is an identity function that will affect Gross Domestic Product. Research by (Junaidi et al., 2020) explains that there is a Duality Concept of the Relationship Theory between GDP and Exports where increasing GDP will not only bring improvements to the economy, but will also revitalize industry so that it will encourage more exports in the coming year.

Another procedure that influences GDP on the value of exports is that an increase in a country's GDP will encourage consumer purchasing power, which will indirectly have an impact on increasing the exchange rate (USD/Rupiah), namely the value of the Rupiah decreases, resulting in exports increasing.

Exports And Exchange Rates (Exchange Rates)

According to (Krugman & Obstfeld, 2009), exchange rates (exchange rates) defined as a price measured or expressed by one country's currency against another country's currency. Foreign and domestic currency exchange rates can also affect a country's exports. Each country has an exchange rate system depending on the policies taken by each country. The exchange rate system currently adopted by Indonesia is a floating exchange rate system, which means that the Rupiah exchange rate is formed and applied entirely based on market mechanisms or the law of market supply and demand.

When the exchange rate falls, the value of the domestic currency becomes depreciated, and the value of foreign currency automatically increases, which results in exports tending to increase and imports to decrease. Therefore, the exchange rate has a one-sided relationship with the export value. When the value of the dollar increases, the volume of exports also increases (Wardhana, 2016).

Mankiw explains in (Ginting, 2013) that a country's real exchange rate influences its macroeconomic situation, especially its net exports and trade balance. This effect can be defined as the relationship between net exports and the real exchange rate, or trade balance.

Exports and Inflation

Bank Indonesia defines inflation as occurring when there is a general and continuous increase in prices. If inflation increases, domestic commodity prices will continue to increase. The increasing level of inflation has an impact on increasing the production costs of exported goods,

resulting in fewer exporters optimal in production and causes a decline in exports due to high production costs and a negative relationship between the inflation rate and exports.

METHODS

This writing uses data over a period of time or time series for the 22-year period 2000 - 2022 using data on Indonesian exports to Australia, both oil and gas and non-oil and gas, Indonesian GDP, the IDR exchange rate against the US$ and the inflation rate. Indonesia, compiled from various official publications such as the World Bank, Bank Indonesia, Central Statistics Agency and Ministry of Trade.

This research approach is quantitative analysis. The analytical tool used is multiple linear regression analysis using the Eviews 10 application. Multiple regression analysis is intended to test the following independent variables: Indonesia's GDP (X1), the Rupiah exchange rate against the US dollar (X2), and Indonesia's inflation rate (X3). The dependent variable is the number of Indonesian exports to Australia (Y).

This analysis method is used to analyze several dependent variables with one independent variable. The equation model built in this paper is as follows:

$$Y_n = \beta_o + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \varepsilon \quad (1)$$

Where:
X_{1t} : Indonesia's GDP growth
X_{2t} : IDR exchange rate against US$
X_{3t} : Indonesia's Inflation Rate
Y_t : Value of Indonesian Exports to Australia
β_o : Constant
β_1 : Indonesian GDP Regression Coefficient
β_2 : Regression Coefficient of IDR exchange rate against US$
β_3 : Regression Coefficient for Indonesia's Inflation Rate
ε : Error Term (*Standard Error*)

Classic Assumption Test

Classical assumption testing is needed to check whether the results of the regression estimates are built free from symptoms of heteroscedasticity and autocorrelation, and whether the resulting data is normally distributed. Researchers created a linear estimator that fits the minimum variance or *BLUE* (*Best Linear Unbiased Estimation*) which is important for testing classical assumptions. This means there is no problem in the regression model. The hypothesis was then tested by Multiple Linear Analysis using the F statistical test, the T statistical test, and the R-squared coefficient of determination test.

For values expressed as F < (α = 0.05), H1 is accepted and H0 is rejected, so it can be interpreted that the dependent variables simultaneously (simultaneously) influence the independent variable. The Partial t test can also check the possible value of t - calculate if the possible value is t count < (α = 0.05), H1 is accepted H0 is rejected and. This means that the independent variable independently influences the independent variable. The coefficient of determination test (R^2) can be found from the R-squared value.

RESULTS

Development Of Indonesian Exports To Australia

The International Cooperation Agreement between Indonesia and Australia, namely IA-CEPA or the Indonesia-Australia Comprehensive Economic Partnership Agreement, was officially launched on July 5 2020. Based on this agreement, the Indonesian and Australian governments are exploring joint opportunities in trade in goods, services and investment. Providing and increasing resource capacity, especially Indonesian human resources. B PS noted that in 2019, Indonesia's exports to Australia were only $2.82 billion, while Indonesia's imports to Australia were $5.515 billion (BPS, 2022).

IA-CEPA was founded based on the concept of "Economic Powerhouse", IA-CEPA not only allows Indonesia to take advantage of imported raw materials from Australia, but also imports oil, wood, furniture, textiles, textile products, rubber, telecommunications, devices and electronics. and others to Australia. The aim is to provide opportunities to increase exports.

Normality Test

Based on the results of the normality test, it can be concluded that the data used in the research is normally distributed, because the probability value of 0.558589 is greater than the significance level used, namely $\alpha = 0.05$ or 5%.

Heteroscedasticity Test

Based on the results of the heteroscedasticity test, the resulting probability value is chi-square of 0.4201. The value obtained is greater than the α value (0.05). It can be concluded that the data used does not contain heteroscedasticity.

Autocorrelation Test

Based on the test output results, the chi-square probability value of 0.5187 is greater than α (0.05), meaning that there is no autocorrelation in the model.

Multiple Linear Regression Test Results

Based on research data that meets the classical assumption test, a multiple regression test can then be carried out and the following results are obtained:

Table 2 Output Results Of Multiple Linear Analysis

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	5.05E+09	9.09E+08	5.551323	0.0000
PDBIND	0.005002	0.000635	7.882829	0.0000
EXRATE	-551973.2	88634.00	-6.227555	0.0000
INFL	1.23E+08	52495885	2.347280	0.0299
R-Squared	0.774561			
Adj. R-squared	0.738965			
SE of Regression	5.79E+08			
Sum squared resid	6.36E+18			
Likelihood Log	- 494.4905			
F-statistic	21.75999			
Prob (F-statistic)	0.000002			

Based on the results of the table above, a regression model can be formulated as follows:

EXPORT = 5,050,000,000 + 0.005002PDIBND – 551,973.2EXRATE + 123,000,000INFL (2)

Where :
EXPORT: Value of Indonesian Exports to Australia
GDPIND: Indonesia's GDP
EXRATE: IDR exchange rate against US$
INFL: Indonesia's Inflation Rate

In the results of the regression model equation, *the GDPIND variable* has a positive coefficient, namely 0.005002, this means that the correlation between Indonesia's GDP and Indonesia's exports to Australia is positive, where a 1 percent increase in Indonesia's GDP will be followed by an increase in Indonesia's exports to Australia.

The *EXRATE* variable has a negative coefficient, namely -551,973.2, this means that the correlation between the IDR exchange rate against the US$ and Indonesian exports to Australia is negative, where a 1 percent increase in the exchange rate against the US Dollar will be followed by a decrease in Indonesian exports to Australia. The *INFL* variable has a positive coefficient, namely 123,000,000, this means that the correlation between the inflation rate and Indonesian exports to Australia is positive, where a 1 percent increase in Indonesian inflation will be followed by an increase in Indonesian exports to Australia.

F Test
Table 3 F Test Output

Statistical F Value	21.75
α	0,000
Significance	Significant

Based on calculations with Eviews 9, the calculated F is 21.75, while the F table with a confidence level of 95% (α = 5%) is 0.000. In this way, the variables of Indonesia's GDP rate, exchange rate against the US$, and inflation simultaneously or together have a significant effect on Indonesian exports to Australia for the 2000-2022 period.

Coefficient Of Determination (R^2)
Based on the results of the regression carried out, the coefficient of determination (R^2) is 0.77. This shows that the independent variable Indonesia's exports to Australia can be explained by the independent variables in this research, namely Indonesia's GDP, the exchange rate against the US$, and the inflation rate for the 2000-2022 period of 77%. Meanwhile, the remaining 23% is influenced by other factors outside this research model.

Partial t Test
Table 4 Partial t Test Output

Variable	t-Statistics	Prob.	Significance
C	5.551323	0.0000	Significant
PDBIND	7.882829	0.0000	Significant
EXRATE	-6.227555	0.0000	Significant
INFL	2.347280	0.0299	Significant

Based on calculations using the Eviews 10 application program, the results show that the independent variables Indonesian GDP, exchange rate against the US$, and inflation rate together (partially) have a significant effect on the dependent variable Indonesian exports to Australia data for the period 2000-2022.

Indonesian GDP Against The Value Of Indonesian Exports To Australia

Based on the results of this research, Indonesia's GDP has a positive and significant effect on Indonesia's exports to Australia with a coefficient of 0.005002, this shows that every 1 percent increase in Indonesia's GDP will result in an increase in Indonesia's exports to Australia of US$ 0.005002 million. This is in line with *the Monetary Approach to the Balance Payment Theory* which assumes that exports can be influenced by Gross Domestic Product (Novalina, 2016). Other research is also similar to research produced by (Utami et al., n.d.), showing a positive and significant influence on non-oil and gas exports in Indonesia.

The results of research from Soelistyo and Azizah (2022) who examined the Determinants of Indonesian Coal Exports for 2014-2020 also found the same thing, namely that the Indonesian GDP variable also had a statistically significant positive influence. Binh, Dinh Thi Thanh et,.al, (2011) also stated that the Vietnam GDP variable had a significant positive effect on Vietnam's trade to destination countries.

IDR Exchange Rate Against Us$ Against The Value Of Indonesian Exports To Australia

Based on the results obtained in this research, it shows that for every 1 percent increase in the exchange rate against the US$, it is said that in this case the country's exchange rate depreciates, it will result in a decrease in Indonesia's exports to Australia by US$551,973. These results are in accordance with research by Permadi (2018) that between 1989 and 2016, the rupiah exchange rate against the US dollar had a negative and significant influence on coffee exports to Australia.

(Ginting, 2013) study found that the exchange rate had a negative and significant impact on Indonesian exports in both the long and short term. This shows how important exchange rate policy is for Indonesia's export growth.

Inflation Rate Against The Value Of Indonesian Exports To Australia

The results of this research show that the inflation rate variable (coefficient 123,000,000) of Indonesian exports to Australia has a positive and significant influence. This shows that for every 1% increase in inflation, exports increase by $123 million. A study conducted by Soelistyo and Azizah (2022) investigated Indonesian coal exports and found that even though inflation in Indonesia was high, commodity prices, including coal prices, continued to increase where Indonesian coal was still expensive on the international market. The results of this research are not in line with theory because an increase in domestic prices should cause production costs to be quite high and this causes a decrease in the value of exports.

According to data from The Australian Government, from *the Department of Foreign Affairs and Trade* in 2023 noted that Australia's imports are dominated by *Refined Petroleum*, *Passanger Motor Vehicles* and *Telcom Equipment & Parts*. Based on data collected from the Ministry of Trade, Indonesia's largest exports to Australia so far are dominated by raw materials including iron ore amounting to US$ 450.3 million, coal with a value of US$ 610.9 million, and crude oil 474,800

metric tons. This shows that demand for exports of raw material commodities remains high for these commodities to be processed by Australia even though inflation is high in Indonesia.

CONCLUSION

The value of Indonesia's exports to Australia is influenced by the Indonesian GDP variable, the IDR exchange rate against the US$ and the inflation rate which have a significant influence. Indonesia's GDP has a positive effect on the value of Indonesia's exports to Australia in accordance with the causality theory where the identity formula in an open economy state that net exports minus imports will affect GDP and vice versa.

The IDR exchange rate against the US$ has a negative and significant effect on Indonesian exports to Australia because if the country's exchange rate depreciates, it will result in a decrease in exports. The inflation rate has a significant positive effect on Indonesian exports to Australia.

The results of this research contradict theory, but Australia's dependence on raw materials means that Australia imports from countries producing raw material commodities such as Indonesia and Malaysia. Indonesia is expected not only to export raw commodities but also to add value to export commodities so as to create a theory of absolute advantage.

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