

ANALYSIS OF EXPORT DETERMINANTS: INDONESIAN CASE

Analisis Determinan Ekspor: Kasus Indonesia

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Abstrak

Ekspor berdampak langsung terhadap pendapatan nasional, yang mana juga akan berimplikasi pada peningkatan tingkat produktivitas, inovasi, dan alih teknologi. Urgensi ekspor di dalam perspektif perekonomian terbuka adalah untuk meningkatkan kapasitas pertumbuhan ekonomi. Namun sayangnya, berbagai faktor seringkali menghalangi kinerja ekspor tersebut sehingga mendisrupsi potensi benefit yang diperoleh. Tujuan utama studi ini adalah menganalisis dampak variabel makroekonomi, yaitu nilai tukar, Foreign Direct Investment (FDI), Gross Domestic Product (GDP) per kapita, dan inflasi terhadap ekspor Indonesia pada periode tahun 1970-2022. Untuk menjawabnya, penelitian ini menggunakan data time series dengan metode Autoregressive Distributed Lag-Error Correction Model (ARDL-ECM). Temuan analisis menunjukkan bahwa nilai tukar, FDI, GDP per kapita, dan inflasi berpengaruh terhadap ekspor secara positif dan signifikan di dalam jangka panjang. Oleh sebab itu, apabila Pemerintah Indonesia ingin menjaga neraca perdagangannya maka dianjurkan untuk mempertahankan kebijakan nilai tukar yang mengambang dan terkendali serta melakukan koordinasi antarkebijakan yang pro terhadap investasi yang berorientasi ekspor.

Kata kunci: Nilai Tukar, Ekspor, Foreign Direct Investment, Inflasi, GDP per Kapita

Abstract

Exports directly impact national income, which will also have implications for increasing levels of productivity, innovation, and technology transfer. The urgency of exports from an open economic perspective is to increase the capacity for economic growth. Unfortunately, various factors often hinder export performance, disrupting the potential benefits. The main objective of this study is to analyze the impact of macroeconomic variables, namely the exchange rate, foreign direct investment (FDI), Gross Domestic Product (GDP) per capita, and inflation on Indonesian exports in the period 1970-2022. This research uses time series data with the Autoregressive Distributed Lag-Error Correction Model (ARDL-ECM) method. The findings of the analysis show that the exchange rate, FDI, GDP per capita, and inflation have a positive and significant effect on exports in the long term. Therefore, if the Indonesian government wants to maintain its trade balance, it is recommended to keep a floating and controlled exchange rate policy and coordinate pro-export-oriented investment policies.

Keywords: Exchange Rate, Exports, Foreign Direct Investment, Inflation, GDP per Capita

JEL Classifications: E31, F100, F430

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INTRODUCTION

An open economy provides positive impacts through absolute and comparative economic benefits through international trade. International transactions can increase state income, create business opportunities, invite capital inflow, and provide a sustainable business cycle. A key indicator in an open economy is the volume of exports, which supports the balance of payments. Exports significantly contribute in both developed and developing countries. Majumder et al. (2022) explained that the success of export activities can indicate industrial progress in a country and an indication of an adequate investment process.

Export performance is influenced by macroeconomic variables whose fluctuations can be controlled, so this can be used as a strategy to increase exports. Indonesia's export activities increase productivity, absorbing local labor and resources. Nowadays, the world economy has entered a period of recovery from the recession caused by the COVID-19 pandemic. Indonesia is also impacted on macro- and micro-economically. Bank Indonesia (2023) stated that world economic performance continues to

improve in line with monetary policy stimulus in many countries for recovery. To recover national economic conditions, Bank Indonesia issued a combination of monetary and fiscal stimulus policies that are adjusted to reduce inflation and the need to maintain the stability of the rupiah exchange rate.

According to the Classical and Neo-Classical views, international trade is an effective way to meet people's needs (Sarwedi, 2010). Balassa (1985) explained that export activities are essential for encouraging national output growth and increasing foreign exchange supplies. Well-developed exports provide more employment opportunities, reduce the social costs of high unemployment, encourage innovation, increase the level of aggregate demand in the economy, and improve the balance of payments posture. Nguyen (2016) conveyed that exports create industry by providing developing materials, creating semi-finished materials, and resulting in comprehensive changes in the economic structure by creating a balance between sectors. Hence, it can be illustrated that the transmission mechanism in an open economy starts with increasing demand levels, then triggering capital inflows,

encouraging productivity, increased productivity, expanding export markets, and modernizing the domestic economy.

Riedel (1975) explained the urgency of exports with the Export Led-Growth theory, especially for developing countries, because empirically exports significantly increase state income. Several studies by Ebadi & Ebadi (2015), Sarwedi (2010) and Shetewy et al. (2022) mentioned the determining factors of a country's exports, such as the exchange rate, Foreign Direct Investment (FDI), Gross Domestic Product (GDP) per capita, and inflation. The exchange rate is a key factor in exports (Liming et al., 2020; Ramoni-Perazzi & Romero, 2022). FDI is positively correlated with exports (Xiong, 2022); in line with economic integration empirically, there has been an increase in FDI for both exports and imports (Maza & Gutiérrez-Portilla, 2022). GDP per capita is correlated with exports (Kuznets, 1955) and an increase in export volume, which causes an increase in state income (Akbas & Sancar, 2021). High inflation will suppress investment which has an

impact on exports (Ebadi & Ebadi, 2015).

Several previous researchers have estimated the determinants of exports as follows: Abidin et al. (2013) explained the vital role of economic conditions, economic openness, inflation, and exchange rates in increasing exports in Malaysia. Suárez-porto & Guisado-gonzález (2014) discovered a significant influence of product innovation, production innovation, use of technology, and company size on export volume in Spain. Research conducted by Ebadi & Ebadi (2015) proved that the exchange rate and inflation had a positive effect on Iran's exports. Using data from Indonesia, Sarwedi (2010) analyzed the influence of export product prices, inflation, exchange rates, structural economics, and FDI on export performance. In the short term, economic structure and inflation affected exports. Inflation was insignificant in the short term and had a negative effect in the long term. FDI had a positive effect only in the long term, and prices had a positive effect on export volume.

Furthermore, the research significantly contributed to filling the literature gap; from various studies,

relatively few analyze macroeconomic indicators (exchange rate, FDI, inflation, and GDP per capita) on export. Macroeconomic fundamentals played a significant role for countries, indicating potential sectors and a baseline for investors. Studies of export have been extensively carried out as material for policymakers, so this research contributed to filling (1) the evidence gap by estimating macroeconomic key variables on exports, aiming to expand empirical results in Indonesia, (2) gap methodology with the ARDL-ECM time series method that provides long and short-term estimates for generating valid estimation results, looking at export fluctuations, and determining relevant policies, and (3) theoretical gap in the literature in export case studies.

Based on this background, the main objective of this research is to analyze the influence of the exchange rate, FDI, GDP per capita, and inflation on Indonesia's export performance for the period 1970-2022. The research contribution to the literature on international trade studies used the ARDL-ECM econometric approach, which could estimate variables in the long and short terms.

METHOD

This research estimated the effect of the exchange rate, foreign direct investment, GDP per capita, and inflation on Indonesian exports. The research motivation was that Indonesia had a market share of commodities in demand worldwide. Our research was based on secondary data from World Development Indicators (WDI), the World Bank, with annual data for 1970-2022. The estimated research model referred to Sarwedi (2010) and Ebadi & Ebadi (2015). The research model is shown in equation (1).

$$\ln X_t = \beta_0 + \beta_1 \ln EXC_t + \beta_2 FDI_t + \beta_3 \ln GDP_t + \beta_4 INF_t + \mu_t \dots \dots \dots (1)$$

Where X_t is the value of export volume in period t . EXC was the exchange rate price in period t . FDI was foreign direct investment in period t . GDP was GDP per capita in period t , INF was inflation in period t , and μ_t was a disturbance variable. High national income tended to increase international trade transactions. An increase in currency could also increase exports due to normative price effects. The exchange rate is predicted to have a negative effect on exports,

foreign direct investment is predicted to have a positive effect on exports, GDP is predicted to have a positive effect on exports, and inflation is predicted to have a negative effect on exports.

This research employed the *Autoregressive Distributed Lag-Error Correction Model* (ARDL-ECM) method developed by Pesaran et al. (2001). The Autoregressive Distributed-Lag/Bounds Testing Cointegration was used to determine the long-term relationship of regressors with exports. The model is shown in equation (2).

$$\begin{aligned} \Delta \ln X_t = & \alpha + \beta_1 \ln X_{t-1} + \beta_2 \ln EXC_{t-1} + \beta_3 FDI_{t-1} + \beta_4 \ln GDP_{t-1} + \beta_5 INF_{t-1} \\ & + \sum_{i=1}^p \delta_{1i} \Delta \ln X_{t-i} + \sum_{i=0}^q \delta_{2i} \Delta \ln EXC_{t-i} \\ & + \sum_{k=0}^q \delta_{3k} \Delta FDI_{t-k} \\ & + \sum_{m=0}^q \delta_{4m} \Delta \ln GDP_{t-m} + \sum_{o=0}^q \delta_{5o} \Delta INF_{t-o} + \mu_t \dots \dots \dots (2) \end{aligned}$$

The coefficients $\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 indicated a long-term relationship. Hypothesis H_0 implied that there was no cointegration relationship, while H_1 indicated that there was a cointegration relationship between the variables in the research model. Based on Pesaran et al.

(2001), the f-statistic was smaller than the critical value of both $I(0)$ and $I(1)$; thus, it can be implied that there was no cointegration in the research variables. However, if the f-statistic was greater than the critical value of either $I(0)$ or $I(1)$, it indicated the presence of cointegration.

The next stage was to test the short-term coefficients using the Error Correction Model (ECM) method, shown in equation (3).

$$\begin{aligned} \Delta \ln X_t = & \alpha + \sum_{i=1}^p \theta_{1i} \Delta \ln X_{t-i} + \sum_{j=1}^q \delta_{1j} \Delta \ln EXC_{t-j} \\ & + \sum_{j=1}^q \delta_{2j} \Delta FDI_{t-j} \\ & + \sum_{j=1}^q \delta_{3j} \Delta \ln GDP_{t-j} + \sum_{j=1}^q \delta_{4j} \Delta INF_{t-j} + \gamma ECT_{t-1} + \mu_t \dots \dots \dots (3) \end{aligned}$$

We selected the Akaike Info Criterion (AIC) lag selection criterion to select the best lag length model and estimated the applied ECM to analyze the dynamics of, along with a description of the data, basis for selecting AIC was because it could provide the closest insight to the actual data. The following testing stage was a stability test, a diagnostic test, and a stability test carried out with cumulative sum (CUSUM) and cumulative sum of squares

(CUSUMSQ). A complete explanation of the variables is displayed in Table 1, along with a description of the data, which can be explained using descriptive statistics shown in Table 2.

Table 1. Definition of Operational Variable

Variable	Definition of Operational Variable
Export (X)	Total exports of goods and services (constant 2015 USD). The data was transformed into a natural logarithm.
Exchange Rate (EXC)	The official exchange rate issued by the monetary authority, in units of the rupiah relative to the USD. The data was transformed in natural logarithm form.
Foreign Direct Investment (FDI)	The net inflows of investment. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital, as shown in the balance of payments.
GDP per capita (GDP)	State income divided by population in the middle of the year (constant 2015 USD). The data was transformed into a natural logarithm.
Inflation (INF)	Consumer price index which showed changes in the prices of goods and services faced by consumers (percent).

Table 2 presents the descriptive statistics of the research data. The lowest value of exports is 23.413, and the highest value is 26.283.

Table 2. Statistic Descriptif of Variables

	LX	LEXC	LGDP	INF	FDI
Mean	24.935	7.992	7.457	10.388	1.236
Median	25.003	7.758	7.498	7.973	1.270
Max	26.283	9.605	8.312	58.451	4.241
Min	23.413	5.893	6.507	1.560	-2.757
Std. Dev.	0.808	1.337	0.519	9.660	1.289
Obs.	53	53	53	53	53

Source: Secondary data (2024), processed.

The lowest exchange rate is 5.893, the highest is 9.605, and the average is 7.992. The average GDP is 7.457, with the lowest value of 6.507 and the highest value of 8.312. The average inflation rate during the research period is 10.388, with the lowest inflation value being 1,506 and the highest being 58.452. FDI has an average of 1.236, while the highest value is 4.241, and the lowest value is -2.757.

RESULTS

This research used time series data, which usually had a unit root. If the data had a unit root, it indicated that fluctuations were not around the average. Hence, it was necessary to test the stationarity of time series data. The stationarity tests employed

were Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP). ADF and PP testing used a significant level of 5 percent. The results of the data stationarity test are shown in Table 3. Stationary inflation was at level and 1st difference, both with the ADF test and the PP test. Exports, GDP per capita, and exchange rates were not stationary at a level. These variables were stationary at the 1st difference. Based on the ADF test, FDI was stationary at the Intercept and Trend level with a significance level of 10 percent. Meanwhile, based on the PP test, it was stationary at the level. Since the unit root result emphasized that two variables were I(0) and I(1); ARDL was a suitable method to apply (Pesaran et al., 2001) and to identify whether there was a long-term relationship between the variables using ARDL bound testing procedure.

To determine the long-term relationship between variables in the model, Bound Testing developed by Pesaran et al. (2001) was used. From the Bound Testing results,

the f- statistic value obtained was 7.44 at the 1 percent significance level and the critical value was 3.74 for I(0) and 5.06 for I(1). It indicated a long-term relationship between variables in the research model. The Bounds test results are shown in Table 4.

Based on long-term ARDL estimation results (see Table 5), the exchange rate was proven to have a significant effect on exports. A coefficient with a positive sign implied that every 1 percent change in the exchange rate caused a change in exports of 0.3 percent. Exchange rate movements could make commodity prices cheaper or more expensive. Price changes also affected changes in demand and export volume; hence, the balance of trade position could also change. The research finding was in line with Ebadi & Ebadi (2015) that the exchange rate had a positive effect on exports. The mechanism that occurred because there was a strengthening of the exchange rate caused the price of Indonesian goods to become more expensive abroad and demand to fall.

Table 3. Results of Unit Root Tests

Variable	Augmented Dickey-Fuller				Phillips-Perron			
	Level		1 st Difference		Level		1 st Difference	
	Intercept	Intercept & Trend	Intercept	Intercept & Trend	Intercept	Intercept & Trend	Intercept	Intercept & Trend
LX	-0.896	-3.037	-7.583***	-7.513***	-0.896	-3.171	-7.589***	-7.517***
LEXC	-1.018	-1.676	-7.444***	-7.429***	-1.019	-1.739	-7.445***	-7.430***
FDI	-3.425	-3.418*	-9.990***	-9.939***	-3.416***	-3.400*	-9.990***	-9.939***
LGDP	-0.971	-2.754	-5.407***	-5.386***	-0.971	-2.377	-5.373***	-5.350***
INF	-4.816***	-5.455***	-8.358***	-8.299***	-4.816***	-5.331***	-22.306***	-23.924***

Source: Secondary data (2024), processed.

Note: The values in table are corresponding p values significance level at is shown by ***1 percent, **5 percent, and *10 percent respectively.

On the other side, if the rupiah exchange rate depreciated, it would cause the price of Indonesian goods to be cheaper abroad, thereby creating cheap production for foreign consumers and increasing exports. However, the research findings differed from those of Ginting (2013), who discovered that the exchange rate negatively affected Indonesian exports in both the long and short term. Sarwedi (2010) revealed that the exchange rate had a significant positive impact on exports in the short term but had a negative impact in the long term. Basically, foreign trade competitiveness is determined by two things, namely, the exchange rate and the price ratio of the two countries. If the exchange rate increases (appreciates), assuming a constant price ratio, then there is a

positive relationship with the trade balance. This circumstance is because a higher exchange rate will indicate low prices for Indonesian products (domestic) relative to prices of other products. After all, the same dollar will provide a more considerable amount of Rupiah (Mankiw, 2003).

Table 4. ARDL Bound Test

Test Statistic	Value	k	Critical Value Bounds	I0 Bound	I1 Bound
F-statistic	7.445	4	Significance		
			10 percent	2.45	3.52
			5 percent	2.86	4.01
			2.50 percent	3.25	4.49
			1 percent	3.74	5.06

Source: Secondary data (2024), processed.

Akbas & Sancar (2021) also found that the real exchange rate negatively affected exports in developed countries, while in developing

countries the exchange rate negatively impacted exports. The exchange rate policy was important because a stable exchange rate could increase exports.

Furthermore, the long-term estimation results indicated that FDI was significantly positive, causing changes in exports. Every 1 percent increase in FDI caused an increase in exports of 0.8 percent. The research results were in line with the findings of Majumder et al. (2022), Sarwedi (2010) and Szkorupová (2014). FDI triggered an increase in exports and improvements in infrastructure, which increasingly attracted foreign investors who could advance the industry. Narayan et al. (2022) emphasized that in many pieces of literature, there was a relationship between FDI and exports. The transmission mechanism, i.e., FDI created technology transfer and development of both technical and skills, thereby increasing productivity. Reducing asymmetric information in international markets also allowed for efficiency and development of export potential.

Based on the long-term estimation results in this research, GDP per capita also showed a positive coefficient affecting exports.

It was in accordance with the findings of Abidin et al. (2013), Dritsaki & Stiakakis (2014), Herrera-echeverri et al. (2022), Maza & Gutiérrez-Portilla (2022), Narayan & Bhattacharya (2019), Sabaruddin (2016) and Shetewy et al. (2022). The urgency of the relationship between exports and national income has been mentioned in various literature; export-oriented production increased real wages, capital formation, and technological progress (Herrera-echeverri et al., 2022). Increasing GDP per capita would have implications for increasing production and reducing imports (Abidin et al., 2013).

Interestingly, the results of the long-term estimation findings also indicated that inflation had a positive effect on exports. According to Ebadi & Ebadi (2015), inflation affected exports positively. If inflation was controlled, the exchange rate could strengthen and increase exports. However, it was different from Sarwedi (2010) that inflation had a long-term negative effect on exports. It denoted that an increase in the inflation rate could reduce exports through increasing production costs.

Table 5. Estimated Long-run Coefficient Using ARDL Model

Variable	Coef.	Std. Error	t-Stat.	Prob.
<i>LEXC</i>	0.272	0.079	3.436	0.001***
<i>FDI</i>	0.862	0.264	3.260	0.002***
<i>LGDP</i>	0.013	0.006	2.201	0.035**
<i>INF</i>	0.110	0.045	2.426	0.021**

Source: Secondary data (2024), processed.

Note: The values in table are corresponding P values significance level at is shown by ***1 percent, **5 percent, and *10 percent respectively.

Sarwedi's research (2010) estimated data in Indonesia, with the dependent variable exports and regressors export product cost, foreign exchange rate, economic structure, foreign investment, and inflation using a combination of ECM and Weighted Least Square methods. The finding reported a positive significant effect of export commodities on export volume in the short term but had a negative effect in the long term. The exchange rate had a negative effect. Meanwhile, economic structure played a positive role. FDI also positively affected exports in the long term. Inflation was insignificant for exports in the short term and had a negative effect in the long term.

Research in Croatia by Dritsaki & Stiakakis (2014) tested the impact

of GDP and FDI on exports using the ARDL-ECM method. The finding revealed that FDI did not encourage exports. It was proven that there was a high causal relationship between exports and economic growth. Szkorupová (2014) analyzed the correlation of FDI, exports, and Slovakian economic growth. The findings confirmed that there was a long-term causal relationship between these variables. FDI could encourage exports in the country. Ebadi & Ebadi (2015) research employed the Ordinary Least Square method, which confirmed the positive effect of exchange rates and inflation on exports in developing countries. Controlling inflation was needed and eliminating investment barriers in order to encourage conditions and stability for local producers. Research by Zaman et al. (2021) with GMM panel estimated in 64 Belt and Road Initiative (BRI) countries obtained that investment and exports had a positive impact on economic growth.

The short-term estimation results are presented in Table 6. The ARDL estimation employed the lagged independent variable of the dependent variable. The research results revealed that lag-1 exports had a positive effect, while lag-2

exports had a negative impact on exports. The exchange rate variable and lag-2 of the exchange rate in the short term were proven to be significantly positive on exports. Nevertheless, there was a difference, i.e., lag-1 and lag-3 of the exchange rate had a negative impact. In the short term, FDI had a positive effect on exports, while lag-1 FDI had a negative effect. In the short term, GDP per capita was significantly positive for exports, but lag-1 GDP per capita had a negative effect. Inflation had a positive effect in the short term, but lag-1 inflation and lag-2 inflation had a negative effect on exports. The ECM in the estimation results indicated that the CointEq (-1) coefficient was -0.34 and was significant. It implied that the disequilibrium between variables in the research model would be corrected again within one period (annually). The negative coefficient indicated that there was a correction mechanism for deviations from the long-term balance to adjust exports again.

The Mundell-Flemming model states a negative relationship between the exchange rate and exports. However, if the exchange rate

is expressed in direct terms (Rupiah per USD), a higher exchange rate indicates an event of a decline in the rupiah exchange rate or depreciation. If the exchange rate appreciates, it creates a positive relationship with the trade balance. The strengthening of the USD exchange rate indicates the low prices of Indonesian products relative to the prices of products from other countries. The results of this study show that there is a positive influence of the exchange rate on exports in the long and short term. This finding is as expected, where an increase in the exchange rate will increase competitiveness abroad (prices will become cheaper abroad) so that exports will increase. FDI and exports have an inverse relationship, an increase in exports causes FDI to be depressed. However, various literature explains that the influence of FDI on exports can change according to economic conditions. The findings in this study show the positive influence of FDI on exports in the long and short term. An increase in national income will increase people's purchasing power to import.

On the other hand, increasing national income will also increase people's ability to carry out production processes, which can ultimately be exported to other countries. Inflation causes a decline in exports.

However, this study found that inflation had a positive effect. This situation could be due to increased production of goods and services from debt capital.

Table 6. Estimated Short-run Coefficient Using ARDL-ECM Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>C</i>	5.658	0.857	6.595	0.000***
<i>D(LX(-1))</i>	0.257	0.084	3.063	0.004***
<i>D(LX(-2))</i>	-0.150	0.074	-2.016	0.052*
<i>D(LEXC)</i>	0.067	0.066	1.017	0.317
<i>D(LEXC(-1))</i>	-0.361	0.059	-6.072	0.000***
<i>D(LEXC(-2))</i>	0.102	0.050	2.048	0.049
<i>D(LEXC(-3))</i>	-0.214	0.039	-5.363	0.000***
<i>D(FDI)</i>	0.012	0.006	1.937	0.062*
<i>D(FDI(-1))</i>	-0.031	0.007	-4.290	0.000***
<i>D(LGDP)</i>	2.282	0.298	7.653	0.000***
<i>D(LGDP(-1))</i>	-1.882	0.331	-5.677	0.000***
<i>D(INF)</i>	0.008	0.001	6.575	0.000***
<i>D(INF(-1))</i>	-0.004	0.001	-4.168	0.000***
<i>D(INF(-2))</i>	-0.001	0.000	-1.952	0.060*
<i>CointEq(-1)</i>	-0.348	0.053	-6.495	0.000***
Adjusted R ²	0.867			
F-statistic	23.492			
Prob(F-stat.)	0.000***			

Source: Secondary data (2024), processed.

Note: The values in table are corresponding P values significance level at is shown by ***1 percent, **5 percent, and *10 percent respectively.

The ARDL method required diagnostic and stability tests to avoid errors in interpretation. Diagnostic tests were carried out using normality tests, serial correlation tests, and heteroscedasticity tests. Table 7 shows the results of diagnostic tests, where the research model met all classic econometric assumptions, including errors, which were normally distributed,

did not contain serial correlation, and there was no heteroscedasticity. Furthermore, the stability testing of the model throughout the observation period used the CUSUM and CUSUMQ tests. From the CUSUM and QUSUMQ test results, the data distribution can be seen in the plot, which fell into the 5 percent critical bounds interval.

Table 7. Stability Test

Test statistics	P-Value
Normality Test	0.798
Serial Correlation	0.704
Heteroscedasticity Test	0.845

Source: Secondary data (2024), processed.

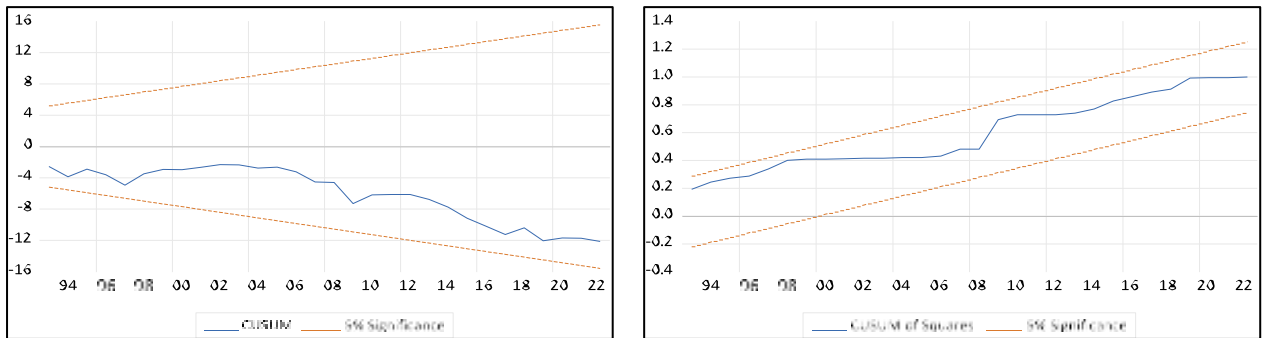


Figure 1. Stability Test under CUSUM and CUSUMSQ

Source: Secondary data (2024), processed.

The research results showed that the exchange rate had a positive effect on Indonesian exports during the research period, both long and short terms. Many previous research have analyzed the effect of exports on economic growth (Szkorpová, 2014; Zaman et al., 2021), but few have analyzed the determinants of exports. It became a motivation to contribute to econometric analyses of factors that determined the size of exports, especially Indonesia. Syaputra & Laut (2022) stated that international trade through exports had an effect in the form of a multiplier effect for the country. Micro profits would be able to increase productivity,

marketing creativity, business innovation, and increase sales capacity. Macro benefits could expand employment opportunities, increase national income, and increase comparative advantages with other countries.

Price stability and financial system stability are vital for an open economy. Domestic price stability is reflected in the inflation rate, while foreign price stability is reflected in the exchange rate. In an open economic system, exports can determine the amount of national income. Exchange rate stability creates trade stability and forms a production system that has added value (Ramoni-Perazzi & Romero, 2022). Goldstein & Khan,

(1985) provided an alternative calculation of imperfect substitutability for two countries, assuming that export goods and goods produced abroad cannot be perfectly substituted. The amount of a country's exports is determined by the income of foreign trading partners, export prices, and exchange rates. Exchange rate movements can cause changes in commodity prices and thus also have an impact on the trade balance. The exchange rate is a reference for international economic activities to maintain stability in the rate of demand and supply.

The data movements in this research are presented in Figure 1. The position of exports, exchange rate, and GDP per capita generally had trends that tended to be the same. It was in line with the theory of the relationship between these three variables. Inflation and FDI also generally had the same trend, where during the crisis period, inflation fluctuated extremely high while FDI fell drastically.

Mankiw (2003) emphasized that the exchange rate position is the relative price of the currencies of two countries. Ginting (2013) explained that if there is an appreciation of the

exchange rate with the assumption of constant prices, it can result in conditions of low prices for Indonesian products relative to the prices of foreign products. For developing countries that tend to have weak exchange rates, shifts in their currency exchange rates can affect domestic prices and inflation, and weaken consumption and investment (Bush & Noria, 2021). Exchange rate volatility affects productivity levels (Aghion et al., 2009), economic stability (Melvin, 1985), and economic growth (Dubas et al., 2005). Developing countries require a policy of stable exchange rate behavior. Indeed, one of the goals of macroeconomic policy is a stable and competitive exchange rate; thus, it has competitiveness with foreign countries (Agosin & Díaz, 2023).

Exchange rate predictions are fundamental for risk mitigation in trade (Wang et al., 2023). Technically, there is a transmission mechanism for the effect of exchange rates on economic growth, especially on commodity price levels in international trade. Over-evaluation conditions can create expensive prices, resulting in a decrease in export volume. The interest rate path

determines the rate of return that affects investment and consumption decisions (Ramoni-Perazzi & Romero, 2022). Exports are determining factors in an open economy. Exchange rate stability supports the formation of investment in both the primary sector and other sectors (Ramoni-Perazzi & Romero, 2022). If a floating exchange rate system is implemented, the central bank applies macro-prudence to control exchange rate volatility and maintain financial system stability; especially in developing countries, this policy is carried out as a preventive measure and to strengthen export competitiveness (Jara & Piña, 2023).

In addition, the research results showed that GDP per capita had a positive effect on Indonesian exports during the research period, both long and short terms. This condition provided information about the growth of national income, increasing people's purchasing power, and increasing production. However, it requires a balanced policy; hence, the balance of payments remains balanced. If people's income is too high, it will trigger an increase in demand for imports. Demand

significantly contributed to the production of export commodities. Narayan & Bhattacharya (2019) explained that GDP per capita often represents domestic demand. Countries with high production capacity provide a good quality of life compared to other countries. Shahzad et al. (2022) stated that these conditions will be ideal if they are supported by balanced institutions, political stability, and technological productivity.

The research results also emphasized that FDI had a positive effect on Indonesian exports during the research period, both long and short terms. This condition is in line with Zaman et al. (2021), who stated that FDI can grow the economy, both in developing and developed countries, triggering technological progress and innovation in production. Product development and innovation capabilities are becoming increasingly necessary in international trade.

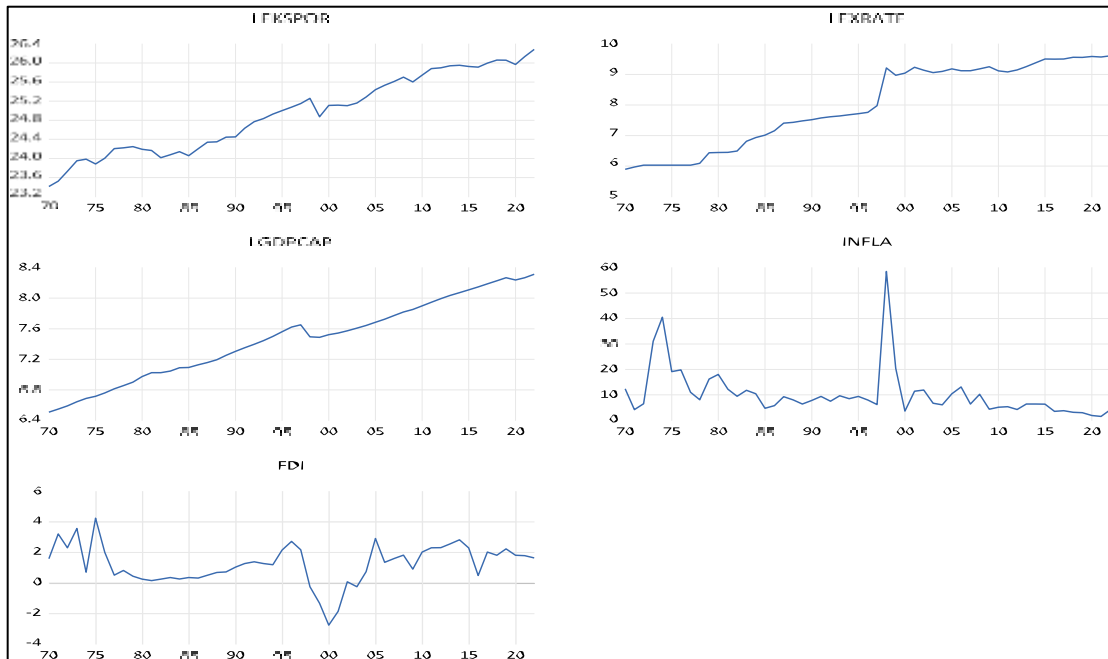


Figure 2. Trend of Variables

Source: Secondary data (2024), processed.

Narayan et al. (2022) stated that investment flows to Indonesia were in second place after Singapore in 1990-2018. It implied that Indonesia was a destination for foreign investors. High demand for exports can be an indicator of a country's industrial progress, with the influx of foreign capital increasingly indicating competitive power. Xiong (2022) explained that the easy flow of capital into a country can directly increase exports if there are differences in relative expertise and low transaction costs. However, exports can decrease despite the ease of investment if expertise between countries is similar and transaction costs are expensive.

Additionally, the research results revealed that inflation had a positive effect on Indonesian exports during the research period, both long and short terms. These results are in line with Ebadi & Ebadi (2015) and contradict the findings of Sarwedi (2010) and Abidin et al. (2013). Ebadi & Ebadi (2015) also emphasized the need to limit the rate of inflation; hence, it has an impact on exchange rate stability, thereby maintaining low inflation, and ultimately increasing export volume. In the dynamics of international trade, inflation occupies a crucial element, where high inflation causes commodity export prices to

become relatively more expensive due to increased production costs and, conversely, causes an increase in imports. Inflation is not an extraordinary phenomenon related to an open economy, but inflation plays a vital role in determining people's purchasing power. Therefore, a responsive monetary policy is needed to stabilize the exchange rate and inflation.

CONCLUSION AND RECOMMENDATION

Export volume can be an essential indicator in measuring macroeconomic welfare in a country's development. Many Indonesian products are in great demand in the world market. These products have a significant contribution to improving export performance. Strategic attempts are being made intensively to encourage export volume and improve product quality. This strategy includes increasing product competitiveness with product differentiation, export promotion with 'new players', and mastery of technology by optimizing quality and innovation.

This research applies techniques to test the impact of

exchange rates, FDI, GDP per capita, and inflation on Indonesia's export performance using time series data. Estimation method with ARDL-ECM for long-term and short-term analyses. The research results indicate that the research variables are cointegrated or have a long-term relationship at a significance level of 1 percent using the Bound test. Testing short-term dynamics also implies that the independent variable influences the dependent variable.

The exchange rate has a significant effect with a positive coefficient in the long term, which shows that foreign trade is determined by the position of the exchange rate. If the exchange rate increases (appreciates), it causes a positive relationship with the trade balance. However, the exchange rate is not significant in short-term estimates.

Exchange rates have an essential role in the balance of payments. The implications of these conditions provide evidence that maintaining exchange rate stability requires appropriate monetary policy. The controlled floating exchange rate system has an impact on a responsive market situation as well as government intervention.

This research confirms that FDI had a positive effect on Indonesian exports during the research period, both in the long and short terms, following the theory. A positive coefficient indicates the crowding-in of capital flows in Indonesia that is consistent in the long and short terms. The next independent variable is GDP per capita, which has a positive impact on Indonesian exports during the research period in both the long and short terms. It shows the phenomenon when there is an increase in GDP per capita, which indicates differences in the conditions of each country, making international trade possible.

Interestingly, inflation had a positive impact on Indonesian exports during the research period, both in the long and short terms. Several previous studies also found that inflation had a positive impact on exports. Export dynamics can also be influenced by consumer tastes and other non-economic factors. Hence, it allows inflation to have a positive coefficient.

Based on the findings above, several policy recommendations can be submitted: (1) design of economic policies that maintain the stability of the rupiah exchange rate, especially

for hard currency, (2) special economic policies for investment in export-supporting sectors to open up export opportunities for new sectors and reducing transaction costs, and (3) the importance of maintaining low and controlled inflation to create market conditions that can be competitive and compete globally.

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