

Do foreign direct investment, trade and their interactions affect economic growth in Indonesia?

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Abstract

This study examines the direct and indirect impacts of foreign direct investment, exports, and imports on Indonesia's long-term and short-term economic growth. To this end, we used quarterly data for 2005.1–2021.4 sourced from Statistics Indonesia, the Bank of Indonesia, and the Bank of St. Louis. The analytical tools employed were the autoregressive model of the lag distribution (ARDL) and the error correction model (ECM-ARDL). Findings showed that foreign direct investment, exports, and imports directly affected Indonesia's economic growth. However, while the two formers had an impact only in the short run, the latter also did so in the long run. In addition, foreign direct investment also indirectly influenced economic growth through exports in the short and long run, whereas this was not the case with imports. Based on these findings, we argue for policy recommendations. To begin with, the government should encourage foreign direct investment, which may gradually replace imported raw materials with local raw resources, thereby creating an upstream connection while slowing the rate of imports. Furthermore, the government needs to adopt a policy of downstream processing of primary commodities into industrial commodities to increase export value and expand employment opportunities.

Keywords: ARDL model, Exports, Foreign direct investment, Imports

JEL Classification: C13, F14, F29, F43

INTRODUCTION

Indonesia is a country that has abundant natural resources with the fourth largest population in the world. However, Indonesia faces low labor productivity, as indicated by an annual per capita income value of USD 4,349 (Statistics Indonesia, 2021). Therefore, Indonesia needs foreign direct investment (FDI) inflows to cover the shortfall in domestic savings to finance investment to maintain economic growth and employment opportunities.

The significant benefits of incoming FDI are access to capital, new technologies, management, structural reform of the domestic economy, increased business scale, competition in global markets, and innovation. Trade will encourage efficiency due to competition in the global market; these conditions will support the movement from

inter-industry trade based on the gift of nature to intra-industry trade based on innovation (Asian Development Bank, 2020).

Natural resources attract export-oriented foreign investors, in addition to relatively low labor wages and relatively abundant supply. Meanwhile, a large population is an opportunity for domestic market-oriented foreign investors. This condition is proven by the fact that the Indonesian processing industry, including FDI, is concentrated on the island of Java, reaching 52 percent with a population that reaches 59 percent of the total population of Indonesia (Statistics Indonesia, 2021).

Theoretically, the investment will increase production capacity, increasing the supply of commodities for export and domestic consumption (Mankiw, 2016). However, an increase in foreign inflow investment will also trigger an increase in imports of components of capital goods and raw materials. These components of capital goods contribute 75.12 percent and raw materials 14.59 percent of Indonesia's total imports. Based on existing data, explicitly state the empirical gap of this research (Indonesian Foreign Trade Statistics, 2021). These conditions exacerbate Indonesia's current account balance, which affects revenue (Salvator, 2014). Indonesia must also consider the rapid outflow of funds as a return for foreign investors greater than the capital inflow (Habibie, 2019). Thus FDI inflow is expected to affect economic growth directly and indirectly through exports and imports.

FDI is a key variable that drives trade, growth, and prosperity (World Economic Forum, 2013). However, the distribution of resources that fails in trade will cause FDI to harm growth (Dritsaki & Stiakakis, 2014). FDI inflows to developing countries require imports of raw materials, which accumulate in the current account deficit, and affect economic growth (Çiğdem, 2019)

The impact of FDI on economic growth and trade depends on the capability of a country to absorb technology transfer by FDI and create upstream-to-downstream sector linkages that trigger the trade sector (Agosin & Mayer, 2000). Krugler (2006) found that in the case of Venezuela, FDI facilitated exports for export market-oriented companies to serve MNC input demands, while domestic market-oriented FDI would prefer imported raw materials.

Studies on the impact of FDI on economic growth have been extensively researched, including Orji et al. (2021) in Nigeria, Shoaib et al. (2021) in Pakistan, and Rehman et al. (2021) in India, Pakistan, and Sri Lanka by panel testing. The findings of these studies show that FDI inflow positively affects the host country's economic growth. In contrast, research by Iqbal & Munir (2018) in Pakistan and Millia et al. (2022) in Indonesia found a negative effect of FDI on the economic growth of receiving countries. Meanwhile, the study by Shoaib et al. (2021) shows no significant effect of FDI on Pakistan's economic growth

Several findings indicate a positive and significant effect of FDI inflow on the economic growth of the host country for the long and short term or of them, as the results of the study by Makun (2018) in Fiji, Sultanuzamman et al. (2018) in Sri Lanka, Mohd & Muse (2021) in Ethiopia, Navarro & Quiroz (2022) in Peru. In contrast, the results of the study by Mukhlis & Qodri (2019) found that in the long term, FDI is negatively correlated with economic growth in Indonesia, but not in the short term. Awan & Rasyid's (2021) study in Pakistan found that the effect of FDI inflows on economic growth was only in the short term. In line with these findings, the research results of Millia et al. (2022) show that in the short term, FDI inflow has a positive effect on Indonesia's economic growth, and in the long term, it has a negative effect.

Theoretically, exports are a component of income that positively impacts economic growth. However, empirical results are various. Findings by Iqbal & Munir (2018) in Pakistan, Nguyen (2020) in Vietnam, and Millia et al. (2021) in Indonesia show that exports have a positive and significant effect on economic growth. In contrast, the study of Bakari (2016) revealed that exports do not affect Egypt's economic growth. Sultanuzzaman et al. (2018) found that in the long term, exports harmed economic growth and positively affected Sri Lanka in the short term.

Imports are a component of expenditure in the income composition, which theoretically harms economic growth. However, empirically the findings still need to be consistent. Tahir (2015) in Pakistan found that imports had a negative long-term effect on economic growth and a positive effect in the short term. In contrast, the results of Bakari (2016) in Egypt and Mukhlis & Qodri (2019) in Indonesia found that imports did not affect economic growth, while Iqbal (2019) in Pakistan found that imports have a positive effect on economic growth.

FDI inflows are expected to stimulate exports through interactions, boosting the host country's economic growth. Research from Purusa & Istiqomah (2018) in ASEAN-5 countries, Nguyen (2020) in Vietnam, and Irhamna et al. (2021) in Indonesia found a positive effect of FDI on exports. Meanwhile, Sultan (2013) found that FDI has not been able to stimulate exports; on the contrary, exports have stimulated FDI inflows. Mahmoodi and Mahmoodi (2016) found that FDI stimulated exports in eight developing European countries. On the contrary, exports stimulated FDI inflow in eight developing countries in Asia.

Studies of the long-term and short-term relationships between the effect of FDI on exports have been studied by several previous researchers. The research findings of Sunde (2016) in South Africa and Basilgan & Akman (2019) in Turkey show that FDI has a positive and significant effect on exports in the long and short term. Meanwhile, Mukhtarof et al. (2019) found that FDI positively affects exports in Jordan in the long term. In contrast, Jana et al. (2020) found a two-way causality relationship between FDI and exports only in the short term, while in the long term, exports stimulated FDI inflow.

Conversely, the increase in FDI inflow was accompanied by increased imports of raw and auxiliary materials, burdening the balance of payments. The interaction of FDI and imports will affect the economic growth of the host country, as the findings of Koyuncu & Unver (2020) have revealed a relationship between FDI and imports in Turkey. Keho (2020) found FDI to positively affect imports in the long and short term in Cote d'Ivoire. In comparison, Asunka et al. (2022) found a two-way causal relationship between FDI and imports in developing countries.

FDI affects economic growth indirectly through interactions with exports and imports, as the results of research by Marinela (2015) found that FDI contributes to trade deficits in developing countries. Jana (2020) found a two-way causality relationship between FDI and trade in India. Then, Dima (2016) found that FDI stimulated export and import activities in Romania. In contrast, Mukhlis & Qodri's (2019) findings concluded that no relationship exists between exports, imports, FDI, and economic growth in Indonesia. Based on variations in previous findings and the gap between theory and phenomena, this study aims to examine the direct effect of FDI, exports, and imports on economic growth. This study also examines the indirect effect of the interaction of FDI with exports and the interaction of FDI with imports on Indonesia's economic growth, which is our novelties. This study is expected to reveal whether FDI and trade synergize in driving economic growth in Indonesia. Previous

studies analyzed the direct effect between economic variables; however, this study modifies the model as an indirect effect of the interaction of FDI with exports and imports through a statistical model to explain economic phenomena that have not been in previous studies.

METHODS

We utilized quarterly time series data covering the period from 2005.1 through 2021.4, sourced from the Bank of Indonesia, Statistics Indonesia, and the Bank of St. Louis publications. GDP data are measured in hundreds of millions of US dollars, whereas FDI, exports, and imports data are measured in millions of US dollars.

To assess the long-run effect of incoming FDI, exports, and imports, as well as the interaction of incoming FDI with exports and that of FDI with imports, on economic growth, we employed the autoregressive distributed lag (ARDL) model. The equation used to test the long-run effect is as follows:

$$GDP_t = C + \beta FDI_t + \gamma X_t + \delta M_t + \varphi XI_t + \omega MI_t + \varepsilon_t \dots\dots\dots(1)$$

Where $C, \beta, \gamma, \delta, \varphi, \omega$ are the long-run multiplier parameters of the regression equation (1), which are assumed to be stable in the given period 2005.1-2021.4. Meanwhile ε_t is residual to fulfill the classical assumptions of non-autocorrelation, homoscedasticity, and normality. The XI variable represents the interaction of FDI with exports, and the MI variable forms the interaction of FDI with imports. Both variables describe FDI as influencing economic growth through exports and imports (Kujarounprasit, 2012; Safitriani, 2013). The positive influence of the interaction of FDI with other variables indicates that FDI indirectly affects GDP (Millia et al., 2022).

The lag length used in our study is written in the ARDL formula (p, q, r, s, y, z) according to the model (Pesaran & Shin, 1999; Heij, 2004). Assuming the model equation (1) is stable, then the ARDL model formulation is as follows;

$$GDP_t = C_0 + \sum_{i=1}^p \alpha_i GDP_{t-i} + \sum_{j=0}^q \beta_j FDI_{t-j} + \sum_{k=0}^r \gamma_k X_{t-k} + \sum_{l=0}^s \delta_l M_{t-l} + \sum_{m=0}^y \varphi_m XI_{t-y} + \sum_{n=0}^z \omega_n MI_{t-z} + \varepsilon_{1t} \dots\dots\dots(2)$$

Where $C_0, \alpha_i (i=1,2,\dots, p), \beta_j (j= 0,\dots, q), \gamma_k (k = 0,1 \dots \dots, r), \delta_l (l = 0,1, \dots, s), \varphi_m (m = 0, \dots, y), \omega_n (n = 0, \dots, z)$ are parameters in equation (2), which are called long-run coefficients, so the effect of FDI, X, M, XI and MI to GDP in the ARDL model in equation (2) is called the long-run model. If each variable reaches equilibrium, then equation (2) is a cointegration equation, so that the value

$$C = \frac{C_0}{1 - \sum_{i=1}^p \alpha_i}, \alpha = \frac{\sum_{i=1}^p \alpha_i}{1 - \sum_{i=1}^p \alpha_i}, \beta = \frac{\sum_{j=0}^q \beta_j}{1 - \sum_{i=1}^p \alpha_i}, \gamma = \frac{\sum_{k=0}^r \gamma_k}{1 - \sum_{i=1}^p \alpha_i}, \text{ dan } \delta = \frac{\sum_{l=0}^s \delta_l}{1 - \sum_{i=1}^p \alpha_i},$$

$$\varphi = \frac{\sum_{m=0}^y \varphi_m}{1 - \sum_{i=1}^p \alpha_i}, \omega = \frac{\sum_{n=0}^z \omega_n}{1 - \sum_{i=1}^p \alpha_i}$$

To test the effect of FDI, X, and M, as well as the interaction of FDI with X (XI), and the interaction of FDI with M (MI) on GDP using equation (2), we followed a procedure involving three consecutive steps, which include a stationarity test, a cointegration test, and model estimation. In the first step, we adopted Augmented Dickey-Fuller (ADF) to test data stationarity for all variables (Dickey & Fuller, 1979). The test hypothesis was H0 (time series data are not stationary) versus H1 (time series data are stationary). The criterion for rejecting H0 or accepting H1 is determined by comparing the p-value to the critical value of the statistic test at a significant level of 1%, 5%, or 10%. In the following step, we examined the cointegration relationship

between GDP, FDI, X, M, XI, and MI by using the ARDL bound cointegration test (Pesaran et al., 2000). This cointegration test requires that the data be stationary only at the level I (0) or first difference I (1) and allows stationary combinations of both. The formula of the bound test for our study is

$$D(GDP_t) = C_0 + \sum_{i=1}^p \alpha_i D(GDP_{t-i}) + \sum_{j=0}^q \beta_j D(FDI_{t-j}) + \sum_{k=0}^r \gamma_k D(X_{t-k}) + \sum_{l=0}^s \delta_l D(M_{t-l}) + \sum_{m=0}^y \varphi_m D(XI_{t-m}) + \sum_{n=0}^z \omega_n D(MI_{t-n}) + \theta_1 GDP_{t-1} + \theta_2 X_{t-1} + \theta_3 M_{t-1} + \theta_4 FDI_{t-1} + \theta_5 XI_{t-1} + \theta_6 MI_{t-1} + \varepsilon_{2t} \dots\dots\dots (3)$$

In equation (3), $\theta_i (i= 1, 2,3,4,5,6)$ is the regression parameter for equation (3). The hypothesis for testing cointegration is $H_0: \theta_i = 0$ (no cointegration between variables). Conversely, $H_1: \theta_i \neq 0$, so $\theta_i \neq 0$ (there is cointegration between variables). To test our hypothesis, the F-test was used with the following criteria: (1) if the calculated $F_{\text{statistic}} > F_{\text{critical value}}$ of the upper bound I(1) at 1%, 5%, or 10% level, then the hypothesis H_0 is rejected (H_1 is accepted). Thus, a cointegration relationship exists between FDI, X, M, XI, and MI with GDP. Conversely (2), if the calculated $F_{\text{statistic}} < F_{\text{critical value}}$ of the lower bound I(0) at 1%, 5%, or 10% level, then hypothesis H_0 is accepted (H_1 is rejected).

In the next step, we estimated the long-run effect based on equation (1) and the short-run effect using the ARDL error correction model with the formula (ECM-ARDL) (Heij; 2004) as follows:

$$D(GDP_t) = \beta_0 D(FDI_t) + \gamma_0 D(X_t) + \delta_0 D(M_t) + \varphi_0 D(XI_t) + \omega_0 D(MI_t) + \pi EC_{t-1} + \sum_{i=0}^p \alpha_i D(GDP_{t-i}) + \sum_{j=0}^q \beta_j D(FDI_{t-j}) + \sum_{k=0}^r \gamma_k D(X_{t-k}) + \sum_{l=0}^s \delta_l D(M_{t-l}) + \sum_{m=0}^y \varphi_m D(XI_{t-m}) + \sum_{n=0}^z \omega_n D(MI_{t-n}) + \varepsilon_{2t} \dots\dots\dots (4)$$

The coefficient π is the error correction coefficient and the EC_{t-1} variable. The model of equation (4) is called the short-run unidirectional model from FDI, X, M, XI, and MI to GDP.

In the last step, we tested the classic assumptions, which included normality using the Jarque-Bera test, homoscedasticity using the Breusch-Pagan-Godfrey test, and serial correlations using the Breusch-Godfrey Serial CorrelationLM test. Meanwhile, we used the CUSUM and CUSUM-square to test the stability of all model parameters (Brown et al., 1975).

RESULTS AND DISCUSSION

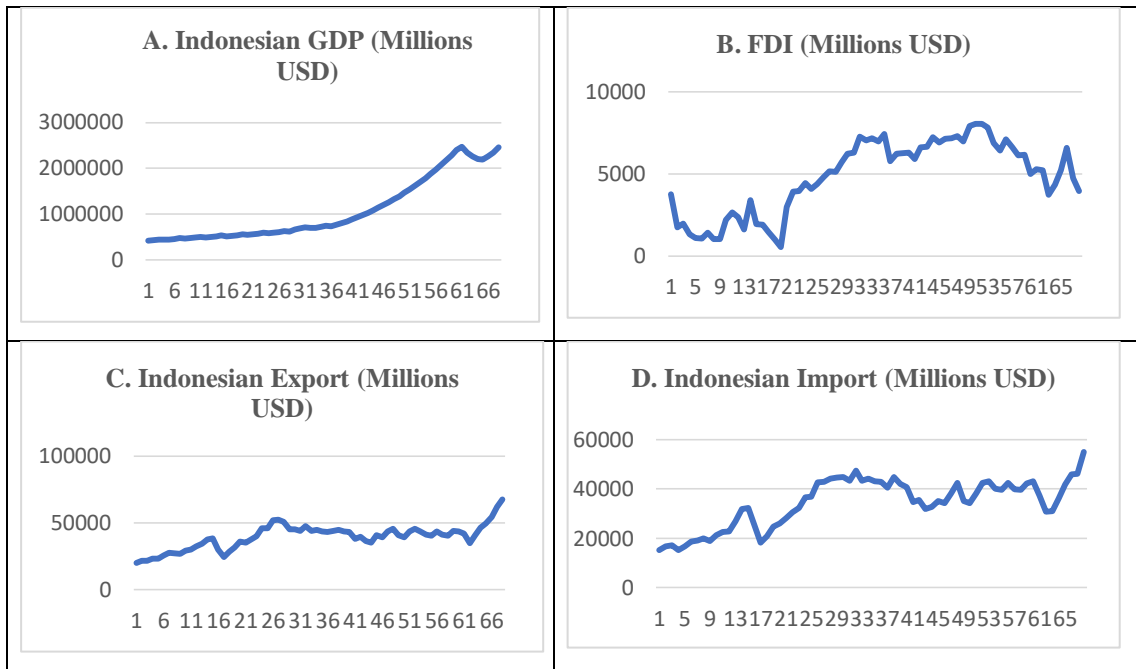
Results

Statistical descriptions are presented for all research variables as a basis for further statistical testing. The description components include minimum, maximum, mean, and standard deviation values. Table 1 presents the standard deviation values of all research variables, which are smaller than the mean, indicating that the observed values are valid and no control variables are needed.

Table 1. Descriptive statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
GDP	426612	2468722	1078577	680897
FDI	540	8058	4828	2252
X	20026	67486	39369	9272
M	15040	55053	34345	9877
XI	16896	367122	202895	109031
MI	13295	345836	182991	106304

Figure 2. Panels (A, B, C, and D) present the development of all variables from 2005.1 to 2021.4; the average growth rate of all variables is positive. Economic growth proxied by GDP in millions of USD reached 2.7 percent on average per quarter, while FDI growth reached 7.2 percent per quarter with sharp fluctuations. Meanwhile, the export value (X) and import value (M) growth was 2.2 percent and 2.5 percent, respectively, or less than economic growth. The average growth of the FDI-export interaction variable (XI) and FDI-import interaction (MI) is 10.5 percent and 10.6 percent, respectively, or greater than the average economic growth.



Source: BPS and BI (2010.1-2021.4), Bank St Louis (2005.1-2009.4) processed

Figure 1. Development of gross domestic product, foreign direct investment inflow, export and import of Indonesia 2005.1-2021.4 (Millions USD).

The results of the stationary test for all variables in Table 1 show the statistical values of the ADF test, both for the intercept and the intercept and trend. The test results show that all the variables: inward foreign investment (FDI), exports (X), imports (M), the interaction of FDI with exports (XI), and the interaction of FDI with imports (MI), are stationary at the first difference with a significant level of 1 percent. Meanwhile, the GDP variable is stationary at the first difference, with a significant level of 5 percent.

Table 2. Results of the stationarity test

Variable	ADF Test Statistic			
	Intercept		Intercept and Trend	
	Level	First Difference	Level	First Difference
FDI / d(FDI)	-1.426222	-9.419795*	-1.517625	-9.493378*
X/d(X)	-0.668308	-6.637739*	-1.498585	-6.617402*
M / d(M)	-1.314435	-6.453201*	-2.014681	-6.382205*
XI / d(XI)	-1.543089	-8.828672*	-1.941667	-8.803828*
MI / d(MI)	-1.616999	-9.252892*	-1.774128	-9.264099*
PDB/d(PDB)	1.028345	-2.993981**	-1.433078	-3.522113**

Note: *, ** significant at 1%, 5%

After testing the stationarity of all variables, in the next step, we tested the cointegration among the following variables: FDI, X, M, XI, and MI. As stated in the methodology section, we employed the ARDL bound to test for cointegration with the lag length that has been tested before. Since the lag length is $(p = 1, q = 4, r = 2, s = 5, y = 5, z = 1)$, we used the ARDL bound based on $ARDL(1,4,2,5,5)$. From the calculation, the F-statistic value obtained is 3,979, for a significant level of 5%, while the upper bound critical value $I(1)$ is 3,380. Since the value of the F-statistic is larger than the critical value of the upper bound $I(1)$, it can be concluded that there is a cointegrating relationship between foreign investment, exports, imports, the interaction of foreign investment with exports, the interaction of foreign investment with imports, and gross domestic product.

In the last step, we estimated all the long-run coefficients of the ARDL model $(1,4,2,5,5,1)$ and the short-run coefficients of the ECM-ARDL model $(0,3,1,4,4,0)$. In Table 3, we include the statistical values and the estimated results of all long-run and short-run model parameters. Also, we include the P-value of the Jarque-Bera test, the P-value of the Breusch-Godfrey serial correlation LM, and the Breusch-Pagan-Godfrey test based on F-statistic.

Table 3. Estimation of long-run and short-run coefficients of the ARDL model $(1,5,4,2,5,1)$ and the ECMARDL model $(0,4,3,1,4,0)$.

	Coefficient	t-Statistic	P-value
Panel A. Long-run Coefficient dependent variable: GDP			
FDI	-0.288153	-1.459089	0.1528
X	-0.153968	-2.363912	0.0233
M	0.195762	2.872075	0.0066
XI	0.028783	2.265040	0.0293
MI	-0.029466	-2.436564	0.0196
C	89.36115	1.837574	0.0740
Panel B. Short-run coefficient dependent variable D(GDP.)			
D(FDI)	-0.288153	-1.843487	0.0731
D(FDI(-1))	1.203769	4.338664	0.0001
D(FDI(-2))	0.535279	2.281873	0.0282
D(FDI(-3))	0.785574	4.112366	0.0002
D(FDI(-4))	0.232279	2.559273	0.0146
D(X)	-0.153968	-3.052803	0.0041
D(X(-1))	0.127567	3.607446	0.0009
D(X(-2))	0.041861	1.544101	0.1309
D(X(-3))	0.099197	4.140473	0.0002
D(M)	0.195762	3.730746	0.0006
D(M(-1))	0.040448	2.268346	0.0291
D(XI)	0.028783	3.006900	0.0047
D(XI(-1))	0.033557	-4.805086	0.0000
D(XI(-2))	-0.013595	-2.266053	0.0292
D(XI(-3))	-0.019631	-4.012282	0.0003
D(XI(-4))	-0.005043	-2.614590	0.0127
D(MI)	-0.029466	-3.309074	0.0021
CointEq(-1)	-0.232146	-4.914189	0.0000

Note: The P-value of the Jarque-Bera test is 0.193 while the P-values of the Breusch-Godfrey Serial Correlation LM and Breusch-Pagan-Godfrey test based on F-statistic are 0.914 and 0.772, respectively.

Panel A of the table shows the estimated values of the long-run effect of the regression variables on Indonesia's economic growth. It shows the results of the ARDL model test (1,5,4,2,5,1) in which both imports and the interaction of FDI with exports have a positive and significant effect on Indonesia's economic growth. On the other hand, the effect of export is negative and significant, as is the interaction of FDI with import. Furthermore, despite being negative, the FDI effect was not significant, and therefore, unsurprisingly, it has not been able to drive the Indonesian economy.

In the short run, panel B of Table 3 demonstrates a positive effect of FDI on Indonesia's economic growth. The effect of exports is only positive in the first and third lags, whereas that of imports and the interaction of FDI with exports are positive and significant until the first lag. Meanwhile, the interaction effect of FDI with imports is negative and significant. Further, the cointegration coefficient is negative and significant, meaning the speed to long-run equilibrium is 23.21 percent (the adjustment occurs in the fifth quarter).

Based on the classic assumption test values in Table 3, we conclude that the ARDL (1,5,4,2,5,1) has normally distributed, independent, and homoscedastic residuals. It is based on a P-value that is greater than 0.05. Furthermore, from the CUSUM and CUSUM of Square tests, all the model parameters used are stable, as indicated by the blue graph, which does not come off the red border. Further, the stability test results for all these parameters are shown in Figure 2.

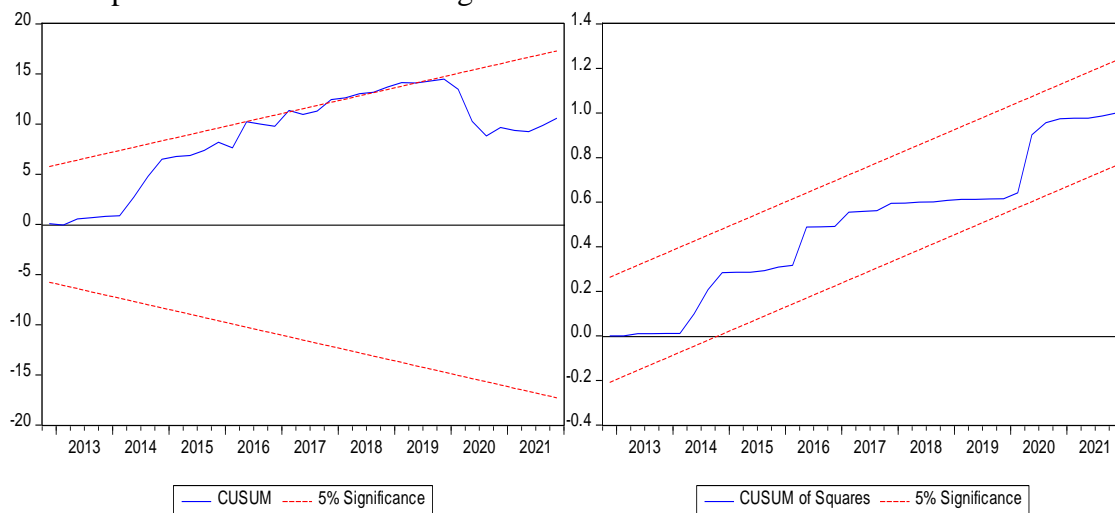


Figure2. Stability test results for all ARDL model parameters (1,4,2,5,5,1)

Discussion

FDI affects Indonesia's economic growth only in the short term. While in the long term, there is no effect. This finding is consistent with several study results, including Orji et al. (2021) in Nigeria, Shoaib et al. (2021) in Pakistan, and Rehman et al. (2021) in India, Pakistan, and Sri Lanka. In the short term, FDI has increased Indonesia's economic growth through consumption derived from the relatively high wages foreign companies pay workers and other FDI expenditures (Lipsay and Sjolom, 2001). The other finding, FDI has increased local company wages horizontally and vertically (Sultoni, 2022). Apart from playing a role in increasing wages, especially for educated workers, FDI also plays a role in transforming the increase in the low productivity of

agricultural sector workers into high productivity in the industrial sector (Steenbergen, 2021). Then, FDI plays a role in reducing unemployment (Liang et al., 2021).

The study results show that long-term FDI does not affect Indonesia's economic growth. These results are supported by the findings of Mukhlis and Qodri (2019) and Awan and Rasyid (2021). The results of this study are different from the findings of Makun (2018), Sultanuzamman et al. (2018), Mohd and Muse (2021), and Navarro and Quiroz (2022). This gap is due to differences in socio-economic conditions or the data period used. The gap in research results can be made by infrastructure and institutional support, human capital, and the quality of host country workers to absorb the technology transferred by FDI (Adedoyin et al., 2020). Moreover, several local companies for specific sectors substituted for FDI ultimately causes local companies to lose competition and investment opportunities (Maminggi and Martin, 2018., Millia et al., 2022).

The results showed that exports only played a role in the short term towards Indonesia's economic growth, while in the long term, it had a negative effect. These findings indicate that Indonesia's exports are characterized by natural resources managed by foreign companies with limited downstream. Besides that, the exports of manufacturing companies are not local content and have no backward linkages. Meanwhile, local export products, such as agricultural products and handicrafts, are managed with low technology. This finding is supported by several research results, including Ramli et al. (2016), Malhotra and Kumari (2018), and Sultanuzzaman (2018). The findings of several studies are different from the results of research such as research by Koejaroonprasit (2012), Mahmoodi & Mahmoodi (2016), and Iqbal (2018). This gap is due to the high or low technological orientation of exported goods, ownership of export products, and a country's trade policies (Malhotra & Kumari, 2018).

The findings of subsequent research show that imports positively affect Indonesia's economic growth in the long run. This effect comes from an increase in value-added input originating from imports considering that more than 90 percent of Indonesia's imports are raw/auxiliary materials and capital goods (Indonesian Foreign Trade Statistics, 2021), which generate added value in production. This condition reflects Indonesia's continued dependence on imports in line with economic growth. In the short term, the effect of imports is negative because company operations in Indonesia have increased spending abroad, causing the current account deficit. In a country with company operations increasing spending abroad is a factor causing the current account deficit, negatively impacting economic growth (Salvator, 2014). The results of this study support the findings of Iqbal (2018) and Habibie (2019) and contrast with the results of the study by Tahir et al. (2015), Bakari (2016), Mukhlis and Qodri (2019). This gap is due to the period of data used, differences in analytical tools, and differences in the consumption behavior of a country's population.

The interaction of FDI and exports positively impacts Indonesia's economic growth in the long and short term. These findings indicate that there is a synergy between FDI inflow and exports. This synergy has turned the negative effect of FDI and exports into a positive effect on economic growth, implying that FDI indirectly positively affects economic growth through exports. The results of this study are in line with the findings of Zhang (2006), Koejaroonprasit (2012), Quoc and Thi (2018) Mukhtarov (2019). In comparison, different results have been found by Sultan (2013)

and Saimul & Darmawan (2020). Differences are triggered by data periods, analyses used, and social and economic characteristics between different countries.

The interaction effect of FDI and imports on Indonesia's economic growth is harmful in the long and short term. This finding reflects that foreign companies in Indonesia prefer imported raw/auxiliary materials with a narrow linkage. Furthermore, the fund outflow of return investors and dependence on import financing has continuously burdened the balance of payments, impacting income (ÇİĞDEM G.,2019). This finding is supported by the results findings of Krugler (2006), Marinella (2015), Dima (2016), and Nga (2019) and contrary to the findings of Keho (2020), Koyuncu & Unver (2020). The difference in results is due to socio-economic variations and government policies in developing upstream and downstream industries, which differ for each country.

CONCLUSIONS AND RECOMMENDATION

Conclusions

Inward FDI and trade can have long- and short-term impacts on Indonesia's economic growth. Further, it can enhance the production capacity, which has the potential to raise exports and imports of raw materials and auxiliary materials, resulting in economic growth. Thus, FDI can impact economic growth, directly or indirectly, via its interactions with exports and imports. This study's novelty has been the interactions themselves.

This study aimed to investigate the impacts of incoming FDI, exports, and imports, as well as the interaction of FDI with exports (XI) and the interaction of FDI with imports (MI), on Indonesia's economic growth. For this purpose, quarterly time series data were utilized. Inward FDI, exports, and imports were valued in millions of US dollars, and the GDP was in hundreds of millions of US dollars, covering the period from 2005.1 to 2021.4. The analytical tools we applied to examine these variables' impacts on economic growth were the ARDL model and the ECM-ARDL model.

Based on the bound test, we found that FDI, exports, imports, the interaction of FDI with exports, the interaction of FDI with imports, and Indonesia's economic growth are all cointegrated. The ARDL test findings revealed that there is a direct influence of import variables on economic growth and an indirect effect of FDI via exports on Indonesia's economic growth in the long run. Thus, imports and FDI via its interaction with exports can drive Indonesia's economic growth in a positive direction, according to the sign of the regression coefficient. On the other hand, exports and FDI through imports require improvement due to the negative coefficient value. This study indicates that exports, imports, and FDI impact economic growth in the short run. It is worth noting that the interaction of FDI with exports is similar, whereas the interaction of FDI with imports is distinct.

Recommendations

Based on our findings, we recommend that Indonesia accept inbound FDI to sustain its economic growth. However, some measures are required to balance the inflow and outflow of capital. To begin with, FDI with an orientation toward the domestic market should strive to establish upstream ties that have a wider scope. Second, the rate of increase in imports should be maintained so as not to outpace the increase in exports. Last but by no means least, FDI with a natural resources orientation

whose aim is to export should undergo downstream processing so that there is an increase in added value and new job opportunities.

The recommendation for future research is to use other macro variables that interact with FDI in influencing economic growth. Then, use the Panel-ARDL or VAR panel model for a broader scope, for example, ASEAN, so the data source is uniform.

The limitation of this study is that the data source is not uniform because Statistics Indonesia and the Central Bank of Indonesia have yet to provide quarterly data for the period 2005.1-2009.4. Meanwhile, annual data requires dummy variables and their interactions due to the Indonesian economic crisis, which has consequences for the significance of the model.

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