

## DOES ECONOMIC OPENNESS IMPACT ON THE ECONOMY IN KALIMANTAN?

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### ABSTRACT

The high levels of foreign direct investment (FDI) and economic openness in East Kalimantan have yet to lead to the region catching up with other areas in Kalimantan. This discrepancy in growth patterns is believed to contribute to regional inequality within Kalimantan. This study aims to analyse FDI and economic openness. This study utilises panel data from provinces in Kalimantan from 2011 to 2020, employing the static panel method. The findings indicate that FDI has a negative effect on economic growth, primarily due to low levels of FDI compared to domestic investment in Kalimantan. Consequently, policies to improve human capital through education are necessary to facilitate technology transfer and ensure that FDI has a positive impact. Additionally, the results show that exports have a positive effect on economic growth, indicating that exports in Kalimantan contribute to economic growth. The contribution of this study lies in its conformity with the endogenous growth theory.

**JEL:** O1, O11, O40, F10, F31.

**Keywords:** *economic openness, foreign direct investment, net export, economic growth.*

### 1. INTRODUCTION

Traditionally, economic growth is driven by several key factors, including economic liberalisation. Important aspects of economic liberalisation include trade openness, financial openness, and the mobilization of human resources with minimal trade barriers. Economic openness refers to exchanging goods, capital services, information, labor, and ideas more openly with low trade barriers. This phenomenon occurs because the flow of goods and services becomes faster in the market and demand increases (Khan, Mughal, Zia, & Usman, 2016). Over the past two decades, ASEAN countries, including Indonesia have utilised trade liberalisation instruments to accelerate higher economic growth (Nam & Ryu, 2023). Trade openness is fundamental to development as it can stimulate GDP growth, leading to higher economic growth. It encourages structural changes within a country by liberalising companies in aggregate, which increases competition among domestic companies and motivates them to adopt higher levels of technology. This stimulation encourages job creation and drives economic growth (Nam, Frinjs, & Ryu, 2024).

Important reasons support economic openness. First, it is an important part of the structural adjustment of development supported by the World Bank and the International Monetary Fund (IMF). Second, previous empirical studies have highlighted the importance of economic openness in driving growth through export and import mechanisms. Third, the rapid economic growth in the East Asian region has been propelled by various economic openness policies. Fourth, the development of endogenous growth theory has theoretically encouraged studies related to economic openness and economic growth (Hye & Lau, 2015). Recent studies have shown that trade openness has had a positive impact on the European Union (Bayar, 2016); the Ivory Coast

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(Keho, 2017); and 38 Sub-Saharan countries (Akinlo & Okunlola, 2021).

Empirics evidence reveals contradictions regarding how economic openness impacts economic growth. First, economic openness is more profitable for developing countries that export primary commodities, whose prices are determined by international markets. For instance, exports positively influence changes in economic growth in Pakistan (Bibi, Ahmad, & Rashid, 2014). Similarly, net exports in Asia are also positively impacted (Sultanuzzaman, Fan, Mohamued, Hossain, & Islam, 2019). Second, there is a contrast between developing and developed countries: developing countries benefit from economic openness due to their abundant natural resources, while developed countries benefit from their trade policies. Ultimately, developing and developed countries experience higher economic growth (Fatima, Chen, Ramzan, & Abbas, 2020). However, there are instances where trade openness negatively affects economic growth, as seen in India (Hye & Lau, 2015), Indonesia (Yacoub & Lestari, 2019), and Turkey (Khan *et al.*, 2016). Third, in industrialized countries, trade openness rapidly becomes crucial for industrial development, benefiting industrial and non-agricultural countries. However, it can be detrimental to countries with an agricultural base (Nam *et al.*, 2024).

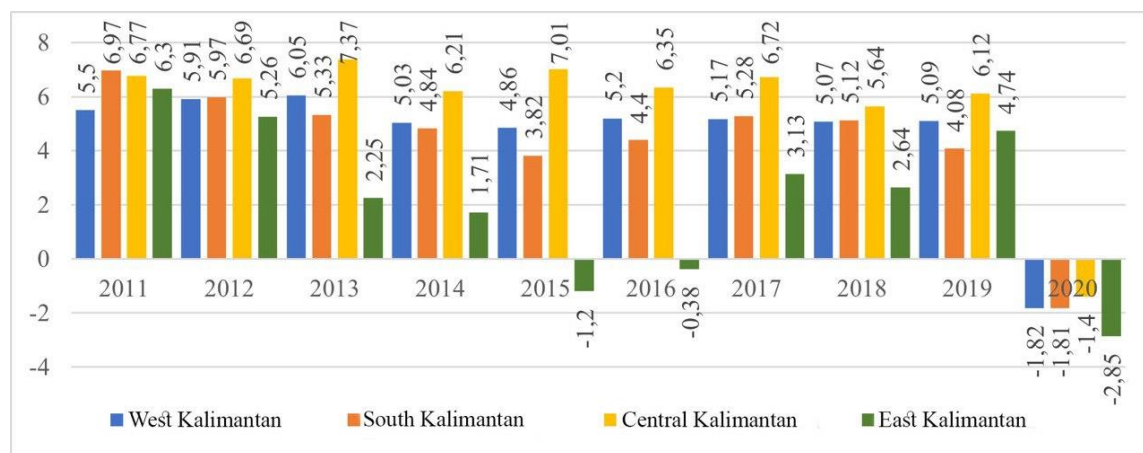
On the other hand, foreign direct investment (FDI) plays a crucial role in economic openness. FDI is vital for economic growth, creating direct and indirect spillover effects (Nam & Ryu, 2023). FDI involves investments made by multinational corporations (MNCs), with the receiving country and the investing country as the home country (Islam, 2014). Currently, capitalist countries are moving towards greater financial liberalisation due to implementing economic openness in several countries, leading to an unexpectedly changing global economic landscape. From the perspective of developing countries, economic industrialization and globalization have drastically altered world economic activity, necessitating money flow from the private sector, including FDI. MNCs or home countries choose host countries for investment based on factors such as raw materials, labor availability and wages, taxation systems, industrialization, exchange rates, transportation costs, and overall environment (Wartini, 2016). On the other hand, there is no real evidence that trade and investment barriers pose significant regional issues. Meanwhile, five indicators of heterogeneity in FDI and economic growth include public ownership, involvement in business operations, complexity of regulatory procedures, administrative burden on start-up companies, and regulatory protection for established businesses. The two factors negatively impacting FDI are involvement in business operations and regulatory protection for established businesses (Fornier, 2015).

Similar to trade openness, in macroeconomics, FDI can make domestic companies more competitive, facilitate the spread of new technologies, and stimulate further FDI growth (Islam, Liu, Khan, Islam, & Sultanuzzaman, 2021; Khan *et al.*, 2016). Other empirical studies also show that FDI improves economic growth (Okada & Samreth, 2014; Pengkas, 2015). However, while FDI can boost domestic companies and drive growth in the long term, it does not necessarily ensure sustainable growth. Furthermore, FDI focusing on increasing energy consumption and exploiting natural resources can hinder economic growth by negatively impacting the quality of human development necessary for sustained economic growth (Muhammad, Long, Salman, & Dauda, 2020; Nam & Ryu, 2023). Furthermore, the degree to which FDI complements domestic investment and the efficiency of individual financial capabilities can diffuse into the national productivity system, further influencing economic growth (Khan, Asteriou, & Jefferies, 2023).

The essence of economic growth driven by economic liberalisation lies in the extensive use of technology. According to endogenous growth theory, regional openness fosters economic growth through the availability of technology and knowledge (Sala-i-Martin, 1996). Technology utilisation is a significant catalyst for economic openness. Conversely, neo-classical theorists argue that economic growth is propelled not by economic openness but by exogenous factors and technology (Hye & Lau, 2015). It is important to note that interaction with other countries facilitates technology transfer, which can enhance production activities in the recipient country.

As of 2021, Indonesia comprises five major islands and is divided into 34 provinces. Sumatra Island has the most provinces, totalling ten, while Papua Island has the fewest, with just two provinces. By 2023, Java Island will contribute the largest share of the GDP at 57.05%, primarily from the manufacturing sector. In contrast, Papua Island contributes the least at 1.88%, also mainly from manufacturing. Kalimantan Island holds an 8.49% share of GDP, making it the third largest contributor among the regions, with manufacturing as its leading sector. Kalimantan also boasts the highest per capita income at 101 million rupiahs, while Sumatra has the lowest at 74.4 million rupiahs. The highest poverty rate is found in Papua Province at 26.03%, whereas Bali Province has the lowest at 4.29% (BPS, 2024).

Over the past decade, Kalimantan has experienced the highest economic growth among Indonesia's regions. According to Figure 1, Central Kalimantan achieved the highest average economic growth at 5.75%, while East Kalimantan had the lowest average at 2.16%. Despite having the highest Gross Regional Domestic Product (GRDP) in Kalimantan, East Kalimantan's growth was slower than the other three provinces, even turning negative in 2015 and 2016. In 2020, all four provinces experienced negative economic growth due to the onset of the Covid-19 pandemic in March 2020.



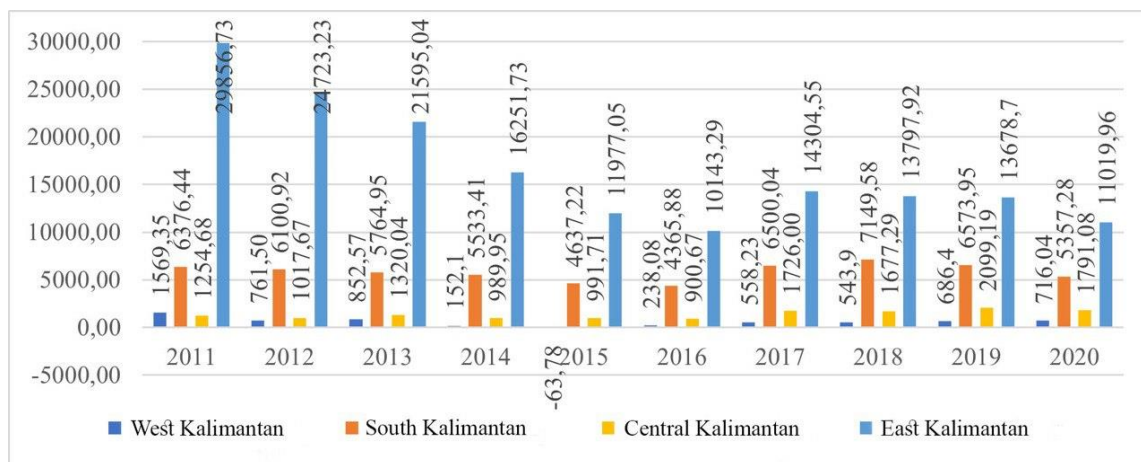
**Figure 1. Economic Growth in Kalimantan by Province 2011-2020 (percent)**

Source: BPS (2021a)

Central Kalimantan experienced the highest economic growth during the observation period, reaching a peak of 7.37% in 2013 and a low of -1.4% in 2021. In contrast, East Kalimantan had the lowest economic growth, with a maximum of 6.3% and a minimum of -2.85%. These changes in GRDP indicate that Central Kalimantan, South Kalimantan, and West Kalimantan are growing faster than East Kalimantan, despite East Kalimantan having a higher nominal GRDP than the other three provinces.

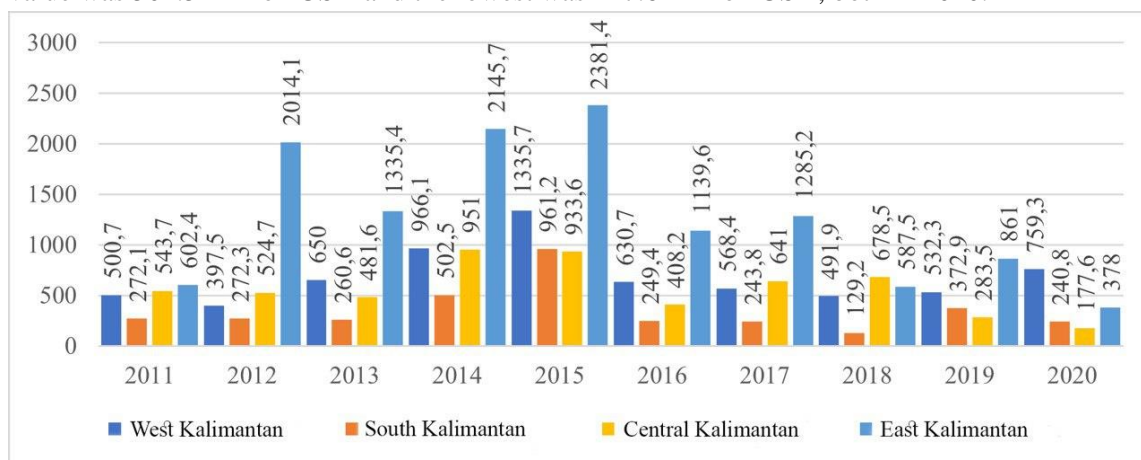
The high economic growth in Kalimantan is supported by several factors, including high net export values and FDI. Figure 2 illustrates the net exports of West Kalimantan over the past ten years. East Kalimantan has the highest net export value, averaging 16,734.82 million USD, while West Kalimantan has the lowest, averaging 601.44 million USD during the research period (Figure 3). The net export value is calculated as the difference between exports and imports. This aligns with Keynes' equation on national income formation, which includes public consumption, investment, and government spending (Mankiw, Romer, & Weil, 1990).

The significant net export value of East Kalimantan is largely driven by its leading commodity, mining products, which have been successfully exported to various countries. In contrast, West Kalimantan, Central Kalimantan, and South Kalimantan still rely on the agricultural sector, but their export values have not yet reached the level of East Kalimantan.



**Figure 2. Net Exports in Kalimantan by Province for the Period 2011-2020 (Million USD)**  
Sources: BPS (2021b)

Based on Figure 3, East Kalimantan has the highest FDI value, averaging 1,273.03 million USD over 10 years, while South Kalimantan has the lowest, averaging 350.48 million USD (Figure 2). The lucrative mining sector bolsters East Kalimantan's FDI, whereas South Kalimantan still relies on the agricultural sector. In East Kalimantan, the highest FDI value was 2,381.4 million USD in 2015 and the lowest was 378 million USD in 2020. In South Kalimantan, the highest FDI value was 502.5 million USD and the lowest was 117.6 million USD, both in 2020.



**Figure 3. Foreign Investment in Kalimantan by Province 2011-2020 (Million USD)**  
Source: BPS (2021c)

Regarding economic growth, as shown in Figure 1, despite East Kalimantan having the highest investment value and net exports, its economy is growing slower than the other three provinces. In general, FDI in Indonesia is predominantly directed toward the mining sector to sustain the country's economic growth, which heavily depends on its natural resources. Consequently, these resources are rapidly depleted without ensuring sustainability, leading to national losses (Wartini, 2016).

Figures 1, 2, and 3 explain the contradictions in several provinces in Kalimantan. Although East Kalimantan boasts the highest export and FDI values, its economic growth is slowing. Conversely, the other three provinces have lower export and FDI values but are experiencing faster economic growth. Generally, the economic structure across Kalimantan is similar, focusing on agriculture and mining, with mining requiring advanced technology. This contradicts the endogenous theory, which posits a positive relationship between technology use and economic growth.

This also contradicts Nam *et al.* (2024), who argue that economic openness benefits non-agricultural countries more. This is evident from the higher economic growth in West Kalimantan compared to non-agricultural regions such as East Kalimantan. Economic openness and FDI are crucial for a country's macroeconomic development, as they not only drive economic growth but also facilitate technology transfer, create new jobs, increase productivity and promote regional development. Therefore, researching the impact of economic openness on economic growth in Kalimantan is essential. This study contributes significantly by identifying the factors that influence a region's development based on endogenous growth theory and neoclassical theory. The contradiction between the perceived effectiveness of trade openness and FDI in driving economic growth is a key focus, especially since Indonesia prioritizes investment in the mining sector. Therefore, this study aims to identify and analyse the influence of FDI and openness, proxied by net exports, on economic growth in Kalimantan Island, which focuses on mining and manufacturing.

## 2. THEORETICAL FRAMEWORK AND EMPIRICAL STUDIES

According to Romer (1990), in the long term, economic growth is driven by technology and knowledge. Endogenous theory views technology as a crucial element in economic growth. In contrast to neoclassicalism, which considers technology an exogenous factor (Hye & Lau, 2015). The use of technology encourages regions to explore the potential, particularly the potential of local companies. Endogenous theory also emphasises the importance of the role of government in managing regional growth. However, it faces challenges in empirical studies. Previous studies have shown that economic growth varies across regions depending on the technology used, policy differences, and institutional patterns (Sala-i Martin 1996; Romer 1990; Mankiw *et al.*, 1990). High technology use can be facilitated through economic liberalization and economic openness, which allow the freer movement of goods, services, and human resources without trade barriers (Nam, Bang, & Ryu, 2023).

Economic openness is a crucial driver for economic liberalisation. It can enhance productivity, knowledge and training, improving business practices (Martin & Otto, 2023; Tripathi, 2023). Studies indicate that trade openness is generally associated with increased income in developing countries (Sinha & Sen, 2016). Trade openness can be proxied by various variables

related to trade relations between countries such as exports, imports, and net exports (Liu, Sadiq, Ali, & Kumail, 2022).

Trade openness can be influenced by a country's resource endowment factors. Based on endogenous theory, technological change leads to a more detailed division of labor, causing the production process to become increasingly fragmented. As a result, technological change alters the characteristics of international markets along the value chain. This specialization results in increased trade not only in finished goods but also in semi-finished goods, embodying the essence of globalization of production or trade openness. The involvement in this value chain is evident in the production of capital goods and transportation equipment (Frensch, Horvath, & Huber, 2021). Studies have demonstrated that trade openness positively impacted economic growth in various regions and periods: in Pakistan from 1980 to 2010 (Tahir & Ali, 2014); in the European Union from 1996 to 2021 (Bayar, 2016); in the Ivory Coast from 1965 to 2014 (Keho, 2017); and in 38 Sub-Saharan countries from 1986 to 2015 (Akinlo & Okunlola, 2021).

Trade openness in Pakistan is considered a key factor in promoting economic growth, particularly in the short term. The country's institutional performance significantly influences trade policy, and policymakers should consider the national context when shaping such policies. Researchers argue that long-term growth and outward orientation are achievable if strong, quality institutions are in place to support economic growth (Tahir & Ali, 2014). In contrast, trade openness in the European Union countries has a positive effect on economic growth only in the long term (Bayar, 2016). However, in Ivory Coast, trade openness has a positive effect on economic growth in both the short and long term (Keho, 2017). Similarly in Sub-Saharan Africa, trade openness is linked to economic growth, though it is not specified whether the effect is short or long term. However, institutions's role remains low in driving economic growth through openness (Akinlo & Okunlola, 2021). In India, from 1971 to 2009, trade openness was found to have a negative impact on economic growth in the long term, but a positive impact in the short term (Hye & Lau, 2015). This study is similar to one conducted in 80 countries and also emphasises the role of human capital. The low quality of human capital and underutilization of the benefits of trade openness, especially in technology absorption, were identified as barriers. In Turkey, from 1960 to 2014, trade openness had no effect on long-term economic growth but a positive impact in the short term (Khan *et al.*, 2016). A study on ASEAN-5 countries revealed that trade openness in Malaysia and Singapore but had a negative effect in Indonesia, the Philippines, and Thailand (Yacoub & Lestari, 2019). In Brazil, Russia, India, China, and Turkey (BRIC-T), it was found that the total value of exports and imports had a positive effect on economic growth (Banday, Murugan, & Maryam, 2021).

Another important factor for economic growth is the presence of FDI, as it creates opportunities for investors and drives productivity that benefits future development. However, the impact of investment on economic growth depends on the strength of its determinants (Nam & Ryu, 2023). Following the period of modernization, FDI has become crucial for national development. It leads countries to rely on monetary policies and financial support to achieve stability, particularly in developing and emerging economies (Zaman, Pinglu, Hussain, Ullah, & Qian, 2021). FDI also provides opportunities for foreign investors, either independently or in collaboration with domestic entities, to expand their businesses.

According to Solow (1956) output growth results from one or more of three factors: improvements in the quality and quantity of the workforce, investment (savings and investment),

and technological advancements. Several studies have found a positive relationship between FDI and economic growth. Research using panel data analysis found that FDI contributed to growth in Maluku countries from 2000 to 2020 (Ramly, Rumerung, & Payapo, 2023). Based on these findings, the authors suggest that the government should implement policies that maintain favorable investment conditions to attract investors to Maluku Province. Similar results were observed in 65 countries, including Asia and Oceania. Granger causality analysis found a unidirectional causality between foreign investment and economic growth in Asia and Oceanic, the Middle East, North America, North Africa, and Central Africa (Abbes, Mostéfa, Seghir, & Zakarya, 2014).

However, FDI has several negative impacts, such as weak economic growth and jobless due to technology replacing human labor and a reduction in entrepreneurial opportunities because foreign companies often supplant national ones (Islam, 2014). In addition, the anticipated technology transfer may not occur because the advanced technology used by MNCs does not align with the low skills level of labor in host countries. There is also the issue of political influence, as foreign company owners and employees may lobby the host country, leading to self-serving agreements and policies that disrupt proper market mechanisms (Islam, 2014).

### 3. RESEARCH METHODS

This research examines the impact of openness and FDI on economic growth in Kalimantan. A panel model was used, incorporating time series data from 2011 to 2020 (10 years), and covering four provinces in Kalimantan: West Kalimantan, Central Kalimantan, South Kalimantan, and East Kalimantan (excluding North Kalimantan). This time frame captures the rapid and fluctuating economic changes in the Kalimantan region from 2011 to 2020 which occurred quickly and fluctuated (BPS, 2021a).

The analysis in this research follows the panel statistic method outlined by Gujarati & Porter (2012). This method emphasises the uniqueness of the sample, disregarding the influence of time, thus treating the entire research period as uniform. The variables examined include economic growth as a dependent variable, with FDI and net exports as independent variables. These variables are defined according to the Statistic Reference Information System (Sirusa) of the Central Statistics Agency (BPS) as follows:

**Table 1. Operational Variables**

Variables	Definitions	Unit
Economic Growth (EG)	The growth of goods and services production in a specific economic area for a given year is measured against the value of the previous year. This is calculated based on the Gross Regional Domestic Product (GRDP) at constant prices.	percentages
Foreign Direct Investment (FDI)	Investment activities conducted by foreign investors within the Republic of Indonesia, whether fully funded by foreign capital or through joint ventures with domestic investment, are measured in the United States Dollar (in USD).	US Dollar
Net Exports (NE)	The value of goods and services exported to other countries minus the value of goods and services imported from other countries. Net exports are positive when the value of exports exceeds the value of imports and negative when the value of imports surpasses the value of exports (in USD).	US Dollar

Sources: BPS (2024)

The model consists of three types: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). The common Effect Model is as follows:

$$EG_{it} = \beta_0 + \beta_1PDI_{it} + \beta_2NE_{it} + \varepsilon_{it} \dots\dots\dots (1)$$

Where:

- EG* = Economic Growth
- FDI* = Foreign Direct Investment
- NE* = Net Export
- i* = Provinces in Kalimantan
- t* = Research period (2011 – 2019)
- $\varepsilon$  = error term
- $\beta_0$  = Constanta
- $\beta_1$  and  $\beta_2$  = Variable coefficient

The FEM model will be used if individual and time effects exist due to the individual effects being time-invariant. The FEM model is as follows:

$$EG_{it} = \beta_0 + \beta_1PDI_{it} + \beta_2NE_{it} + \varepsilon_{it} \dots\dots\dots (2)$$

The consequence of using FEM is a stable intercept but a small estimation result (Gujarati & Porter, 2012). Individual and time effects will be included in the value of  $\beta_{0it}$ , indicating a time-invariant,

$$\beta_{0it} = \lambda_{it} + \mu_{it}$$

$\beta_{0it}$  = constant;  $\lambda_{it}$  = time effect,  $\mu_{it}$  = individual effect (notation applies to all equations).

The REM will be employed if  $\mu_{it}$  and  $\lambda_{it}$  move randomly due to no relationship between the individual and time effects with other regressors. The model is as follows:

$$EG_{it} = \beta_0 + \beta_1PDI_{it} + \beta_2NE_{it} + (\lambda_{it} + \mu_{it}) + \varepsilon_{it} \dots\dots\dots (3)$$

Panel data has an error problem that cannot be solved by the OLS method, necessitating the use of Generalized Least Square (GLS) for static panel data. Using GLS helps us select the best model through two tests: the Chow test and the Hausman test. The Chow test determines the best model between CEM and FEM. If the probability is less than 0.05, H0 is rejected and H1 is accepted, indicating the FEM model is preferred, and vice versa. The Hausman test identifies the best model between REM and FEM. If the probability is less than 0.05, H0 is rejected and H1 is accepted, indicating the FEM model is selected, and vice versa.

#### 4. DATA ANALYSIS AND DISCUSSIONS

##### 4.1. Statistical Test Results

This study examines the influence of openness and FDI on economic growth in the Kalimantan region. Based on Table 2, the average economic growth in Kalimantan from 2011 to



2020 was 4.22%. The highest growth rate was 7.37% in Central Kalimantan in 2013 and the lowest was -2.85% in East Kalimantan in 2020. The average FDI was 717.27 billion USD with the highest FDI value being 2381.40 billion USD in East Kalimantan in 2015 and the lowest being 129.20 billion USD in South Kalimantan in 2015. The average net export was 6137.26 million USD with the highest net export of 29856.73 million USD in East Kalimantan in 2011 and the lowest of -63.78 million USD in West Kalimantan. The skewness value indicates that the EG variable is left-skewed, while the FDI and NE variables are right-skewed. The kurtosis value of all variables is above 3.00, indicating a leptokurtic distribution. The Jaque Berra normality test and its probability value suggest rejecting H<sub>0</sub>, meaning that all error variables are not normally distributed.

**Table 2. Statistic Descriptive**

	EG	FDI	NE
Mean	4.22	717.27	6137.26
Median	5.14	556.05	3232.53
Maximum	7.37	2381.40	29856.73
Minimum	-2.85	129.20	-63.78
Std. Dev.	2.78	528.81	7249.99
Skewness	-1.30	1.62	1.59
Kurtosis	3.51	5.27	5.06
Jarque-Bera	11.73	26.17	24.11
Probability	0.00	0.00	0.00
Observations	40	40	40

Source: Processed Data (2024)

After calculating descriptive statistics, The best model is based on the Chow test and the Hausman test is examined. The chow test is used to choose whether the CEM or FEM model is the best fit. The Hausman test is used to decide between the FEM or REM. The results (Table 3) from both tests indicate that the FEM is the best model. FEM assumes that the intercept (constant) and slope (coefficient of independent variables) are constant across regions and observations. Both tests yielded a probability less than the critical value of 5%, indicating that H<sub>0</sub> is rejected. Thus, it was concluded that the FEM is the best model for the regression equation. The fixed effects model suggests that there are differences in the intercepts for FDI and net exports, while the slope remains the same across regions.

**Table 3. The Best Model Selection Test Results**

Tests	Probability	Significance	Best Model
Chow (Common vs Fixed)	0.0000 < 0.05	Significant	<i>Fixed Effect Model</i>
Hausman (Random vs Fixed)	0.0000 < 0.05	Significant	<i>Fixed Effect Model</i>

Source: Processed Data (2024)

Table 4 show that FDI and net exports impact economic growth, as indicated by the probability of the F-statistic being 0.0000, which is less than the critical value of 5% (0.05). individually, FDI and net exports also significantly affect economic growth, with a t-statistic probability below the 5% threshold. FDI has a negative effect on economic growth, with a coefficient of -0.001135. This indicates that an increase of 1 million USD in FDI would decrease economic growth by 0.001135%. Conversely, net exports have a positive effect, with a coefficient of 0.000262, indicating that an increase of 1 million USD in net exports would boost economic growth by 0.000262%.

**Table 4. Hypothesis Test Results**

Variables	Coefficients	Std. Error	t-Statistic	Prob
C	4.120864	0.498728	8.262758	0.0000
FDI	-0.001135	0.000412	-2.752525	0.0099
NE	0.000262	4.96E-05	5.293904	0.0000
F-statistic	24.46254			
Prob (F-statistic)	0.000000			

Source: Processed Data (2024)

**Table 5. Determination of Coefficient**

R-squared	0.803037
Adjusted R-Squared	0.770210

Source: Processed Data (2024)

Table 5 shows that FDI and net exports explain 77% of the variation in economic growth in Kalimantan, as shown by the Adjusted R-squared value of 0.77. This means other factors outside the model explain 23% of the variation. This suggests there is potential for including additional variables in the model based on theoretical considerations in future research.

## 4.2. Discussion

### The Effect of Foreign Investment on Economic Growth in Kalimantan

Various factors, including FDI and net exports, may influence economic growth. FDI plays an important role in the economy of a region and is often considered a key indicator of economic growth, as it not only boosts output but also facilitates technology transfer. However, the results of this study show that FDI has a negative effect on economic growth in Kalimantan. This suggests that the FDI inflows may hinder economic growth, meaning that foreign investment (PMA) has not effectively driven growth in the region. One possible explanation is the relatively low value of FDI compared to domestic investment in Kalimantan.

**Table 6. Comparison of the Average Growth Rates of Foreign Direct Investment (FDI) and Domestic Investment (DI) by Region from 2015 to 2020 (in percent)**

Investment	Region						
	Sumatera	Jawa	Bali & Nusa Tenggara	Kalimantan	Sulawesi	Maluku	Papua
FDI	44,1	42,1	34,3	59,5	45,1	64,1	39,9
DI	30,1	0,4	9,0	101,6	163,9	221,8	99,0

Source: BKPM (2020)

Table 6 shows that the average growth of FDI in Sumatra, Java, Bali, and Nusa Tenggara is higher than that of Direct Investment. However, this is not the case for Kalimantan, Sulawesi, Maluku, and Papua. The low level of FDI in Kalimantan may be due to the sectors favored by investors not aligning with the leading sectors in each province of Kalimantan. In addition to the low FDI value, FDI growth in Kalimantan also tends to be negative, as shown in Table 7.

Based on Table 7, the negative impact on average FDI growth can be attributed to the uneven distribution of investment projects. Most of these projects are concentrated on the island of Java and its surrounding area, while investment in Kalimantan remains relatively low. Java, home to approximately 56% of the total population, receives the majority of improvements and developments, leading to economic disparity across Indonesia. This imbalance hinders overall economic equality and ultimately affects the nation's economy driven by foreign investment.

**Table 7. Growth of FDI in Kalimantan in 2012-2020**

Province	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average
West	-20.61	63.52	48.63	38.26	-52.78	-9.88	-13.46	8.21	42.64	11.62
South	0.07	-4.29	92.82	91.28	-74.05	-2.25	-47.01	188.62	-35.43	23.31
Central	-3.49	-8.21	97.47	-1.83	-56.28	57.03	5.85	-58.22	-37.36	-0.56
East	234.35	-33.7	60.68	10.99	-52.15	12.78	-54.29	46.55	-56.0	18.79

Source: BPS (2024)

Table 8 indicates a correlation between population size and project value. Heavily populated areas often attract activities due to the high demand for goods and services produced by these projects. Additionally, regions with large populations typically possess sufficient facilities and infrastructure to support such projects effectively.

**Table 8. Proportion of Population and Value of FDI Projects in Indonesia by Island Year 2021-2022**

Island	Population (million people)	Percentage of Population (percent)	Project Value (million USD)
Jawa	151.6	56.1	14,074.5
Sumatera	58.6	21.68	5,368.6
Sulawesi	19.9	7.36	4,897.6
<b>Kalimantan</b>	<b>16.5</b>	<b>6.15</b>	<b>1,621.8</b>
Bali and Nusa Tenggara	15	5.54	775.2
Maluku and Papua	8.6	3.17	4,354.8

Source: BPS (2024)

Kalimantan ranks fourth in terms of population and percentage of the total population. However, regarding the number of projects, Kalimantan ranks fifth, just above Bali and Nusa Tenggara. This disparity contributes to Kalimantan's low FDI. The slower investment growth in Kalimantan can also be attributed to inadequate facilities and infrastructure. For instance, the Kalimantan crossroad remains in poor condition. This suggests that achieving regional equality in Kalimantan is still challenging. As we know, a region's progress relies on its productivity and support from the surrounding areas. Adequate transportation facilities are crucial to facilitate the mobility of production factors and outputs.

On average, the highest FDI growth was observed in South Kalimantan, followed by East Kalimantan, West Kalimantan and Central Kalimantan. In South Kalimantan, foreign investment is predominantly in the mining sector and the electricity, gas and water sectors. In East Kalimantan, the mining sector also leads in FDI. Meanwhile, in West Kalimantan, the food crops, plantation and livestock sectors receive the most foreign investment. In Central Kalimantan, FDI is concentrated in the mining, food crops, plantation and livestock sectors.

The findings of this study do not support the Endogenous Growth Theory, which states that economic openness through foreign investment can spur economic growth. According to Wartini (2016), several factors contribute to FDI's negative impact on a region, including labor availability and wage levels, and supportive investment activities. Compared to Java, Kalimantan has a relatively smaller labor force, and its workforce is less skilled in technology. Furthermore, average wages in Kalimantan are five percent lower than in Java (BPS, 2024). For foreign companies, investing in Kalimantan incurs higher costs than in Jawa. Benetrix, Pallan, & Panizza (2023) suggest that FDI benefits regions with higher national income and education levels more positively than those with lower income and education levels. Thus, as a policy measure, it is essential to improve the quality of human resources in Kalimantan through programs such as

compulsory education, training, scholarships, and the provision of equal facilities and infrastructure by the government to reduce the disparity in human resources quality between Kalimantan and other regions.

However, the technology transferred through foreign relations plays a significant role in benefiting economic activities in Kalimantan. This is particularly true for East Kalimantan, Central Kalimantan, and South Kalimantan, where the largest investments are in the mining sector, which requires advanced technological support. As a result, these regions experience higher economic growth compared to others. This aligns with Salai-Martin's (1996) research, which found that, in Indonesia, FDI is a source of economic growth by transferring technology that enhances production, infrastructure and employment opportunities. This research contradicts the findings of Ramly *et al.* (2023) and Abbes *et al.* (2014). However, it aligns with Zaman (2021), who found that economic growth is more strongly supported by domestic investment.

It is important to note that the observed negative relationship between FDI and economic growth may introduce potential bias. In addition, the model may have omitted variables that could be correlated with both FDI and real growth. Consequently, a key weakness of our study is the potential endogeneity problem and the omission time variance.

### **The Effect of Net Exports on Economic Growth in Kalimantan**

Other factors influencing economic growth, include exports, imports, and the difference between the two (net exports). This study found that net exports have a positive effect on economic growth in Kalimantan. This indicates that an increase in net export value can increase economic growth. Although the impact is small, export and import activities, especially exports, catalyse economic growth. Export activities can generate a multiplier effect. The small effect may result from exports being highly susceptible to global economic conditions; changes in one country's economy can influence the export activities of others. Economic shifts in export destination countries will affect the export performance of the originating country. The multiplier effect is significant as export activities can stimulate other economic activities, such as creating job opportunities in companies producing export goods, fostering growth in companies supplying raw materials for export production, and other activities driven by export activities.

Table 9 shows that the export growth of the four provinces of Kalimantan was favorable in 2017 and 2018, as indicated by positive growth values. On the other hand, negative growth values in 2012, 2014, 2015, and 2020 reflect unfavorable conditions. Regarding, imports, negative growth indicates a positive situation, suggesting that four provinces are less reliant on imported goods. This occurred in 2016 and 2020. Meanwhile, positive growth, which signals increased dependence on imports, was observed in 2012 and 2018.

From 2012 to 2020, only Central Kalimantan experienced positive average average export growth, while the other three provinces saw negative average export growth (Table 8). This shows that Central Kalimantan has become increasingly capable of producing goods for export to other countries. During the same period, positive import growth was observed in South Kalimantan and East Kalimantan, indicating that these two provinces remain dependent on other countries to meet their population's demand for imported goods.

**Table 9. Export and Import Value Growth from 2011 to 2020 (in percent)**

Province	Activity	Period									Average
		2012	2013	2014	2015	2016	2017	2018	2019	2020	
West	Export	-30.3	3.8	-51.7	-13.5	4.6	40.2	21.7	16.1	-1.01	-1.1
	Import	80.7	-7.6	0.4	25.6	-44.0	-23.5	72.1	4.1	-8.8	11.0
South	Export	-1.0	-7.9	-9.2	-24.9	-12.0	49.3	11.6	-11.4	-24.9	-3.4
	Import	5.3	-12.2	-19.0	-44.3	-32.4	51.1	18.8	-25.5	-58.4	-13.0
Central	Export	-14.2	21.7	-21.8	-3.1	-9.1	85.7	6.0	13.9	-15.9	7.0
	Import	52.0	-38.8	29.1	-33.5	-7.4	4.3	229.6	-69.5	-52.3	12.6
East	Export	-11.5	-5.4	-20.4	-29.1	-20.8	26.5	4.7	-11.8	-19.8	-9.7
	Import	11.8	16.6	-10.5	-34.6	-32.6	-13.0	41.2	-45.0	-21.7	-9.8

Source: BPS (2024)

According to BPS (2024), the main export commodity in South Kalimantan is Crude Palm Oil (CPO), an agricultural commodity derived from palm oil. These commodities are exported to China, Vietnam, Russia, Saudi Arabia, Japan, and Taiwan, with an export value of 10.5 trillion rupiah in 2021, nearly three times the value in 2020 (3.8 trillion rupiah). Similarly, in West Kalimantan, the primary export commodities are agricultural products, particularly ginger, sent to China, Japan, South Korea, India, Malaysia, and Argentina. The export value of these 19 agricultural products is 6 trillion rupiah.

East Kalimantan primarily exports non-oil and gas fuels, and vegetable/animal fats and oils to China, Taiwan, America, Japan, and India. In 2021, the export value of non-oil and gas mineral fuels was 215.77 million tons, followed by oil and gas fuels (3.37 million tons) and vegetable/animal fats and oils (3.09 million tons). Central Kalimantan's main exports are coal, palm oil, and zirconium ore, which are shipped to Japan, India and South Korea. Overall, Kalimantan's export capacity is bolstered by agricultural commodities and their derivatives, which are consistently in demand by foreign countries.

The findings of this study align with the endogenous theory, which suggests that increased production and specialization can be achieved. This is further supported by the Mercantilist view that a country should aim to export as much as possible while minimising imports to become rich and powerful. The study shows a positive impact of net exports on economic growth, indicating that exports in Kalimantan exceed its imports. This is supported by Mankiw's formulation, which states that net exports positively influence national income.

This study adds to the body of research with similar findings, such as those by Tahir & Ali (2014) for Pakistan, Bayar (2016) for the European Union, Keho (2017) for Ivory Coast, Akinlo & Okunlola (2021) for Sub-Saharan countries, and Yacoub & Lestari (2019) for ASEAN-5. Similar to Pakistan, trade openness in Kalimantan is also considered an important instrument in promoting economic growth. The provincial government in Kalimantan also focuses on export activities, especially agricultural commodities exports.

Some studies that contradict the findings of this research include Fatima *et al.* (2020) for 80 countries worldwide, Hye & Lau (2015) for India, and Khan (2016) for Turkey. These studies found that exports and imports negatively impact economic growth, with some even concluding that exports and imports do not affect economic growth. These mixed results highlight the need for in-depth studies on the relationship between exports and imports, as well as economic openness in general, and economic growth in various regions.

## 5. CONCLUSIONS, RECOMMENDATIONS, AND LIMITATIONS

Foreign Direct Investment (FDI) has a negative and significant effect on economic growth, indicating that FDI has not been able to encourage economic growth. This finding contradicts the Endogenous Growth Theory and Neo-Classical Theory, which states that economic openness through foreign investment can increase economic growth, as well as several similar studies. The negative effect is attributed to the low FDI compared to Domestic Investment (DI) in Kalimantan, especially Central Kalimantan where the average growth of FDI is negative during the study period. Local governments in Kalimantan are encouraged to continue attracting foreign investment by improving facilities and infrastructure, especially the trans-Kalimantan road, to facilitate the smooth mobilization of production factors and results. Similarly, the central government should aim to direct foreign investment to areas outside Java, especially Kalimantan, to create a more balanced distribution of investment, which in turn can promote equitable economic development. Additionally, policies should focus on enhancing the quality of human resources in Kalimantan through programs such as compulsory education, training and scholarships and improving facilities and infrastructure to reduce disparities in human resources quality between Kalimantan and other regions.

Net exports have a positive and significant impact on economic growth, demonstrating that Kalimantan's net exports contribute to economic growth. Net exports generate a multiplier effect, such as creating job opportunities in companies producing export goods and fostering the growth of companies producing export goods and fostering the growth of companies supplying raw materials for export production.

This research contributes to the economic growth theory, especially endogenous growth theory and empirical evidence from the province in Kalimantan. Given Kalimantan's strong net export performance, the government should encourage exporting of agricultural products specifically and non-oil and gas products in general. This strategy would boost exports and increase the incomes of people engaged in agricultural activities, a common livelihood in Kalimantan. To ensure competitiveness with similar products from other countries, the government and relevant stakeholders should work on improving the quality of agricultural products to match the high standards of mining products, which are well regarded internationally.

However, it is important to note that a limitation of this research is the lack of emphasis on the element of time. Future studies could explore the long-term relationship, incorporating the time factor within the analysis area for a deeper understanding. The phenomenon of a negative relationship between FDI and economic growth may lead to potential bias. In addition, variables not included in the model could be overlooked, yet they may be correlated with the existing FDI and real growth variables. As a result, one weakness of this study is the potential issue of endogeneity and the neglect of time in the analysis.

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