Analyzing the Regional Economic Underpinnings of Foreign Direct Investment Sustainability in East Kalimantan Post-Ibu Kota Nusantara Relocation

Yogi Adi Riyanto [a], Sri Suharsih [a*], Hariestya Zaki Akmal Aulia [a] and Ilyasin Aditya Rahman [a]

[a] University of National Development "Veteran" Yogyakarta, Indonesia.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The development of Indonesia's new capital city named Ibu Kota Nusantara (IKN) in East Kalimantan Province, which commenced in 2022, was expected to attract increased Foreign Direct Investment (FDI) in this region. However, the significant surge in investment during 2022 appears to have been only an initial stimulus. Therefore, this study aims to examine other determinants that may explain the fluctuations in FDI in East Kalimantan. This study analyzes district-level determinants of FDI in East Kalimantan using localized indicators, addressing research gaps and capturing spatial-economic dynamics in the post-IKN development phase of a resource-based

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*Corresponding author: Email: sri.suharsih@upnyk.ac.id;

regional economy. Using panel data from 10 East Kalimantan districts and cities during 2019–2024, this study employs a quantitative methodology. The independent variables tested include Oil Palm Land Area (OPLA), Implicit Index of Gross Regional Domestic Product (IIGRDP), Domestic Direct Investment (DDI), and Palm Oil Production (POP). The *Badan Pusat Statistik* (BPS) provided the data. Panel data regression utilizing the Ordinary Least Squares (OLS) approach is used in the study methodology. The Random Effects Model (REM) is the best model after model specification testing using the Chow, Hausman, and Lagrange Multiplier tests. The estimation results show that the four independent variables have a significant positive relationship with FDI. An R-squared value of 0.6259 suggests that the model has a relatively strong ability to explain the variation in FDI. These findings underscore the pivotal role of synergizing the productivity of leading sectors, maintaining price stability, and fostering dynamic domestic investment in shaping a conducive and attractive investment climate. This study recommends the establishment of an Artificial Intelligence-based Green Investment Command Center (GICC) to map sustainable investment zones and transparency with ESG (Environmental, Social, Governance) standards. These policy implications are relevant for commodity-producing regions in developing countries, though limited by the study's timeframe and regional economic focus.

1. INTRODUCTION

Capital relocation has been utilized as a strategic approach to promote balanced development, with successful implementations observed in countries like Brazil, Kazakhstan, and Malaysia (Herdiana, 2022). Indonesia initiated the relocation of its National Capital, named Ibu Kota Nusantara (IKN) through Law Number 3 of 2022 as an effort to create a new economic growth center (Kalalinggi *et al.*, 2023). Data from BPS East Kalimantan Province (2025) noted that foreign investment realization experienced a significant increase in 2022 compared to the previous year, with values rising from US$745.20 million to US$1266.70 million, coinciding with the commencement of IKN development. However, the growth rate of foreign investment has slowed in the following years. Although foreign investment realization surged in 2022 alongside the development of IKN, the significant slowdown in the following year indicates that infrastructure stimulus has not been sufficient to sustain the dynamics of foreign investment in the East Kalimantan region. However, the understanding of the regional economic factors influencing the sustainability of foreign investment realization in East Kalimantan after the development of the national capital is still limited, indicating the need for further research to provide insights that can assist in better decision-making. One of the relevant theories to explain this phenomenon represents the Eclectic Theory framework or OLI Theory developed by John H. Dunning. This theoretical framework suggests that foreign investment is influenced by a combination of ownership-based assets, locational factors, and the benefits of internalizing operations (Dunning, 2001). The attractiveness of investments was also greatly influenced by domestic economic dynamics that can affect investment returns (Fedderke & Romm, 2006; Nguyen *et al.*, 2023). In addition to the OLI framework, the Keynesian perspective emphasizes that investment expectations regarding regional aggregate demand are key in investment decisions. In "The General Theory of Employment, Interest and Money" (Keynes, 1936), Keynes emphasized that investment decisions are highly influenced by the expectations of economic actors regarding aggregate demand, market stability, and potential economic growth (Timur, 2025).

This study seeks to examine the influence of selected regional economic indicators on foreign investment, specifically through variables such as palm oil plantation area, the implicit price index of Gross Regional Domestic Product (GRDP), domestic investment, and palm oil production. Palm oil is a leading commodity in the plantation subsector in East Kalimantan (Hidayat *et al.*, 2020; Mulyadi *et al.*, 2022). Domestic investment reflects the local investment climate that can serve as a signal and stimulus for foreign investors (Bouchoucha & Benammou, 2020; Ndikumana & Verick, 2008). The implicit index GRDP indicates a price increase compared to the base year period at the regional level (BPS, 2018). As a leading global producer of palm oil, Indonesia accounted for approximately 57% of global palm oil exports in 2016, with its contribution continuing to increase in subsequent years (Mayandi & Suharjito, 2024). As one of the main commodities of East

Kalimantan with a significant contribution to the global market, palm oil plays an important role in driving GRDP growth. This is corroborated by the findings of research conducted by Mughniyati & Sa'roni (2025), Said *et al.*, (2024), and Yamani *et al.*, (2024), which shows that palm oil commodities have a significant positive impact on GRDP. The increase in GRDP as a regional macroeconomic indicator not only indicates economic growth but also enhances the region's attractiveness to foreign investors following the theoretical framework of the Paradigm. This is reinforced by research conducted by Puspita & Samsuddin (2025), which shows that GRDP has a significant positive correlation with foreign investment realization. Although the direct relationship between oil palm plantations and foreign investment has not been extensively studied, its contribution to GDP indicates an indirect influence that factors into the dynamics of foreign investment in East Kalimantan. Ndikumana & Verick (2008) state that an increase in domestic investment can be a positive signal for foreign investors in making investment decisions. Despite their relevance, empirical studies analyzing the interplay between domestic and foreign investment in the Indonesian context are still limited. Most scholarly works emphasize their separate roles in fostering economic growth, without addressing their potential interdependence (Agustina *et al.*, 2024; Murti & Sahara, 2019). The contribution of domestic investment to GDP growth serves as an important macroeconomic indicator for foreign investors in making decisions. PMDN has a significant influence on Gross Domestic Product (GDP), where an increase in domestic investor capital will boost GDP or economic growth (Dewi *et al.*, 2024; Nuritasi, 2013; Zahra *et al.*, 2024). Furthermore, the research conducted by Saragih *et al.*, (2021) proves the positive correlation between GDP and foreign investment suggests that higher domestic investment may indirectly bolster foreign investment attractiveness through its role in strengthening regional economic performance.

Price stability is also an important benchmark for foreign investors in making investment decisions. This is supported by research conducted by Purwono (2024), which proves that rising prices have a significant negative correlation with foreign investment realization due to increased operational costs, which will prompt investors to avoid economic uncertainty. Similar findings by Utouh & Kitole (2025) these findings suggest that higher aggregate price levels within a region

exert a significantly negative influence on the value of foreign investment. However, research examining the effect of rising prices on foreign direct investment through the proxy of implicit index GRDP is still limited. Most previous studies only investigated the inflation variable as a proxy for price stability, although their results consistently show that inflation has a significant negative correlation with it (Jaiswal & Kumar, 2024; Mensah *et al.*, 2024; Mohamed *et al.*, 2025) Based on a review of several empirical studies, this research finds gaps in previous research. First, prior studies by Murti & Sahara (2019) and Agustina *et al.*, (2024) only examined the contributions of domestic and foreign investment to economic growth, without analyzing the direct relationship between the two variables. However, within the theoretical frameworks of the Eclectic Paradigm (Dunning, 2001) and Keynesian (Keynes, 1936), there is a need for an analysis of the factors influencing investment. Second, the approach of using macroeconomic national proxies (Jaiswal & Kumar, 2024) has not taken into account the unique characteristics of the East Kalimantan economy based on local resources. Thus, there has yet to be a study that simultaneously tests domestic investment as a signal of market confidence, analyzes the Implicit Index GRDP as a proxy for price stability, and considers the role of the palm oil sector in sustaining foreign investment realization in East Kalimantan post-2022 within the framework of the development of IKN (President of the Republic of Indonesia, 2022).

To address the research gap, this study uses panel data from 10 districts/cities in East Kalimantan for the period 2019-2024. To evaluate the effect of the independent variables on the realization of foreign investment, the panel data regression model is estimated using the Ordinary Least Squares (OLS) method. OLS is deemed suitable for this analysis due to its ability to produce reliable and consistent parameter estimates, provided that the classical assumptions hold. It also facilitates the isolation of the individual impact of each independent variable on the dependent variable, controlling for the effects of other covariates (Chumney & Simpson, 2006). The choice of county/city level analysis enables capturing spatial heterogeneity that is not detected in aggregate provincial studies, while the period of 2019-2024 specifically aims to examine the effects of the post-development transition of the new capital (IKN). Grounded in the context outlined above,

this research is designed to investigate the direct impact of domestic investment, the GRDP implicit index, oil palm plantation land area, and oil palm production on foreign investment realization within seven regencies/cities in East Kalimantan from 2019 to 2024. Furthermore, it endeavors to determine which local economic indicators significantly influence the long-term continuity of foreign investment flows. The contribution of this study lies in formulating investment policy recommendations grounded in local economic strengths, specifically targeting the national strategic area that supports the development of the new capital city (IKN). Its analytical scope is focused on the patterns of foreign investment in East Kalimantan from 2019 to 2024, offering insights that may be relevant for other commodity-exporting developing nations.

2. METHODOLOGY

2.1 Research Design

A quantitative methodology is employed in this study through the use of panel data, combining time series observations over a six-year period (2019–2024) with cross-sectional data from 10 districts and municipalities in East Kalimantan Province, yielding 60 total observations. The use of panel data enables a more robust and comprehensive analysis, as it captures both the temporal dynamics and regional variations in the observed variables. The data were obtained from official and credible sources, including publications from statistics Indonesia or *Badan Pusat Statistik* (BPS) and relevant government institutions related to investment and the palm oil sector.

Panel data regression refers to an analytical method that merges cross-sectional data with time-series observations, facilitating the study of temporal and individual variations simultaneously across multiple entities. The process involves identifying relevant dependent and independent variables, specifying an appropriate regression model, and estimating parameters using techniques such as Ordinary Least Squares (OLS). In panel data econometrics, three primary estimation techniques are commonly used: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). Each model differs in how it accounts for individual and time-specific effects, with the choice depending on the assumed relationship between unobserved effects and explanatory variables, with the following model (Bertiani *et al.*, 2024; Winantisan *et al.*, 2024):

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 X_{it} + \dots + \beta_j X_{it} + \epsilon_{it}$$

2.1.1 Common effect model (CEM)

Known as the simplest form of panel data estimation, the CEM or Pooled Regression Model utilizes the Pooled OLS method to derive parameter estimates, assuming homogeneity across cross-sectional units and time periods. While it offers a straightforward and computationally efficient approach, it assumes the absence of unobserved individual effects and time-specific influences. To address potential issues such as heteroskedasticity and serial correlation across panel units, robust standard errors are often applied, allowing the model to produce more reliable andefficient parameter estimates under certain conditions (Bertiani *et al.*, 2024; Winantisan *et al.*, 2024).

2.1.2 Fixed effect model (FEM)

The fixed effect model (fem) is a panel data analysis approach that accounts for The FEM accounts for individual or region-specific characteristics by allowing the intercepts to differ across entities, while maintaining constant slope coefficients over time.

Table 1. Operational Definition of Variables

Variables	Definiton	Source
Dependent Variable		
Foreign Direct Investment (FDI)	The annual inflow of foreign investment into the region (Billion Rupiah).	BPS
Independent Variables		
Oil Palm Land Area (OPLA)	Land area of oil palm plantations (hectares).	BPS
Implicit Index of Gross Regional Domestic Product (GRDP) (IIGRDP)	Regional aggregate price index based on nominal and real GRDP.	BPS
Domestic Direct Investment (DDI)	The amount of domestic investment invested in the region (Billion Rupiah).	BPS
Palm Oil Production (POP)	Total oil palm production (Tons).	BPS

This approach captures unobserved heterogeneity that is time-invariant and specific to each cross-sectional unit such as cultural, institutional, or geographical factors that may influence the dependent variable. To estimate these fixed effects, FEM commonly employs the Least Squares Dummy Variable (LSDV) method, which incorporates dummy variables for each entity. By controlling for such fixed, unobserved characteristics, FEM yields more reliable coefficient estimates, particularly when these characteristics are correlated with the explanatory variables (Alviani *et al.*, 2021; Winantisan *et al.*, 2024).

2.1.3 Random effect model (REM)

By treating these effects as random variables selected from a particular probability distribution, the REM is a panel data analysis technique that addresses variations over time and between entities. REM makes the assumption that these unobserved effects are uncorrelated with the regressors, in contrast to the fixed effect model, which makes the assumption that individual-specific effects are associated with the explanatory variables. This assumption allows the model to retain both within- and between-entity variations, making it more efficient and generalizable under certain conditions. Rem is typically estimated using Generalized Least Squares (GLS), which accounts for the presence of cross-sectional heterogeneity and serial correlation, resulting in more efficient and unbiased parameter estimates provided that the model's assumptions hold true (Alviani *et al.*, 2021; Winantisan *et al.*, 2024).

2.2 Specification Test

2.2.1 Chow test

The purpose of this test is to identify which of the CEM and FEM models is best. The null hypothesis (h_0) in the testing process indicates that the cem is the appropriate model since it claims that there are no significant individual effects across observational units. On the other hand, the alternative hypothesis (h_1) indicates that the fem offers a better fit to the data since it implies that at least one individual effect differs significantly. This test assists in making sure that the regression analysis appropriately accounts for unobserved heterogeneity (Bertiani *et al.*, 2024; Zulfikar, 2018).

2.2.2 Hausman test

When the FEM is determined to be better than the CEM, this test is carried out. Its goal is to identify the more consistent model between REM and fem. According to the null hypothesis (h_0), the independent variables (regressors) and the error term do not correlate, suggesting that the rem yields reliable and effective estimates. The FEM is more suitable, according to the alternative hypothesis (h_1), which asserts that there is a correlation between the regressors and the error term. The Hausman test, which directs the selection of the most dependable model for panel data estimate, is commonly used for this comparison (Bertiani *et al.*, 2024; Zulfikar, 2018).

2.2.3 Lagrange multiplier test

When the Chow test suggests that CEM is more suited, this test is used. Comparing the suitability of CEM and REM is the aim of this test. The cem is the proper model since the null hypothesis (h_0) asserts that there are no significant panel effects. However, the presence of strong panel effects is suggested by the alternative hypothesis (h_1), suggesting that the rem is more appropriate for the data. This test is commonly conducted using the breusch-pagan lagrange multiplier (LM) test, which helps determine whether the random effects structure in rem provides a better fit compared to the simpler pooled regression model (Bertiani *et al.*, 2024; Zulfikar, 2018).

2.3 Classical Assumption Test

Several classical assumption tests, like linearity, normalcy, multicollinearity, heteroskedasticity, and autocorrelation, are widely accepted in linear regression utilizing the OLS approach. Not every regression model type requires all of these tests, though. For example, because linear regression implies a linear connection between variables by nature, the linearity test is frequently skipped. Additionally, getting Best Linear Unbiased Estimator (BLUE) qualities does not strictly need passing the normalcy test. Multicollinearity is only relevant when there is more than one independent variable, while heteroskedasticity is more prevalent in cross-sectional data and autocorrelation is typical in time series data. Specifically, for the random effects model (REM), tests for normality, heteroskedasticity, and autocorrelation are not obligatory, as the Generalized Least Squares (GLS) method used in rem is theoretically capable of addressing potential violations of these assumptions (Basuki,

2021; Gujarati & Porter, 2009; Laksmi & Soseco, 2024; Hijrawati *et al.*, 2020; Napitupulu *et al.*, 2021).

2.3.1 Multicolinearity

Multicollinearity is tested to detect strong correlations among independent variables that may bias the regression results. The variance inflation factor (VIF) is commonly used to evaluate this problem; a value more than 10 suggests a possible multicollinearity issue (Basuki, 2021; Gujarati & Porter, 2009; Henderson, 1975; Hijrawati, 2020).

2.3.2 Heteroscedasticity

In a regression model, the heteroskedasticity test determines if the variance of the residuals varies among data. A p-value of the obs*r-squared statistic greater than 0.05 indicates the absence of heteroskedasticity. This test can be conducted using the white test or the breusch-pagan test to evaluate the stability of the residual variance (Basuki, 2021; Gujarati & Porter, 2009; Henderson, 1975; Hijrawati, 2020).

2.4 Panel Data Regression

2.4.1 Simultaneous test (F-Test)

A statistical method called the f-test is used to assess whether the dependent variable in a regression model is significantly impacted by all of the independent variables taken together. By testing the null hypothesis that all regression coefficients are equal to zero, which suggests that the independent variables collectively have no explanatory power, it assesses the model's overall significance. The null hypothesis is rejected if the obtained probability value (p-value) is less than the selected level of significance, usually 0.05. The regression model is regarded as statistically valid and significant since it shows that at least one of the independent variables significantly influences the variation in the dependent variable (Maulana, 2022).

2.4.2 Goodness of fit (R-Squared)

The degree to which the model can account for the variance in the dependent variable is determined by the coefficient of determination (r^2). The value of r^2 falls between 0 and 1. A low r^2 value suggests that the model's capacity to account for the dependent variable's variability is restricted. On the other hand, a number around 1 indicates that almost all of the information required to forecast changes in the dependent variable is provided by the independent variables (Maulana, 2022).

2.4.3 Partial test (T-test)

When all other factors are held constant, the t-test is used to investigate the partial impact of each independent variable on the dependent variable separately. Whether an independent variable has a statistically significant effect on the dependent variable can be ascertained with the aid of this test. The null hypothesis (h_0) is rejected and the alternative hypothesis (h_a) is accepted if the computed t-value is greater than the crucial t-table value, suggesting a substantial effect. On the other hand, the alternative hypothesis is rejected and the null hypothesis is accepted if the computed t-value is smaller than the t-table value, indicating that the independent variable does not have a significant partial influence (Maulana, 2022).

3. RESULTS AND DISCUSSION

3.1 Results

Based on the results of the studies that have been carried out, several results have been obtained, including as a (Table 2).

Table 2 presents the descriptive statistics of the variables based on 60 observations. The average value of FDI is 95,494.42 with a standard deviation of 131,202.8, indicating substantial variation across regions and time. The minimum and maximum FDI values, 8 and 630,925.9 respectively, reflect significant disparities in investment inflows. OPLA has a mean of 116,820.3 and a standard deviation of 153,156.2, ranging from 36 to 615,556, suggesting large differences in land area. IIGRDP shows a more stable pattern, with a mean of 154.39, a standard deviation of 21.74, and a range between 123.23 and 217.24. DDI records an average of 3,489,030 with a high standard deviation of 4,414,184, and ranges from 189,188.7 to 20,500,000, indicating strong variability. POP also shows wide variation, with a mean of 1,852,267, a standard deviation of 2,317,909, and values ranging from 52 to 7,948,189, reflecting substantial demographic differences.

Table 2. Statistics Descriptive

Variable	Obs	Mean	Std.Dev.	Min	Max
FDI	60	95494.42	131202.8	8	630925.9
OPLA	60	116820.3	153156.2	36	615556
IIGRDP	60	154.3855	21.74034	123.23	217.24
DDI	60	3489030	4414184	189188.7	2.05e+07
POP	60	1852267	2317909	52	7948189

Source: Authors' computation (2025)

3.1.1 Specification test

Table 3. Result of Estimation Panel Data Regression: CEM, REM, FEM

Estimation	CEM	REM	FEM
Variables	FDI	FDI	FDI
OPLA	0.272**	0.265***	0.311**
	(0.108)	(0.0995)	(0.108)
IIGRDP	1,178**	1,279***	1,255**
	(510.0)	(471.9)	(512.9)
DDI	0.0118***	0.0106***	0.00817*
	(0.00247)	(0.00332)	(0.00453)
POP	0.0224***	0.0268***	0.0582***
	(0.00708)	(0.00907)	(0.0210)
Constant	-200,853**	-219,656***	-270,955***
	(81,581)	(75,575)	(80,000)
F-test	0.000	0.000	0.000
R-squared	0.631	0.6259	0.455
Number of id	10	10	10
Obs	60	60	60
Pemilihan Model	LM Test	Chow Test	Hausman Test
(*p-value*)	0.0106	0.0067	0.3581

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Three specification tests the Chow test, the LM test, and the Hausman test were performed in order to identify the best panel data regression model. FEM is more appropriate than CEM, as evidenced by the Chow test's p-value of 0.0067, which is below the 0.05 cutoff. Likewise, a p-value of 0.0106 from the LM test indicated that REM is better than CEM. But the Hausman test, which contrasts REM and FEM, produced a p-value of 0.3581, which was higher than the significance limit of 0.05. This suggests that REM is the more effective and reliable estimator under the null hypothesis and that there is no discernible difference between FEM and REM. REM is determined to be the best suitable model for this investigation based on the outcomes of these tests.

3.1.2 Classical asumption test

Conventional assumption tests like normality, autocorrelation, and heteroskedasticity are not regarded as essential conditions for the validity of the estimations in panel data regression when using the random effect model REM method. This is due to the inherent characteristics of REM, which employs the GLS method rather than OLS. As a result, REM is more robust to certain violations of classical assumptions. As long as the fundamental assumptions specific to rem are satisfied, the model can still produce statistically efficient and unbiased estimates without the need to fulfill all classical assumptions required in ols-based models (Basuki, 2021; Gujarati & Porter, 2009; Laksmi & Soseco, 2024; Hijrawati *et al.*, 2020; Laksmi *et al.*, 2021).

3.2 Discussion

3.2.1 Simultaneous test (F-Test)

The purpose of the REM's f-test was to ascertain if the combined impact of the independent variables Oil Palm Land Area (OPLA), Palm Oil

Production (POP), Domestic Direct Investment (DDI), and Implicit Index of GRDP (IIGRDP) on FDI was significant. A p-value of 0.000 was obtained from the test, which is less than the conventional significance level of 0.05. The null hypothesis, according to which all of the coefficients are collectively equal to zero, can be disproved in light of this finding. Consequently, it may be said that the independent factors have a statistically significant simultaneous impact on FDI.

3.2.2 Goodness of fit (R-Squared)

The independent variables in the model, OPLA, IIGRDP, DDI, and POP, account for around 62.59% of the variation in FDI, according to the r-squared value of 0.6259 derived from the analysis. The model's significant explanatory power is indicated by the comparatively high r-squared, which indicates that the variables chosen are successful in identifying the main factors influencing fdi in the observed dataset. Other elements not included in the model, such as labor costs, political stability, infrastructural development, institutional quality, or regulatory frameworks, may account for the remaining 37.41% of the variation in FDI. These elements can also have a big impact on judgments about foreign investment.

3.2.3 Partial test

Table 2's regression results demonstrate that, with a coefficient of 0.265 and significance at the 1% level, the variable of OPLA has a positive and statistically significant impact on FDI realization. According to this conclusion, the growth of oil palm plantations raises interest from foreign investors, which is consistent with earlier empirical research that supports the idea that the oil palm industry contributes to increased investment appeal. Within the Eclectic Paradigm framework (Dunning, 2001), an increase in oil palm plantation area will strengthen East Kalimantan location advantage, thereby increasing foreign investors' interest in investing in this sector. However, it should be noted that oil palm expansion also presents challenges and environmental sustainability issues that could negatively impact foreign investors' risk perceptions. Therefore, policies aimed at supporting and optimizing sustainable land management while adhering to ESG (Environmental, Social, Governance) standards now a key concern for global investors are essential.

The coefficient for IIGRDP of 1.279, significant at the 1% level, indicates that a one-point increase in the regional price index, reflecting real economic growth adjusted for inflation, is positively correlated with a FDI increase of 1.279 billion Rupiah. This positive relationship suggests that higher regional economic performance and aggregate price levels are viewed favorably by foreign investors, as they indicate a dynamic market and strong demand. Within the Eclectic Paradigm framework (Dunning, 2001), economic growth and price stability are important components of location advantage in attracting foreign investment. Unlike previous studies that used inflation as a proxy for price stability (Jaiswal & Kumar, 2024; Mensah *et al.*, 2024; Mohamed *et al.*, 2025), which showed a negative correlation, these results reflect the unique characteristics of East Kalimantan, where increases in price levels are more influenced by aggregate demand than by harmful inflationary pressures. In Keynesian theory (Keynes, 1936), positive expectations of business actors regarding aggregate demand are key to investment decisions. However, excessive price increases will also increase operational costs and reduce the attractiveness of investment. Therefore, local governments need to focus on policies that can enhance economic competitiveness and maintain stability to create a conducive investment climate. By focusing on improving infrastructure and the quality of human resources, it is hoped that higher output can be achieved, thereby attracting more investment.

With a coefficient of 0.0106 at a significance level of 1%, the variable that represents DDI and FDI have a positive and statistically significant association. Accordingly, a 10.6 million rupiah increase in foreign investment corresponds to a 1 billion rupiah rise in local investment. These results support the signaling hypothesis, which posits that strong domestic investment reflects confidence in the regional economy and serves as a catalyst for attracting foreign capital. This is supported by Keynesian theory (Keynes, 1936), which emphasizes the importance of market expectations and confidence in driving investment. In line with previous studies by Ndikumana & Verick (2008) and Bouchoucha & Benammou (2020), this confirms that domestic investment serves as a signal and stimulus for foreign investors. The presence of active domestic investors can reduce perceived risk and enhance the credibility of the local investment climate. Therefore, policies that encourage domestic investment not only

stimulate local economic activity but can also create a domino effect that increases foreign investment.

With a coefficient of 0.0268 and significance at the 1% level, POP also demonstrates a favorable and statistically significant impact on FDI. This means that FDI will rise by almost 26.8 million rupiah for every ton of palm oil produced. High agricultural production levels, especially in the palm oil sector, demonstrate strong operational capacity and commodity competitiveness. For foreign investors, high production levels imply scalability, profitability, and export potential, making the region more attractive for investment. Additionally, increased production can strengthen East Kalimantan's position as one of the national palm oil production centers, thereby expanding opportunities for FDI in related subsectors, such as industry and logistics. Therefore, enhancing agricultural productivity, particularly in strategic sectors like palm oil, is crucial for attracting foreign capital and strengthening the regional economy.

4. CONCLUSION

This study fills an important gap in the literature by analyzing the determinants of foreign direct investment (FDI) at the district and city level in East Kalimantan, a perspective that has received limited scholarly attention. While most prior research relies on aggregated provincial data and general macroeconomic factors, this study integrates localized indicators of oil palm plantation area, oil palm production, the implicit GRDP index, and domestic investment across the period 2019–2024. This approach allows for capturing spatial heterogeneity and economic dynamics specific to the post–new capital (IKN) development phase, offering a more nuanced understanding of FDI behavior in resource-based regional economies.

The results show that FDI is positively and statistically significantly impacted by all independent variables, including OPLA, IIGRDP, DDI, and POP. The r-squared value of 0.6259 shows that 62.59% of the variation in FDI is explained by the model, while the simultaneous test (f-test) verified that the factors together affect FDI. The partial test provides additional evidence that each factor plays a substantial role in drawing in foreign investment.

These results suggest that FDI inflows in east Kalimantan are strongly linked to the scale of oil palm development, macroeconomic performance, and the strength of domestic investment. Hence, strengthening domestic investment, expanding productive land use, and enhancing palm oil production may serve as effective strategies to increase regional competitiveness and attract sustainable foreign investment. Future research is recommended to include institutional, infrastructural, and policy variables to further refine the model and provide a more holistic understanding of FDI determinants.

To accelerate FDI inflows in east Kalimantan, the government should establish an air-powered Green Investment Command Center (GICC) a real-time digital platform that leverages satellite imagery, blockchain-based land certification, and machine learning to identify, score, and promote sustainable investment zones. The GICC would integrate key indicators such as DDI trends, palm oil production, and regional GRDP growth (IIGRDP), offering predictive investment simulations and automated environmental impact scoring aligned with ESG standards. By ensuring land tenure transparency through blockchain and reducing bureaucratic friction via smart investor profiling and digital permit processing, the GICC would serve as both a strategic control tower and a smart concierge for investors. Through ai-driven partner matching, the system could also link domestic and foreign investors based on sectoral synergy, encouraging joint ventures in agribusiness, green industry, and digital infrastructure. This innovation would position east Kalimantan as a future-ready, green-tech-driven investment hub in Southeast Asia.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that generative AI technologies have been used during the writing or editing of this manuscript. Specifically, the authors used ChatGPT-5 (OpenAI, 2025 version) for paraphrasing and searching for journal sources related to Foreign Direct Investment (FDI) and East Kalimantan. All AI-assisted content has been reviewed, validated, and edited by the authors to ensure accuracy, originality, and compliance with ethical standards

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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