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Sectoral Investment, Economic Growth, and Labor Absorption in Resource-Based Regions: Empirical Evidence from Kutai Kartanegara, Indonesia

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Abstract: *This study aims to analyze the effect of sectoral investment on economic growth and labor absorption in Kutai Kartanegara Regency using a mediation framework. The study employs an explanatory quantitative approach using time-series data for 2016–2025 and applies path analysis to examine direct and indirect relationships among the variables. Gross Regional Domestic Product (GRDP) data were obtained from Badan Pusat Statistik (Statistics Indonesia) based on the February 27, 2026 release of the 2010 Series publication, Gross Regional Domestic Product at Constant Prices by Industrial Origin (Billion Rupiah), in which the 2023 data are preliminary and the 2024–2025 data are very preliminary. The results show that primary sector investment has a positive and significant effect on economic growth (β = 0.714; p = 0.013). Primary sector investment (β = 0.455; p = 0.033) and tertiary sector investment (β = 0.507; p = 0.040) also have positive and significant effects on labor absorption, whereas secondary sector investment has no significant effect. Economic growth does not significantly affect labor absorption (β = -0.610; p = 0.212) and does not mediate the relationship between sectoral investment and labor absorption based on the Sobel test (p = 0.185). These findings indicate jobless growth, where rising regional output is not fully accompanied by proportional employment opportunities. Therefore, regional investment policies should prioritize more labor-intensive sectors to promote inclusive and sustainable economic growth. This study contributes to the literature on jobless growth in resource-based regions.*

Keywords: sectoral investment; resource-based economy; IKN; economic growth; labor absorption; jobless growth; path analysis

JEL Classification: O11; O47; J21; R11

1. INTRODUCTION

Economic growth is widely recognized as one of the principal indicators used to evaluate regional development performance and the overall welfare of society (Todaro & Smith, 2012; World Bank, 2020). At the regional level, economic growth is commonly measured using Gross Regional Domestic Product (GRDP) at constant prices, which reflects the real expansion of production capacity over time. In the framework of development economics, investment is considered a key driver of economic growth because it increases capital accumulation, enhances productivity, and expands production capacity (Todaro & Smith, 2012; Solow, 1956; Romer, 1990). At the same time, labor absorption represents an important indicator of whether economic growth is inclusive and capable of generating broader employment opportunities for the local population.

The relationship between investment, economic growth, and labor absorption has become a central issue in regional development policy. According to neoclassical growth theory, investment contributes to economic growth through capital accumulation and technological progress (Solow, 1956; Romer, 1990). Keynesian theory further emphasizes that investment stimulates aggregate demand and creates multiplier effects on output and employment (Keynes, 1936; Lucas, 1988). However, the extent to which investment translates into employment creation depends largely on the sectoral characteristics of investment. Investment concentrated in capital-intensive sectors may significantly increase output without generating proportional job opportunities (Ahmed & Bibi, 2023; Butkus, 2024).

Kutai Kartanegara Regency, located in East Kalimantan Province, represents a strategic case for examining this issue. The regency is one of the largest resource-based regions in Indonesia and serves as a key supporting area for the development of the Nusantara Capital City. This strategic position has attracted substantial domestic and foreign investment, particularly in sectors related to mining, energy, infrastructure, and supporting services (Syahrir et al., 2020; Gunawan, 2023). The increasing flow of investment is expected to strengthen regional economic growth and improve employment opportunities. Nevertheless, high investment realization does not automatically guarantee that economic growth will be accompanied by broad-based labor absorption (Syahrir et al., 2020; Gunawan, 2023; World Bank, 2020).

Empirical evidence from Kutai Kartanegara indicates that regional GRDP at constant prices increased from approximately IDR 117.0 trillion in 2016 to IDR 147.9 trillion in 2025. These developments reflect the continued expansion of regional economic activity and provide an important context for examining the role of sectoral investment and labor absorption (Hutabarat & Simanjuntak, 2022; Kapsos, 2005; Murshed et al., 2022; Ahmed & Bibi, 2023; Butkus, 2024).

Table 1. Gross Regional Domestic Product of Kutai Kartanegara Regency at Constant Prices, 2016–2025

Year	GRDP (IDR Billion)	Growth Rate (%)
2016	117,035.58	-1,97
2017	118,943.99	1,63
2018	121,509.48	2,16
2019	126,272.37	3,92
2020	120,952.01	-4,21
2021	124,178.50	2,67
2022	128,798.43	3,72
2023	135,406.05	5,13
2024	143,009.77	5,62
2025	147,909.45	3,43

Source: Central Statistics Agency of Kutai Kartanegara Regency (2026)

Investment realization in Kutai Kartanegara Regency showed significant growth during the 2016–2025 period, although with considerable fluctuations from year to year. The regional investment structure was dominated by the primary sector, particularly mining and other natural resource-based activities. Primary sector investment increased from approximately IDR 2.19 trillion in 2016 to IDR 9.98 trillion in 2025, reaching a peak of IDR 12.09 trillion in 2022. Meanwhile, secondary sector investment rose from IDR 635 billion in 2016 to IDR 2.07 trillion in 2025, while tertiary sector investment increased from IDR 706 billion to IDR 758 billion over the same period. These developments indicate that, although some degree of investment diversification has occurred, the regional investment structure remains heavily dependent on the primary sector, which is generally characterized by capital-intensive activities.

Table 2. Investment Realization by Sector in Kutai Kartanegara Regency, 2016–2025

Year	Primary Sector (IDR Billion)	Secondary Sector (IDR Billion)	Tertiary Sector (IDR Billion)	Total (IDR Billion)
2016	2,187.51	635.08.00	705.65	3,528.24
2017	2,220.93	644.79	716.43.00	3,582.15
2018	2,259.88	656.09.00	728.99	3,644.96

Year	Primary Sector (IDR Billion)	Secondary Sector (IDR Billion)	Tertiary Sector (IDR Billion)	Total (IDR Billion)
2019	5,654.92	93.68	1,600.22	7,348.82
2020	1,840.63	784.27.00	569.93	3,194.82
2021	4,677.10	198.54.00	237.75	5,113.39
2022	12,089.82	1,972.77	289.01.00	14,351.60
2023	10,218.99	3,408.52	714.10.00	14,341.61
2024	11,022.15	4,214.17	1,179.57	16,415.89
2025	9,984.12	2,074.81	757.60	12,816.53

Source: DPMPTSP Kutai Kartanegara Regency, 2026

Although labor absorption increased from 5,774 workers in 2016 to 12,183 workers in 2025, the pattern remained highly volatile and did not consistently keep pace with the substantial growth in investment and GRDP. This condition indicates that the economic expansion in Kutai Kartanegara has not fully translated into proportional job creation, particularly because investment remains concentrated in capital-intensive primary sectors.

Table 3. Labor Absorption by Sector in Kutai Kartanegara Regency, 2016–2025

Year	Primary Sector (workers)	Secondary Sector (workers)	Tertiary Sector (workers)	Total (workers)
2016	5,235	266	273	5,774
2017	5,842	384	413	6,639
2018	6,449	503	553	7,505
2019	12,202	459	1,557	14,218
2020	3,307	266	688	4,261
2021	2,516	116	257	2,889
2022	12,344	1,102	444	13,890
2023	9,942	1,384	690	12,016
2024	9,802	1,692	664	12,158
2025	9,915	1,148	1,120	12,183

Source: DPMPTSP Kutai Kartanegara Regency, 2026

This divergence between rising investment, increasing economic output, and relatively modest employment creation suggests the presence of the jobless growth phenomenon. Jobless growth refers to a condition in which economic growth occurs without a commensurate increase in employment opportunities. This phenomenon is commonly observed in resource-based economies where growth is driven by sectors characterized by high capital intensity and low employment elasticity (Ahmed & Bibi, 2023; Butkus, 2024; Murshed et al., 2022). In such contexts, increases in investment and production may enhance regional income while providing limited benefits to local labor markets.

Several previous studies have examined the relationships among investment, economic growth, and employment. Paul Romer and Robert Lucas emphasize that productive investment contributes to long-term growth through innovation and human capital accumulation. More recent studies by Ahmed and Bibi (2023), Liu et al. (2023), and Zheng et al. (2023) confirm that structural transformation and employment elasticity play important roles in determining whether growth becomes inclusive.

However, most previous studies analyze investment, economic growth, and labor absorption separately or in aggregate terms. Limited research has simultaneously examined these variables using a mediation framework that allows the identification of both direct and indirect effects. Moreover, few studies explicitly distinguish investment by sector—primary, secondary, and tertiary—to assess how sectoral composition influences the relationship between investment and employment. This limitation is particularly relevant in resource-based

regions such as Kutai Kartanegara, where the structure of investment is highly concentrated in extractive industries.

This study offers several important novelties. First, it applies a path analysis approach to examine the direct and indirect relationships between sectoral investment, economic growth, and labor absorption. Second, it disaggregates investment into primary, secondary, and tertiary sectors, enabling a more detailed assessment of sector-specific contributions to regional development outcomes. Third, it focuses on Kutai Kartanegara Regency as a strategic supporting region for the development of the Nusantara Capital City, thereby providing timely empirical evidence within a rapidly transforming regional economy. Fourth, the study explicitly investigates the existence of jobless growth in a natural resource-based region (Ahmed & Bibi, 2023; Liu et al., 2023; Butkus, 2024).

The significance of this study extends beyond academic contribution. From a policy perspective, the findings are expected to provide empirical guidance for local governments in designing investment policies that not only increase GRDP but also maximize labor absorption. The study may also support the formulation of regional development strategies that prioritize labor-intensive sectors, strengthen economic diversification, and promote more inclusive and sustainable growth.

Based on the above considerations, this study aims to analyze the effect of sectoral investment on economic growth and labor absorption in Kutai Kartanegara Regency, as well as to examine the mediating role of economic growth in the relationship between investment and employment. By integrating sectoral investment analysis with a mediation framework, this research seeks to provide a more comprehensive understanding of how investment can contribute to both regional growth and employment generation in resource-based economies.

2. LITERATURE REVIEW

2.1 Theoretical Framework of Economic Growth

2.1.1 Neoclassical Growth Theory

Neoclassical growth models also emphasize the importance of productivity and capital accumulation in explaining differences in regional growth performance (Barro, 1991). According to this theory, investment contributes to increasing production capacity, technological progress, and economic productivity. Endogenous growth theory further highlights the importance of human capital, innovation, and technological development as determinants of sustainable long-term economic growth (Lucas, 1988; Romer, 1990; Aghion & Howitt, 1992). From this perspective, investment is considered a strategic factor in stimulating economic expansion and improving regional output performance (Todaro & Smith, 2012).

2.1.2 Keynesian Investment Theory

From a Keynesian perspective, investment is considered a key driver of aggregate demand and generates multiplier effects within the economy (Keynes, 1936). Increased investment stimulates production activities, income creation, and employment opportunities, thereby contributing to economic growth. The effectiveness of investment in generating employment, however, depends on sectoral characteristics, particularly whether investment is concentrated in labor-intensive or capital-intensive sectors (Todaro & Smith, 2012).

2.2 Employment Elasticity and Okun's Law

The linkage between economic growth and labor absorption is frequently analyzed through the concept of employment elasticity of growth, which reflects the degree to which employment responds to changes in output. A high level of employment elasticity indicates that economic expansion is inclusive because increases in output are accompanied by broader job creation. In contrast, low employment elasticity suggests that economic growth generates only limited additional employment opportunities despite increasing output levels (Kapsos, 2005).

Within this framework, Okun's Law provides an important theoretical foundation for understanding the interaction between economic growth and labor market outcomes. The law states that output growth and unemployment are inversely related: when actual economic

growth exceeds its potential level, unemployment tends to decline. Empirical studies suggest that a 1 percent increase in economic growth is generally associated with a reduction in unemployment of approximately 0.3–0.7 percent, although the magnitude of this relationship varies depending on the structural characteristics of the economy and labor market (Okun, 1962).

However, the relationship described by Okun's Law is not always linear or consistent across regions, particularly in economies dominated by natural resource-based sectors. In capital-intensive sectors such as mining, increases in output do not necessarily require significant additional labor input. As a result, high economic growth does not automatically lead to reductions in unemployment or increases in labor absorption, resulting in low employment elasticity of growth (Ahmed & Bibi, 2023).

2.3 Structural Transformation and Jobless Growth

Several recent studies have shown that structural transformation in developing regions is frequently characterized by an unbalanced transition from primary sectors toward productive labor-intensive sectors. In Indonesia, structural transformation has occurred across regions, although the transition process remains uneven and highly dependent on sectoral productivity improvements (Andriansyah et al., 2023). Such conditions often weaken the linkage between economic growth and labor absorption, particularly in regions that remain dependent on natural resource extraction and capital-intensive investment patterns (Liu et al., 2023; Zheng et al., 2023).

Within the framework of development economics, this phenomenon is often associated with jobless growth, defined as economic growth that is not accompanied by sufficient job creation. This condition commonly occurs in countries or regions experiencing unbalanced structural transformation, where investment is concentrated in capital-intensive sectors rather than labor-intensive ones. Therefore, the direction and composition of investment become critical factors in determining whether economic growth is inclusive (Butkus, 2024).

Recent studies also confirm that economic growth in resource-based regions tends to be capital-intensive and less responsive to labor absorption. In many developing economies, increases in investment and output are often concentrated in extractive sectors that rely more on technology and capital accumulation than labor expansion. Consequently, economic growth does not always translate into proportional employment creation, resulting in persistent jobless growth and limited labor absorption despite rising economic output (Ahmed & Bibi, 2023; Liu et al., 2023; Murshed et al., 2022).

2.4 Sectoral Investment and Labor Absorption

From a regional economic policy perspective, it is essential for local governments to consider the distribution of investment across sectors to enhance the effectiveness of labor absorption. Investments directed toward secondary and tertiary sectors, such as manufacturing and services, generally exhibit higher employment elasticity compared to the primary sector. Thus, development strategies based on economic diversification and the strengthening of labor-intensive sectors are key to improving the quality of sustainable and inclusive economic growth (Hutabarat & Simanjuntak, 2022; Sari & Prasetyo, 2021; Gunawan, 2023).

2.5 Conceptual Framework

Based on the theoretical framework and previous empirical studies, this research proposes a conceptual framework illustrating the direct and indirect relationships between sectoral investment, economic growth, and labor absorption. Economic growth is positioned as an intervening variable mediating the effect of sectoral investment on employment.

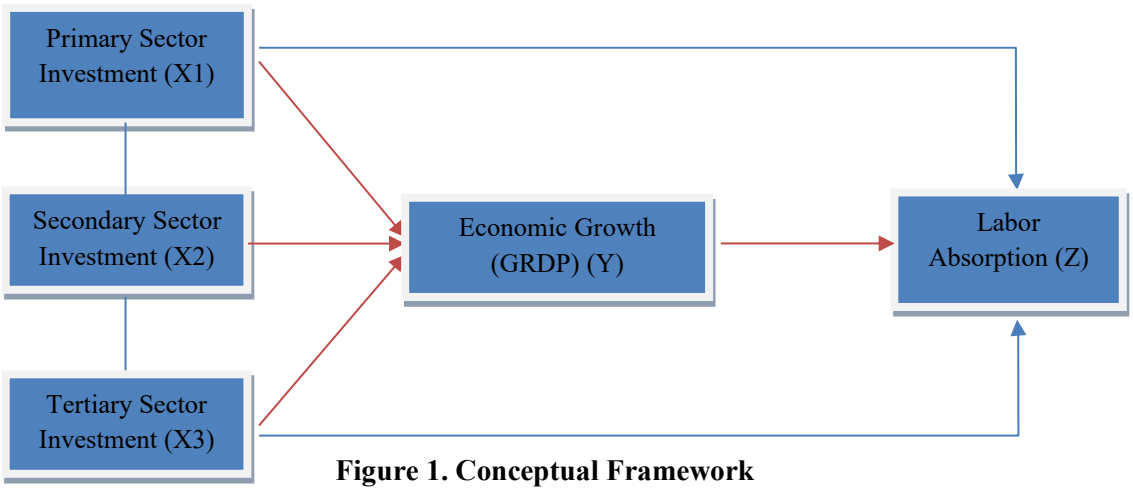

Figure 1. Conceptual Framework

Source: Developed by the author based on Robert Solow (1956), John Maynard Keynes (1936), Arthur Okun (1962), and previous empirical studies.

2.6 Research Hypotheses

Based on the theoretical framework, previous empirical studies, and the conceptual model, this study formulates the following research hypotheses:

H1 : Primary sector investment has a positive and significant effect on economic growth in Kutai Kartanegara Regency.
H2 : Secondary sector investment has a positive and significant effect on economic growth in Kutai Kartanegara Regency.
H3 : Tertiary sector investment has a positive and significant effect on economic growth in Kutai Kartanegara Regency.
H4 : Economic growth has a positive and significant effect on labor absorption in Kutai Kartanegara Regency.
H5 : Primary sector investment has a positive and significant effect on labor absorption in Kutai Kartanegara Regency.
H6 : Secondary sector investment has a positive and significant effect on labor absorption in Kutai Kartanegara Regency.
H7 : Tertiary sector investment has a positive and significant effect on labor absorption in Kutai Kartanegara Regency.
H8 : Economic growth mediates the relationship between primary sector investment and labor absorption.
H9 : Economic growth mediates the relationship between secondary sector investment and labor absorption.
H10 : Economic growth mediates the relationship between tertiary sector investment and labor absorption.

3. METHOD

3.1 Data Type and Source

This study employs a quantitative explanatory approach using time-series data from 2016 to 2025 in Kutai Kartanegara Regency. The study consists of 10 annual observations. This approach enables a more comprehensive analysis of both direct and indirect relationships among the research variables.

Although the study uses a relatively limited number of time-series observations (2016–2025), the analysis focuses on annual macroeconomic indicators at the regional level where

longer and more consistent sectoral datasets are unavailable. Therefore, this study emphasizes exploratory and contextual interpretation rather than broad generalization. Future studies are encouraged to employ panel data or quarterly observations to improve robustness.

The data used in this study were obtained from Statistics Indonesia (BPS), regional investment reports, and labor statistics of Kutai Kartanegara Regency during the 2016–2025 period.

All variables were transformed into natural logarithms (Ln) to stabilize variance and allow the estimated coefficients to be interpreted as elasticities. The statistical analysis was conducted using IBM SPSS Statistics version 27, and all hypotheses were tested at a 5 percent significance level.

3.2 Research Variables

The variables used in this study are defined as follows:

X1: Primary sector investment
X2: Secondary sector investment
X3: Tertiary sector investment
Y: Economic growth (Gross Regional Domestic Product at constant prices)
Z: Labor absorption

3.3 Analytical Method

Path analysis was employed to examine both direct and indirect effects among sectoral investment, economic growth, and labor absorption variables through three regression equations:

$$\ln Y = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + e_1 \quad \text{.....(1)}$$
$$\ln Z = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + e_2 \quad \text{.....(2)}$$
$$\ln Z = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln Y + e_3 \quad \text{.....(3)}$$

Description:

Y	= Gross Regional Domestic Product at constant prices
X_1	= Primary sector investment
X_2	= Secondary sector investment
X_3	= Tertiary sector investment
Z	= Labor absorption
$\beta_1, \beta_2, \beta_3, \beta_4$	= Regression coefficients
e_1, e_2, e_3	= Error term
ln	= Natural logarithm

Classical assumption tests include normality, multicollinearity, and heteroscedasticity tests. The mediation effect is examined using the Sobel Test to determine the significance of indirect relationships among variables.

4. RESULTS AND DISCUSSION

4.1 Classical Assumption Tests

Before conducting the path analysis, several classical assumption tests were performed to ensure the validity and reliability of the regression model. These tests included the normality test using the Shapiro–Wilk statistic, the multicollinearity test using Variance Inflation Factor (VIF), and the heteroscedasticity test using the Glejser method.

4.1.1 Normality Test

The Shapiro–Wilk test was applied to the regression residuals because the number of observations was relatively small (n = 10). The results indicate that the significance value was greater than 0.05, suggesting that the residuals were normally distributed. Therefore, the normality assumption was satisfied.

4.1.2 Multicollinearity Test

Multicollinearity was assessed using the Variance Inflation Factor (VIF) and tolerance values. All independent variables had tolerance values above 0.10 and VIF values below 10, indicating that no serious multicollinearity problem was detected.

4.1.3 Heteroscedasticity Test

The Glejser test was employed to detect heteroscedasticity. The significance values for LnX1, LnX2, and LnX3 were 0.297, 0.976, and 0.313, respectively, all exceeding the threshold value of 0.05. These results indicate the absence of heteroscedasticity in the regression model. Therefore, the model satisfies the heteroscedasticity assumption and can be used for further hypothesis testing.

Table 4. Summary of Classical Assumption Tests

Test	Criterion	Actual Statistical Values	Conclusion
Shapiro–Wilk Normality Test	$p > 0.05$	$W = 0.953$; $p = 0.700$	Residuals are normally distributed
Multicollinearity Test (VIF)	VIF < 10	LnX1 = 1.331; LnX2 = 1.331; LnX3 = 1.000	No multicollinearity
Heteroscedasticity Test (Glejser)	$p > 0.05$	LnX1 = 0.297; LnX2 = 0.976; LnX3 = 0.313	No heteroscedasticity

Source: Author's calculation based on SPSS 27 output and data from Statistics Indonesia (BPS), (2026)

As presented in Table 4, the Shapiro–Wilk test yielded a statistic of 0.953 with a significance value of 0.700, indicating that the residuals were normally distributed. The multicollinearity test showed VIF values ranging from 1.000 to 1.331, while the Glejser test produced significance values of 0.297, 0.976, and 0.313 for LnX1, LnX2, and LnX3, respectively. These results indicate the absence of multicollinearity and heteroscedasticity, confirming that the regression model satisfies the classical assumption requirements.

Table 5. Direct Effects Results

Hypothesis	Path	Beta (Standardized)	t-value	p-value	Decision
H1	Primary Investment → Economic Growth	0.714	3.484	0.013	Supported
H2	Secondary Investment → Economic Growth	0.256	1.249	0.258	Not Supported
H3	Tertiary Investment → Economic Growth	0.232	1.306	0.239	Not Supported
H4	Economic Growth → Labor Absorption	-0.610	-1.432	0.212	Not Supported
H5	Primary Sector Investment → Labor Absorption (controlling for Economic Growth)	1.074	2.890	0.034	Supported
H6	Secondary Sector Investment → Labor Absorption (controlling for Economic Growth)	0.259	1.079	0.330	Not Supported
H7	Tertiary Sector Investment → Labor Absorption (controlling for Economic Growth)	0.666	3.170	0.025	Supported

Source: Author's calculation based on SPSS 27 output and data from Statistics Indonesia (BPS), (2026)

Table 5 presents the direct effects among sectoral investment, economic growth, and labor absorption. The results indicate that primary sector investment has a positive and

significant effect on both economic growth and labor absorption. In contrast, secondary and tertiary sector investments do not significantly affect economic growth. The results also show that secondary sector investment does not significantly influence labor absorption, whereas tertiary sector investment has a positive and significant effect on labor absorption. Furthermore, economic growth has a negative but insignificant effect on labor absorption, indicating that increases in regional output do not necessarily generate proportional employment opportunities. This finding provides empirical support for the existence of jobless growth in Kutai Kartanegara Regency.

Table 6. Indirect Effects Results

Hypothesis	Mediation Path	Indirect Effect Result	Interpretation
H8	Primary Sector Investment → Economic Growth → Labor Absorption	-0.436	Negative and not significant mediation effect
H9	Secondary Sector Investment → Economic Growth → Labor Absorption	-0.156	Negative and not significant mediation effect
H10	Tertiary Sector Investment → Economic Growth → Labor Absorption	-0.142	Negative and not significant mediation effect

Source: Author's calculation based on SPSS 27 output and data from Statistics Indonesia (BPS), (2026)

Table 7. Total Effects Results (Mediation Path)

Hypothesis	Mediation Path	Direct Effect	Indirect Effect	Total Effect	Mediation Decision
H8	Primary Investment → Economic Growth → Labor Absorption	0.455	-0.436	0.019	Not Supported
H9	Secondary Investment → Economic Growth → Labor Absorption	0.103	-0.156	-0.053	Not Supported
H10	Tertiary Investment → Economic Growth → Labor Absorption	0.507	-0.142	0.365	Not Supported

Source: Author's calculation based on SPSS 27 output and data from Statistics Indonesia (BPS), (2026)

Table 7 presents the total effects of sectoral investment on labor absorption through economic growth. The results indicate that all indirect effects are negative and relatively small in magnitude, resulting in unsupported mediation hypotheses (H8–H10). These findings suggest that economic growth does not mediate the relationship between sectoral investment and labor absorption in Kutai Kartanegara Regency. This conclusion is consistent with the Sobel, Aroian, and Goodman test results presented in Table 8, all of which show p-values greater than 0.05. Therefore, the effect of sectoral investment on labor absorption occurs primarily through direct channels rather than through economic growth.

4.2 Hypothesis Testing and Path Analysis

Based on the path analysis model, hypothesis testing was conducted to evaluate the direct and indirect effects among sectoral investment, economic growth, and labor absorption. Direct effects were assessed through the estimated path coefficients and their significance levels, while indirect effects were examined using the Sobel mediation test. The results of the direct and indirect effect analyses are presented in the following sections.

4.2.1 Effect of Sectoral Investment on Economic Growth

Table 5 presents the direct effects of sectoral investment on economic growth in Kutai Kartanegara Regency. The results show that primary sector investment has a positive and significant effect on economic growth ($\beta = 0.714$; $p = 0.013$), indicating that increases in investment in mining and other resource-based activities contribute substantially to regional economic expansion. Therefore, H1 is supported.

In contrast, secondary sector investment does not significantly affect economic growth ($\beta = 0.256$; $p = 0.258$). Although the coefficient is positive, the effect is statistically

insignificant, indicating that investment in manufacturing and industrial activities has not yet become a major driver of regional economic growth. Therefore, H2 is not supported.

Similarly, tertiary sector investment has a positive but insignificant effect on economic growth (β = 0.232; p = 0.239). This finding suggests that investment in service-related sectors has not significantly contributed to economic growth during the study period. Therefore, H3 is not supported.

Overall, these results indicate that economic growth in Kutai Kartanegara remains highly dependent on primary sector investment, reflecting the dominant role of natural resource-based activities in the regional economy.

4.2.2 Effect of Sectoral Investment on Labor Absorption

Table 5 also presents the effects of sectoral investment on labor absorption in Kutai Kartanegara Regency. The results indicate that primary sector investment has a positive and significant effect on labor absorption (β = 1.074; p = 0.034). This finding suggests that investment in primary sector activities contributes to the creation of employment opportunities, despite the capital-intensive nature of many resource-based industries. Therefore, H5 is supported.

Secondary sector investment has a positive but statistically insignificant effect on labor absorption (β = 0.259; p = 0.330). This result indicates that investment in manufacturing and industrial activities has not yet generated a substantial increase in employment opportunities during the study period. Therefore, H6 is not supported.

In contrast, tertiary sector investment has a positive and significant effect on labor absorption (β = 0.666; p = 0.025). This finding suggests that investment in service-related activities has a stronger capacity to generate employment opportunities compared to other sectors. Therefore, H7 is supported.

Overall, these findings indicate that labor absorption in Kutai Kartanegara is influenced primarily by investment in the primary and tertiary sectors, whereas secondary sector investment has not yet played a significant role in employment creation. This result highlights the importance of promoting investment in sectors with higher labor absorption potential to support more inclusive regional development.

4.2.3 Direct Path Analysis

The direct path analysis provides further insight into the relationship between economic growth and labor absorption in Kutai Kartanegara Regency. As presented in Table 5, economic growth has a negative but statistically insignificant effect on labor absorption (β = -0.610; p = 0.212). Therefore, H4 is not supported. This result indicates that increases in regional economic output do not necessarily lead to proportional increases in employment opportunities.

The negative coefficient suggests that economic expansion in Kutai Kartanegara is driven primarily by sectors characterized by high capital intensity and relatively low labor requirements. In such circumstances, increases in production and regional income may occur without substantial job creation. This finding differs from the conventional expectation of Okun's Law, which assumes that higher economic growth is generally associated with greater employment generation.

The direct effect results also reveal that primary sector investment significantly influences both economic growth and labor absorption, while tertiary sector investment significantly affects labor absorption but not economic growth. In contrast, secondary sector investment does not significantly affect either economic growth or labor absorption. These findings suggest that the structure of investment is an important determinant of the quality and inclusiveness of regional growth.

Overall, the direct path analysis provides empirical evidence of jobless growth in Kutai Kartanegara Regency. Although regional output continues to increase, the benefits of economic expansion have not been fully translated into broader employment opportunities. This condition reflects the dominant role of resource-based and capital-intensive activities in shaping regional economic performance.

4.2.4 Mediation Test

Meanwhile, the Sobel Test results show a statistical value of -1.324 with a significance value of 0.185 (> 0.05), indicating that the indirect effect is not significant. This result is also supported by the Aroian and Goodman tests, which show significance values of 0.200 and 0.169 respectively (> 0.05). Therefore, it can be concluded that economic growth does not act as a mediating variable in the relationship between sectoral investment and labor absorption. Therefore, hypotheses H8, H9, and H10 are not supported.

Table 8. Mediation Test Results

Test	Test Statistic	Standard Error	p-value
Sobel Test	-1.32436773	0.23299496	0.18538095
Aroian Test	-1.27987027	0.24109553	0.20059077
Goodman Test	-1.37385433	0.22460241	0.16948691

Source: Author's calculation using Sobel Test Calculator based on SPSS 27 output and data from Statistics Indonesia (BPS), 2026.

4.3 Discussion

This study provides an empirical contribution in explaining the phenomenon of jobless growth through a sectoral approach and mediation analysis within resource-based regions in Indonesia. This condition indicates that increases in output are not accompanied by adequate job creation. The dominance of capital-intensive sectors, such as mining, explains the low elasticity of labor absorption. Secondary and tertiary sectors have greater potential to absorb labor and therefore should be prioritized in investment policy (Todaro & Smith, 2012; World Bank, 2020).

These findings are consistent with recent studies showing that in resource-based economies, economic growth tends to be driven by productivity improvement and capitalization of extractive sectors, which are not proportionally followed by increased labor absorption (Butkus, 2024; World Bank, 2020; Ahmed & Bibi, 2023; Liu et al., 2023). In resource-dependent regions, growth is often generated through capital accumulation and technological expansion rather than labor-intensive industrial development. This condition explains why GRDP growth in Kutai Kartanegara Regency has not been fully able to encourage proportional labor absorption.

An important finding of this study is that economic growth has a negative, although statistically insignificant, effect on labor absorption (β = -0.610; p = 0.212). This result deviates from the conventional expectation of Okun's Law, which suggests that higher economic growth should be associated with increased employment. One possible explanation is the presence of Dutch Disease in Kutai Kartanegara Regency, where economic expansion is driven predominantly by capital-intensive extractive industries such as mining and energy. In this context, rising output and income may attract resources toward the dominant sector while weakening the development of labor-intensive sectors such as manufacturing and agriculture. As a consequence, economic growth may increase regional output without generating proportional employment opportunities. This finding indicates that the structure and quality of growth are more important than the pace of growth itself in determining the inclusiveness of regional development (Murshed et al., 2022; Gunawan, 2023).

These findings reinforce the view that, in natural resource-dependent regions, output growth often occurs without a commensurate rise in labor absorption. However, this study also reveals an important difference, namely that the tertiary sector has begun to show a contribution to labor absorption. This indicates the existence of structural transformation potential that has not yet been fully optimized, differing from several other developing countries that have experienced a faster shift toward labor-intensive sectors (Lewis, 1954; Ahmed & Bibi, 2023).

These findings can also be explained through the perspective of Lewis's dual economic theory, where the modern sector dominated by capital-intensive activities is unable to absorb surplus labor optimally. From the perspective of structural transformation, the results indicate

that Kutai Kartanegara Regency has not yet experienced a balanced structural shift from the primary sector toward the secondary and tertiary sectors. The imperfect transformation process has resulted in a weak labor absorption response to economic growth. Similar phenomena also occur in other natural resource-based regions, where capital accumulation dominates more than job creation, thereby causing sustained jobless growth. This condition strengthens the indication that the existing economic growth remains exclusive and not yet fully inclusive (Lewis, 1954; Todaro & Smith, 2012).

Furthermore, from the perspective of regional development policy, the results emphasize the importance of reorienting investment strategies toward sectors with high labor elasticity. Local governments need to encourage investment in manufacturing industries, MSMEs, and productive service sectors that generate multiplier effects on employment creation. Policy interventions can also be implemented through fiscal incentives, simplification of licensing procedures, and improvement of human resource quality through vocational training. Thus, economic growth should not only focus on increasing GRDP but also on creating broader and more sustainable employment opportunities (World Bank, 2020; International Labour Organization, 2021; Gunawan, 2023; Hutabarat & Simanjuntak, 2022).

From a policy perspective, these findings reinforce the importance of regional economic diversification strategies. Dependence on the primary sector needs to be reduced through strengthening the secondary and tertiary sectors, which possess broader economic linkages and higher employment absorption potential. Investment policies should not only target increasing investment realization values but also consider investment quality, labor intensity, inter-sectoral linkages, and the ability to create sustainable formal employment (Butkus, 2024; Zheng et al., 2023).

Therefore, this study not only strengthens empirical findings regarding jobless growth but also provides new insights into the role of sectoral investment structures in determining the quality of economic growth in resource-based regions. These findings have important implications for regional development policy formulation, particularly in encouraging shifts in investment structures toward more inclusive and employment-oriented sectors (Ahmed & Bibi, 2023; Liu et al., 2023).

These findings indicate that economic growth in resource-based regions is highly dependent on the quality and sectoral orientation of investment rather than merely the magnitude of regional output growth (Ahmed & Bibi, 2023; Butkus, 2024).

5. CONCLUSION AND SUGGESTION

5.1 Conclusion

Sectoral investment significantly influences economic growth, particularly through primary sector investment. In addition, primary and tertiary sector investments have positive and significant effects on labor absorption, whereas secondary sector investment has no significant effect. Economic growth does not significantly affect labor absorption and does not mediate the relationship between sectoral investment and employment. These findings confirm the existence of jobless growth in Kutai Kartanegara Regency, where increases in regional output are not proportionally accompanied by broader employment opportunities. The results highlight the importance of improving investment quality and promoting economic diversification toward more labor-intensive sectors to achieve inclusive and sustainable regional development (Todaro & Smith, 2012; Gunawan, 2023; Hutabarat & Simanjuntak, 2022).

5.2 Suggestion

Regional governments should prioritize investment in labor-intensive sectors such as agro-processing, construction materials, logistics, tourism services, and MSME-based supporting industries linked to the development of the Nusantara Capital City (IKN). Policy instruments may include fiscal incentives, accelerated licensing, and vocational training programs to strengthen local workforce readiness.

5.3 Limitations and Future Research

This study is limited by the relatively small number of time-series observations (2016–2025), which reflects constraints in the availability of consistent regional sectoral data. In addition, the use of aggregate regional indicators may not fully capture differences in labor absorption across industries and firm characteristics. Therefore, the findings should be interpreted in an exploratory and contextual manner rather than generalized broadly. Future studies are encouraged to employ panel data across districts or provinces, quarterly observations, and additional explanatory variables such as government expenditure, infrastructure development, education, and labor quality to improve the robustness and external validity of the analysis.

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