BANJARESE
PACIFIC INDONESIA
Journal of International Multidisciplinary Research

The Effect of Population and Investment on Gross Regional Domestic Product and Unemployment in East Kalimantan Province

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Informasi Artikel	Abstract
E-ISSN : 3026-6874 Vol: 4 No: 6 June 2026 Page : 23-31 **Keywords:** Population; Investment; Gross Regional Domestic Product; Unemployment; Path Analysis	This study analyzes the effect of population and investment on the Gross Regional Domestic Product (GRDP) and unemployment in East Kalimantan Province during the 2016–2025 period. The research employs a quantitative explanatory design using secondary time-series data obtained from Statistics Indonesia (BPS) of East Kalimantan. Path analysis was applied through two structural equations using SPSS 21, complemented by the Sobel test to examine the mediating role of GRDP. The results show that population and investment each have a positive and significant direct effect on GRDP, and jointly explain 97.4% of its variation. GRDP, in turn, has a negative and significant effect on unemployment, accounting for 76.3% of its variation. The Sobel test confirms that GRDP significantly mediates the indirect effects of both population (Z = 2.295) and investment (Z = 2.628) on unemployment. These findings indicate that economic growth, as reflected in GRDP, acts as a strategic transmission channel converting demographic potential and capital accumulation into employment opportunities, thereby reducing unemployment in the region.

Abstract
Penelitian ini menganalisis pengaruh jumlah penduduk dan investasi terhadap Produk Domestik Regional Bruto (PDRB) dan pengangguran di Provinsi Kalimantan Timur periode 2016–2025. Penelitian menggunakan pendekatan kuantitatif eksplanatori dengan data sekunder time series dari Badan Pusat Statistik (BPS) Kalimantan Timur. Analisis jalur diterapkan melalui dua persamaan struktural dengan SPSS 21, dilengkapi uji Sobel untuk menguji peran mediasi PDRB. Hasil penelitian menunjukkan bahwa jumlah penduduk dan investasi masing-masing berpengaruh positif dan signifikan terhadap PDRB serta secara simultan menjelaskan 97,4% variasinya. Selanjutnya, PDRB berpengaruh negatif dan signifikan terhadap pengangguran sebesar 76,3%. Uji Sobel membuktikan bahwa PDRB secara signifikan memediasi pengaruh tidak langsung jumlah penduduk (Z = 2,295) dan investasi (Z = 2,628) terhadap pengangguran. Temuan ini menunjukkan bahwa pertumbuhan ekonomi yang tercermin dalam PDRB berperan sebagai saluran transmisi strategis yang mengonversi potensi demografi dan akumulasi modal menjadi kesempatan kerja, sehingga menekan angka pengangguran di wilayah tersebut.

Keywords: Jumlah Penduduk; Investasi; Produk Domestik Regional Bruto; Pengangguran; Analisis Jalur

INTRODUCTION

Globally, demographic dynamics and international capital flows have become the main drivers of economic transformation in developing countries. Both foreign and domestic investment are regarded as growth engines capable of generating a multiplier effect on regional income and employment availability. However, a major challenge arises when massive population growth is not accompanied by labor-intensive investment, so that an anomaly often occurs in which economic growth is high yet unemployment remains persistent.

At the national level, Indonesia is striving to optimize its demographic dividend in order to escape the middle-income trap. The central government consistently encourages the distribution of investment outside Java to balance the Gross Regional Domestic Product (GRDP) across regions. This policy requires regions to manage their human resources and investment attractiveness so that national economic growth is not only concentrated but also inclusive down to the provincial level.

East Kalimantan Province plays a vital role in the national economic map as an energy reserve and the site of the Nusantara Capital City (IKN) development. Based on data from Statistics Indonesia (BPS), the East Kalimantan economy in 2024–2025 showed a significant strengthening trend, with growth ranging from 6.17% to 6.22% (BPS Kaltim, 2025). Although the GRDP figures show impressive performance, the classic challenge of dependence on the extractive mining sector remains the main obstacle to long-term economic stability.

The most crucial phenomenon in the economic structure of East Kalimantan during the 2020–2025 period is the imbalance between GRDP output growth and the elasticity of labor absorption. Although investment in the mining sector remains the main contributor to the increase in GRDP, the capital-intensive characteristics of this sector result in low absorption of the growing local labor force. Investment reaching IDR 70.43 trillion up to the third quarter of 2025 has not been fully able to eliminate employment problems.

Population issues have also come under sharp scrutiny amid the massive in-migration toward the buffer areas of the national capital (IKN). BPS data show that the Open Unemployment Rate (OUR) of East Kalimantan in February 2025 stood at 5.33%, which, although showing a slight decline, still places the province among regions with serious unemployment challenges (BPS Kaltim, 2025). A surge in population without diversification of investment beyond the mining sector risks triggering greater social and economic pressure for the regional government.

The unemployment challenge in East Kalimantan lies not only in the quantity of jobs but also in the phenomenon of skills mismatch. The dominance of modern industry and IKN infrastructure development demands high technical specialization that often cannot be optimally met by local education graduates. This condition reinforces the view that without synchronization between investment policy and the development of population competencies, economic growth reflected in GRDP will become merely a pseudo growth figure whose impact is not evenly felt by society.

Research on macroeconomic factors in East Kalimantan has been widely conducted, yet with varied results. Rahayu et al. (2017) found that population had a significant effect on economic growth, but private investment did not show a significant effect on directly reducing unemployment. The uncertainty of these previous findings indicates that the relationships among macro variables in resource-rich regions possess a distinctive and dynamic complexity.

On the other hand, a more recent study by Sari & Pangestuty (2022) highlighted that in East Kalimantan, GRDP has an inverse relationship with unemployment, but its effectiveness depends heavily on moderating variables such as the minimum wage. These differing findings indicate a research contradiction that requires re-examination using the latest post-pandemic data and data from the IKN development era, in order to assess whether the relationship pattern among these variables remains relevant to current economic conditions.

Many previous studies are limited by the time range of the data used, most of which do not yet cover post-2022 economic dynamics. In addition, the investment variable is often analyzed in general terms without considering the shift in regional economic policy toward green transformation. This study addresses that gap by integrating the latest statistical data up to 2025 and simultaneously analyzing how population and investment interact in influencing GRDP and its impact on labor absorption.

The research gap identified in this study is the phenomenon of “jobless growth” that still overshadows East Kalimantan. There is an analytical void regarding whether current population growth acts as an economic burden or instead as a driver of consumption that increases GRDP amid the regional economic transition. This study aims to empirically prove whether the current investment-driven economic growth model is inclusive or still trapped in exclusive growth within certain sectors.

Based on the above description, the main objectives of this study are to analyze and quantitatively prove the effects of population and investment on GRDP and unemployment in East Kalimantan Province for the 2020–2025 period. Specifically, the research questions are formulated as follows:

1. Does population have a direct and significant effect on GRDP in East Kalimantan Province?
2. Does investment have a direct and significant effect on GRDP in East Kalimantan Province?
3. Does GRDP have a direct and significant effect on unemployment in East Kalimantan Province?
4. Does population have an indirect and significant effect on unemployment through GRDP in East Kalimantan Province?

5. Does investment have an indirect and significant effect on unemployment through GRDP in East Kalimantan Province?
6. Do population and investment simultaneously affect GRDP in East Kalimantan Province?

The benefits of this study comprise theoretical aspects, namely enriching the development economics literature on endogenous growth theory in commodity-based regions, and practical aspects, namely serving as a reference for the East Kalimantan Provincial Government in formulating higher-quality investment policies and population management strategies that support productivity, so that regional economic progress can be aligned with improved welfare and a significant reduction in unemployment.

LITERATURE REVIEW

Population

Statistics Indonesia (BPS) defines population as all persons domiciled within the geographic territory of the Republic of Indonesia for six months or more, or those domiciled for less than six months but intending to settle. According to Said (2012), population is the number of people residing in an area at a given time and is the result of demographic processes, namely fertility, mortality, and migration. Thomas Malthus (in Arsyad, 2014) argued, through the concept of diminishing returns, that population tends to grow geometrically while food supply grows only arithmetically, so that per capita income tends to fall toward subsistence levels.

Conversely, population also plays a dual role in economic development: on the demand side it acts as a consumer, and on the supply side as a producer. Therefore, rapid population growth is not always an obstacle to development if the population has a high capacity to produce and absorb output. Todaro (2014) states that population growth and labor-force growth have traditionally been considered factors that increase economic growth, since a larger labor force adds productive capacity and a larger population expands the domestic market.

Investment

Investment is defined as expenditure to purchase capital goods and production equipment with the aim of replacing and, in particular, increasing the stock of capital goods used to produce goods and services in the future. Investment is one component of GDP (GDP = C + I + G + (X − M)). According to Sunariyah (2003), investment is the placement of capital into one or more assets, usually for a long period, with the expectation of future returns, while Samuelson (2004) views investment as the addition to a country's capital stock.

In investment theory, the Neoclassical approach (Solow and Swan) emphasizes savings as the source of investment and regards investment as a primary driver of economic growth, where a higher capital-to-labor ratio tends to raise output per worker (Arsyad, 2010). The Harrod–Domar theory likewise stresses the role of capital formation, regarding investment both as expenditure that increases an economy's capacity to produce and as expenditure that adds to aggregate effective demand (Sukirno, 2007).

By type, investment is divided into government investment, which generally does not aim for profit, and private investment, which consists of Domestic Investment (PMDN) and Foreign Investment (PMA). Foreign Direct Investment (FDI) involves real assets such as factories and capital goods and is considered an important source of capital for the economic development of developing countries such as Indonesia.

Gross Regional Domestic Product (GRDP)

GRDP is the gross value added of all goods and services produced within the domestic territory of a region arising from various economic activities in a given period, regardless of whether the factors of production are owned by residents or non-residents (BPS Kalimantan Timur, 2025). GRDP can be compiled through three approaches production, expenditure, and income and is presented at both current prices (nominal GRDP, to observe economic structure) and constant prices (real GRDP, to measure economic growth).

GRDP at current prices indicates the economic resource capacity of a region, while GRDP at constant prices is used to show the overall rate of economic growth. The distribution of GRDP by sector reflects the economic structure of a region, and GRDP per capita indicates the value of output per inhabitant.

Unemployment

Unemployment is a condition in which a person classified as part of the labor force wants to obtain work but has not yet been able to do so (Sukirno, 2016). According to Mankiw (2003), unemployment is the macroeconomic problem that affects people most directly and severely, as job loss means a decline in living standards and psychological stress. By cause, unemployment is classified as frictional, structural, and cyclical (conjunctural) unemployment.

The Open Unemployment Rate (OUR) is the percentage of the labor force that is seeking work, preparing a business, not seeking work because of feeling it impossible to obtain work, or already having a job but not yet started. It is measured as the percentage of the number of unemployed persons relative to the total labor force, and provides an indication of the working-age population belonging to the unemployed group.

Relationships Among Variables and Hypotheses

Drawing on the theories above and the results of prior studies, the relationships among variables are formulated. Population and investment are expected to increase GRDP through the expansion of productive capacity and aggregate demand, while higher GRDP is expected to reduce unemployment in line with Okun's Law. GRDP is positioned as an intervening variable that channels the effects of population and investment on unemployment. Based on this framework, the following hypotheses are proposed:
H1: Population has a positive and significant direct effect on GRDP.
H2: Investment has a positive and significant direct effect on GRDP.
H3: GRDP has a negative and significant direct effect on unemployment.
H4: Population has a significant indirect effect on unemployment through GRDP.
H5: Investment has a significant indirect effect on unemployment through GRDP.
H6: Population and investment simultaneously have a significant effect on GRDP.

METHOD

This study uses a quantitative approach with an explanatory research design, which aims to analyze the relationships among variables and how one variable affects another (Sugiyono, 2012; Umar, 1999). The study explains the effect of population and investment (exogenous variables) on GRDP and unemployment (endogenous variables) in East Kalimantan Province through hypothesis testing. The analysis is based on secondary time-series data over the ten-year period 2016–2025, obtained from Statistics Indonesia (BPS) of East Kalimantan Province.

The variables analyzed are: population (X1), investment (X2), GRDP at constant prices as the intervening variable (Y1), and unemployment (Y2) as the dependent variable. Operationally, population is the number of people residing in an area resulting from fertility, mortality, and migration; investment is the placement of capital expected to yield future returns; GRDP is the gross value added of goods and services produced in the region; and unemployment is the condition of being in the labor force but unable to obtain work.

Analysis Method and Tools

Because the conceptual framework contains no reciprocal (double-headed) arrows, the model is a recursive model with one-headed arrows. The appropriate analytical tool is path analysis, performed using SPSS 21. The model consists of two structural equations:

Substructure 1: $Y1 = \rho y1x1\ X1 + \rho y1x2\ X2 + e1$

Substructure 2: $Y2 = \rho y2y1\ Y1 + e2$

where X1 = population, X2 = investment, Y1 = GRDP, Y2 = unemployment, and e = error term. Path coefficients are interpreted using standardized regression coefficients (beta). The analysis distinguishes direct effects, indirect effects, and total effects, where the total effect is the sum of the direct and indirect effects (Riduwan & Kuncoro, 2008).

The data analysis stages comprise the classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation) following Ghozali (2018), followed by hypothesis testing using the F-test (simultaneous), t-test (partial), and the coefficient of determination (R^2). To test the mediating role of GRDP, the Sobel test is applied, where an indirect effect is declared significant if the absolute value of the calculated Z exceeds 1.96.

RESULTS AND DISCUSSION

Descriptive Statistics

This study uses secondary time-series data over ten years (2016–2025). The descriptive statistics of the variables (in logarithmic form) are presented in Table 1.

Table 1. Descriptive Statistics

Variable	Mean	Std. Deviation	N
Log_Y1 (GRDP)	10.6979	0.04373	10
Log_Y2 (Unemployment)	2.7948	0.05878	10
Log_X1 (Population)	4.5824	0.03043	10
Log_X2 (Investment)	13.6454	0.20109	10

Source: SPSS 21, processed data.

The relatively small standard deviations indicate that the variation in the data is stable across the observation period.

Path Model 1: Effect of Population and Investment on GRDP

The classical assumption tests for Model 1 were satisfied. The Normal P-P Plot showed residuals distributed along the diagonal line (normality met); the scatterplot showed randomly dispersed points without a pattern (no heteroscedasticity); and the Durbin–Watson value of 1.821 (within 1.5–2.5) indicated no autocorrelation. The simultaneous and partial test results are presented in Tables 2 and 3.

Table 2. ANOVA – Model 1 (Dependent Variable: GRDP)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.017	2	0.008	129.178	0.000
Residual	0.000	7	0.000		
Total	0.017	9			

Source: SPSS 21, processed data. Predictors: (Constant), Log_X2, Log_X1.

The ANOVA results show an F-value of 129.178 with a significance of 0.000 (< 0.05), indicating that population (X1) and investment (X2) simultaneously have a significant effect on GRDP (Y1).

Table 3. Coefficients – Model 1 (Dependent Variable: GRDP)

Model	B	Std. Error	Beta (Std.)	t	Sig.
(Constant)	6.216	0.582	–	10.673	0.000
Log_X1 (Population)	0.588	0.145	0.409	2.896	0.023
Log_X2 (Investment)	0.131	0.171	0.602	4.255	0.004

Source: SPSS 21, processed data.

The partial test shows that population has a t-value of 2.896 (Sig. 0.023 < 0.05) and investment has a t-value of 4.255 (Sig. 0.004 < 0.05). Both variables therefore have a positive and significant effect on GRDP. The coefficient of determination (R^2) of 0.974 indicates that 97.4% of the variation in GRDP is explained by population and investment, while the remaining 2.6% is influenced by other factors outside the model. The empirical path equation for Model 1 is: Y1 = 0.409 X1 + 0.602 X2 + 0.026 e1.

Path Model 2: Effect of GRDP on Unemployment

The classical assumption tests for Model 2 were likewise satisfied, with normal residuals, no multicollinearity (Tolerance = 1.000; VIF = 1.000), and a Durbin–Watson value of 1.730 (no autocorrelation). The results are presented in Table 4.

Table 4. Coefficients – Model 2 (Dependent Variable: Unemployment)

Model	B	Std. Error	Beta (Std.)	t	Sig.
(Constant)	15.354	2.476	–	6.201	0.000
Log_Y1 (GRDP)	-1.174	0.231	-0.873	-5.072	0.001

Source: SPSS 21, processed data.

The F-value of 25.725 (Sig. 0.001 < 0.05) and the t-value of −5.072 (Sig. 0.001 < 0.05) indicate that GRDP has a negative and significant effect on unemployment. The R^2 of 0.763 means that 76.3% of the variation in unemployment is explained by GRDP, while the remaining 23.7% is influenced by other variables. The empirical path equation for Model 2 is: Y2 = −0.873 Y1 + 0.237 e2.

Indirect Effects and Sobel Test

The indirect effect of population on unemployment through GRDP is 0.409 × (−0.873) = −0.357, and the indirect effect of investment on unemployment through GRDP is 0.602 × (−0.873) = −0.525. The Sobel test confirms the significance of these mediating effects, as summarized in Table 5.

Table 5. Decomposition of Effects Among Research Variables

Variable Effect	Direct	Indirect (via Y1)	e	R^2
X1 → Y1 (Population → GRDP)	0.409	–	–	–
X2 → Y1 (Investment → GRDP)	0.602	–	0.026	0.974
Y1 → Y2 (GRDP → Unemployment)	-0.873	–	0.237	0.763
X1 → Y2 via Y1 (Sobel Z)	–	2.295	–	–
X2 → Y2 via Y1 (Sobel Z)	–	2.628	–	–

Source: SPSS 21 and Sobel calculator, processed data.

For population, the Sobel test yields |Z| = 2.295 > 1.96, and for investment |Z| = 2.628 > 1.96. Both indirect effects are therefore significant, confirming that GRDP mediates the effects of population and investment on unemployment. The negative sign of the Sobel statistic indicates the direction of the mediating relationship, namely that an increase in GRDP reduces unemployment.

Discussion

The direct effect of population on GRDP is positive and significant, indicating that population growth can drive economic growth through an increase in the labor force and household consumption. Theoretically, this is consistent with Todaro & Smith (2011), who view population as both a provider of labor and a consumer that drives aggregate demand. The finding aligns with Sembiring & Sasongko (2019) and Tumaleno et al. (2022). Nevertheless, as Sukirno (2016) notes, population growth that is not matched by employment opportunities may create economic problems, so policies to improve population quality and productivity are required.

The direct effect of investment on GRDP is also positive and significant, indicating that increased investment raises production capacity and drives economic growth. In line with Mankiw (2018) and the Harrod–Domar framework (Sukirno, 2016), investment increases the capital stock and thus the productive capacity of the economy. This result is consistent with Monika Caramoy et al. (2025) and Sunuputri & Hasmarini (2023).

GRDP has a negative and significant effect on unemployment, meaning that higher economic growth reduces unemployment through greater labor absorption. This is consistent with Okun's Law (Okun, 1962), which posits a negative relationship between output growth and unemployment, and with Todaro & Smith (2011). The finding is supported by Tutupoho (2019) and Fadhilah & Akuntansi (2019), although under certain conditions a jobless-growth phenomenon may occur, as noted by Mankiw (2018).

Based on the path analysis and the Sobel test, population has a significant indirect effect on unemployment through GRDP, with GRDP acting as a mediator. This indicates that population growth contributes to reducing unemployment provided that it first drives output growth. The finding is consistent with Solow's growth theory, which positions population as a crucial input in the national production function, and is reinforced by Prasetyo & Zulfa (2022), who emphasize inclusive economic growth as the bridge between demographic potential and labor absorption.

Investment also has a significant negative indirect effect on unemployment through GRDP, indicating that incoming capital does not automatically absorb unemployment but must first form real productive capacity reflected in higher GRDP. This strengthens the Harrod–Domar theory and the concept of derived demand, where investment generates income and production capacity that subsequently create demand for labor. The trickle-down effect explains how investment-driven GRDP yields employment opportunities, consistent with Sari & Prayitno (2022).

Finally, population and investment simultaneously have a significant effect on GRDP, and through it on unemployment. The synergy between human resources and capital accumulation becomes the main driver of stable regional economic growth, as explained by the Neoclassical (Solow–Swan) growth theory and the Cobb–Douglas production function. GRDP acts as the transmission channel that converts demographic and capital inputs into employment opportunities. This is consistent with Hidayat & Amalia (2023), who stress that harmony between investment policy and population management is key to inclusive, employment-generating growth. Overall, GRDP serves as an intervening variable that explains the relationship between population and investment, on the one hand, and unemployment, on the other.

CONCLUSION

Based on the results and discussion, this study concludes that population and investment each have a positive and significant direct effect on the Gross Regional Domestic Product (GRDP) of East Kalimantan Province, and together explain 97.4% of its variation. GRDP, in turn, has a negative and significant effect on unemployment, explaining 76.3% of its variation, which means that higher economic growth reduces unemployment through greater labor absorption. The Sobel test confirms that GRDP significantly mediates the indirect effects of both population and investment on unemployment, with the investment channel being more dominant than the population channel. Simultaneously, population and investment are the principal drivers of regional economic growth. These findings position GRDP as a strategic intervening variable that channels demographic potential and capital accumulation into employment opportunities.

In practical terms, the regional government is encouraged to improve the quality of human resources, promote both domestic and foreign investment through simpler licensing and incentives, direct development policy toward labor-intensive sectors, and align population management with job creation, so that economic growth translates directly into lower unemployment. Future research is advised to incorporate additional relevant variables such as education, the minimum wage, and economic structure, and to apply more complex analytical methods in order to obtain more comprehensive results.

REFERENCES

Amanda Nashichin, A. (2024). Analisis pengaruh Pendapatan Domestik Regional Bruto (PDRB), jumlah angkatan kerja, tingkat inflasi dan nilai investasi terhadap tingkat pengangguran terbuka di Kota

Mataram tahun 2013–2022. Jurnal Ekonomi dan Bisnis, 10(2), 1–14. https://doi.org/10.29303/ekonobis.v10i2.183

Amar, H., & Arkum, D. (2023). Pengaruh investasi terhadap perekonomian, pembangunan manusia, pengangguran dan kemiskinan di Kabupaten Bangka. Publikauma: Jurnal Administrasi Publik Universitas Medan Area. https://doi.org/10.31289/publika.v11i1.9103

Arsyad, L. (2010). Ekonomi pembangunan. STIE YKPN.

Arsyad, L. (2015). Ekonomi pembangunan (5th ed.). UPP STIM YKPN.

Badan Pusat Statistik (BPS) Kalimantan Timur. (2025). Kalimantan Timur dalam angka 2025. https://kaltim.bps.go.id/id

Bloom, D. E., & Canning, D. (2020). The demographic dividend: A new perspective on the economic consequences of population change. Population and Development Review, 46(1), 1–24.

Dewita, I. A., Sujianto, A. E., Cahyani, A. W., Syahputri, A. R., & Wulandari, A. (2023). Pengaruh investasi, tingkat pendidikan, PDRB, dan ekspor terhadap tingkat pengangguran di Indonesia periode 2018–2022. Jurnal Studi Ekonomi dan Kebijakan (JEPS), 4(2), 40–51. https://doi.org/10.21274/jeps.v4i02.8964

Dharmayanti, Y. (2011). Analisis pengaruh PDRB, upah dan inflasi terhadap pengangguran terbuka di Provinsi Jawa Tengah tahun 1991–2009 [Unpublished thesis]. Universitas Diponegoro.

Fadhilah, D., & Akuntansi, P. N. (2019). Pengaruh upah, PDRB terhadap pengangguran dengan jumlah penduduk sebagai pemoderasi di Kabupaten/Kota Provinsi Sumatera Utara. Jurnal LIAB. https://jurnal.umsu.ac.id/index.php/LIAB/article/view/3850

Ghozali, I. (2018). Aplikasi analisis multivariate dengan program IBM SPSS 25 (9th ed.). Badan Penerbit Universitas Diponegoro.

Hidayat, M. S., & Amalia, N. (2023). Analisis pengaruh investasi dan pertumbuhan ekonomi terhadap tingkat pengangguran terbuka. Jurnal Ekonomi Pembangunan, 21(1), 45–58.

I Dewa Gede Krisna Cipta Paramartha, & Ni Nyoman Reni Suasih. (2025). Pengaruh investasi dan upah minimum terhadap pertumbuhan ekonomi dan pengangguran Kabupaten/Kota di Provinsi Bali. E-Jurnal Ekonomi Pembangunan, 12(7), 451–463. https://doi.org/10.24843/EEP.2023.v12.i07.p01

Kuncoro, M. (2006). Ekonomi pembangunan. Salemba Empat.

Lee, R. D., & Mason, A. (2021). The effects of population aging on economic growth, saving, and public finance. Journal of Population Economics, 34(2), 603–642.

Mankiw, N. G. (2003). Teori makroekonomi. Erlangga.

Mankiw, N. G. (2018). Principles of economics (8th ed.). Cengage Learning.

Monika Caramoy Sitorus, Selpiana, S., Simanjuntak, R. P., Hutabarat, W. B., & Matondang, M. A. (2025). Pengaruh pengeluaran pemerintah dan investasi terhadap PDRB HK di Provinsi Sumatera Utara. Jurnal Pengabdian Masyarakat dan Riset Pendidikan, 4(3), 14752–14760. https://doi.org/10.31004/jerkin.v4i3.4595

Prasetyo, A., & Zulfa, A. (2022). The impact of population growth and investment on regional economic development: A path analysis approach. International Journal of Economics and Management, 16(2), 210–225.

Purba, M. S., Hutagalung, I., Habeahan, J., & Matondang, K. A. (2024). Analisis pengaruh inflasi dan PDRB terhadap pengangguran di Sumatera Utara tahun 2015–2021. Jamparing, 2(2).

Ramadhani, Q. N., & Ananda, C. F. (2024). Pengaruh pertumbuhan ekonomi, investasi, dan upah minimum terhadap tingkat pengangguran di Jawa Barat. Jurnal Kajian Ekonomi dan Sosial Pembangunan. https://doi.org/10.21776/jdess.2024.03.2.2

Riduwan, & Kuncoro, E. A. (2008). Cara menggunakan dan memaknai analisis jalur (path analysis). Alfabeta.

Sadono, S. (2003). Pengantar teori mikroekonomi (2nd ed.). Rajawali Pers.

Samuelson, P. A., & Nordhaus, W. D. (2004). Ilmu makroekonomi (17th ed.). Erlangga.

Saputra, R., Salmah, E., & Sujadi, S. (2024). Pengaruh upah minimum regional, investasi, dan pertumbuhan ekonomi terhadap pengangguran terbuka di Kota Mataram tahun 2008–2022. Jurnal Sosial Ekonomi dan Humaniora, 10(2), 328–337. https://doi.org/10.29303/jseh.v10i2.535

Sari, D. P., & Prayitno, H. (2022). Pengaruh investasi dan tenaga kerja terhadap PDRB serta dampaknya pada pengangguran. Jurnal Ekonomi & Studi Pembangunan, 23(1), 88–102.

Sembiring, V. B. P., & Sasongko, G. (2019). Pengaruh produk domestik regional bruto, inflasi, upah minimum, dan jumlah penduduk terhadap pengangguran di Indonesia periode 2011–2017. International Journal of Social Science and Business, 3(4), 430–443.

Setyowati, E., & Fatimah N., S. (2007). Analisis faktor-faktor yang mempengaruhi investasi dalam negeri di Jawa Tengah tahun 1980–2002. Jurnal Ekonomi Pembangunan, 8(1), 62–84. https://doi.org/10.23917/jep.v8i1.3938

Sidabutar, M., & Putri, N. (2024). Pengaruh pendidikan, UMP, inflasi, dan investasi terhadap tingkat pengangguran di Indonesia. Jurnal Cita Ekonomika, 18(2), 76–85. https://doi.org/10.51125/citaekonomika.v18i2.16162

Sugiyono. (2012). Metode penelitian kuantitatif, kualitatif, dan R&D. Alfabeta.

Sukirno, S. (2007). Makroekonomi modern: Perkembangan pemikiran dari klasik hingga Keynesian baru. RajaGrafindo Persada.

Sukirno, S. (2016). Makroekonomi teori pengantar (3rd ed.). Rajawali Pers.

Sunariyah. (2003). Pengantar pengetahuan pasar modal. UPP AMP YKPN.

Sunuputri, G. A., & Hasmarini, M. I. (2023). Analisis pengaruh pembangunan infrastruktur dan investasi terhadap PDRB di Provinsi Sumatera Selatan. Ekonomis: Jurnal Ekonomi dan Bisnis.

Todaro, M. P., & Smith, S. C. (2011). Pembangunan ekonomi (11th ed.). Pearson.

Todaro, M. P., & Smith, S. C. (2020). Economic development (13th ed.). Pearson.

Tumaleno, A. F., Riazis, K. R., & Rosnawintang. (2022). Pengaruh jumlah penduduk terhadap produk domestik regional bruto di Sulawesi Tenggara. Arus Jurnal Sosial dan Humaniora, 2(3), 189–195. https://doi.org/10.57250/ajsh.v2i3.135

Tutupoho, A. (2019). Analisis pengaruh inflasi dan PDRB terhadap pengangguran terbuka di Provinsi Maluku. Jurnal Cita Ekonomika, 13(2), 71–93. https://doi.org/10.51125/citaekonomika.v13i2.2613

Umar, H. (1999). Metodologi penelitian: Aplikasi dalam pemasaran. Gramedia Pustaka Utama.