

THE EFFECT OF POPULATION SIZE, OPEN UNEMPLOYMENT RATE, AND POVERTY ON ECONOMIC GROWTH IN EAST JAVA

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Abstract

Economic growth is an indicator of the success of regional development, but East Java has not yet reached the RPJMN annual target. This study aims to analyze the effect of population, open unemployment rate, and poverty on economic growth. The method used is a quantitative approach with panel data, covering 38 districts / cities during 2019-2023, using secondary data from BPS. The results show that population has a positive but insignificant effect, while open unemployment and poverty have a significant negative effect. Simultaneously, the three variables have a significant effect on economic growth. This research can be a policy reference and it is recommended to develop variables and data coverage in future studies.

Keywords: Population Size, Open Unemployment Rate, Poverty, Economic Growth.

INTRODUCTION

Economic development is a central issue in both national and regional agendas due to its strategic role in improving the quality of life. In general, economic development is a planned and continuous process aimed at enhancing societal welfare through economic and social transformation towards better living conditions (Ayu Noviatamara, 2019). The success of regional development is often measured by the rate of economic growth (Prayitno & Yustie, 2021), which reflects the extent to which economic activities have progressed. At the regional level, economic development is the result of collaboration between local governments and communities in utilizing available resources to foster regional economic growth (Alvy Kusumawati et al., 2021).

Economic growth in a region is influenced not only by capital and natural resources but also by social factors such as population size, unemployment rate, and poverty level. Studies have shown that these variables are closely related to economic growth, as evidenced by research across several Asian countries indicating that increases in unemployment and poverty can hinder economic growth, while investment, the agricultural sector, and quality education tend to promote it (Cahyono et al., 2024). On the other hand, the potential of economic sectors in the southern part of East Java also demonstrates that the development of strategic sectors heavily depends on the local community's socio-economic conditions (Subroto & Arisetyawan, 2016).

To accelerate development, the central government has enacted Law No. 25 of 2004 and Presidential Regulation No. 18 of 2020, which emphasize the importance of integrated and targeted planning through the 2020–2024 National Medium-Term Development Plan (RPJMN). In this document, economic growth, open unemployment rate, and poverty are identified as the three main indicators of successful development. These indicators reflect the dynamics and quality of economic development within a region, both directly and indirectly.

East Java, one of the largest provinces in Indonesia, possesses significant natural and human resources, yet its economic growth has remained unstable. According to data from the East Java Central Statistics Agency (BPS), the province's economic growth has fluctuated between 2019 and 2023. In 2019, the economic growth rate stood at 5.52%, but it contracted sharply to 2.33% in 2020 due to the COVID-19 pandemic. Recovery began in 2021 with a growth rate of 3.57%, which increased to 5.34% in 2022, before slightly declining to 4.95% in 2023. These trends indicate that although there was post-pandemic recovery, East Java's economic growth has not yet stabilized and has not met the targeted regional development goals.

Compared to the national average and other provinces on Java Island during the same period (2019–2023), East Java's average growth rate of 3.41% is lower than the national average

of 3.43%, and also lags behind DKI Jakarta (3.43%) and the Special Region of Yogyakarta (3.94%). This shows that East Java's economic performance remains below some of its regional peers despite its strong resource base.

In terms of human capital, a large population should theoretically serve as an economic advantage, as more people imply a greater labor force and production potential (Wasisto, 2015). Nationally, the average population between 2019 and 2023 was 27,342,374 people. East Java's population averaged 4,087,522 people during the same period, which is relatively high compared to other provinces on Java Island—Central Java (3,659,046), Banten (1,224,806), DKI Jakarta (105,993), and Yogyakarta (373,944). However, despite its large population, East Java has experienced relatively low economic growth, indicating that its labor force has not been fully optimized. This also contradicts classical economic theories such as that of Adam Smith, which emphasize the role of labor in driving economic expansion.

Another key factor influencing economic growth is the open unemployment rate. According to BPS (2020), East Java's unemployment rate was 4.88% in 2019, rising to 5.49% in 2020 due to job cuts during the pandemic. This figure further increased to 5.74% in 2021 and peaked at 5.84% in 2022, before declining to 3.82% in 2023. Despite this recent improvement, the open unemployment rate has consistently remained above government targets. From a theoretical perspective, a rise in unemployment should negatively affect economic growth; however, data show that during 2020–2022, economic growth continued to increase despite rising unemployment. This suggests a discrepancy between theoretical expectations and real-world conditions and highlights the complexity of the relationship between labor and economic growth.

Poverty is another critical variable in regional development. BPS (2020) reported that East Java's poverty rate was 10.37% in 2019, which increased to 11.09% in 2020 and reached 11.4% in 2021. A decline was observed in 2022 to 10.38%, followed by a further drop to 10.35% in 2023. Endogenous growth theory suggests that increasing poverty negatively impacts economic growth by weakening human capital development. Nevertheless, East Java's data indicate a contradiction: economic growth increased in 2021 even as poverty rose, signaling a mismatch between theory and practice.

Previous studies have also explored the link between poverty and economic growth. For instance, Kasih et al. (2018) found that a reduction in poverty does not always directly result in increased economic growth. Nugraeni and Aji (2021) confirmed that poverty and economic growth are significantly correlated in East Java, but that targeted strategies are necessary to ensure poverty reduction efforts translate into meaningful economic progress.

In light of the above, inconsistencies between economic theory and empirical findings are evident in East Java's case, particularly regarding the influence of population size, open unemployment, and poverty on economic growth. These inconsistencies form the basis of this study, which aims to empirically analyze the effects of population, open unemployment rate, and poverty on economic growth in East Java Province.

METHOD

This study adopts a quantitative descriptive approach based on positivist philosophy, aiming to examine causal relationships between population, open unemployment, poverty, and economic growth in East Java (Syahrums, 2014). The data used are secondary panel data, combining cross-sectional and time series data from 38 districts and cities over the period 2019–2023, obtained from the Badan Pusat Statistik (BPS) Provinsi Jawa Timur. Data collection was conducted through documentation techniques, utilizing published statistical reports, official documents, and relevant literature (Syahrums, 2014). The sampling method employed is probability sampling, ensuring each unit had an equal chance of selection based on data availability over the specified years (Syahrums, 2014).

The independent variables are population size, open unemployment rate, and poverty rate, while the dependent variable is economic growth, all measured using officially published data (Syahrums, 2014). Data were analyzed using panel data regression analysis, which enables

the study of both temporal and regional variations, and is considered more comprehensive than separate cross-sectional or time series methods (Napitupulu, 2021). The analysis was carried out using Stata 13, and included model selection, classical assumption testing, and hypothesis testing to ensure data validity. The panel data regression equation in this study is mathematically, as follows: $Y_{it} = \alpha + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_3 x_{3it} + \epsilon_{it}$ ⁽¹⁾

RESULTS AND DISCUSSION

The best model chosen in this study is the Common Effect Model (CEM). And this research has also passed the classical assumption test. The following are the panel data regression results with the Common Effect Model (CEM) model.

Tabel 1. Regression Model Estimation

Variable	Coef.	Std. Err.	t	Prob.
ln_Population Size (PZ)	0,5303959	0,3098371	1,71	0,089
Open Unemployment (UP)	-0,6936156	0,141244	-4,91	0,000
Poverty (POV)	-0,3265003	0,0611602	-5,34	0,000
cons	2,614465	4,024544	0,65	0,517
F-statistic	12,00			
Prob(F-statistic)	00,00			

Source : Processed with Stata 13 (2025)

Tabel 1 show outcome of the regression equation for the poverty model are obtained as follows:

$$EG = 2,614465 + 0,5303959 \ln_PZ_{it} - 0,6936156 UP_{it} - 0,3265003 POV_{it} + \epsilon \quad (2)$$

The results of the above equation can be concluded. The panel data regression analysis using the common effect model yields a constant value of 2.614. This implies that in the hypothetical condition where the explanatory variables—namely population size, open unemployment rate, and poverty rate—are held at zero, the baseline economic growth in East Java would be approximately 2.614%. While this scenario is purely theoretical, the constant provides a reference point for understanding the marginal contributions of each independent variable to the overall growth rate.

The population variable presents a positive coefficient of 0.530, suggesting that a 1% increase in population is associated with an increase of 0.530% in economic growth. Nevertheless, the partial t-test indicates a p-value of 0.089, which exceeds the conventional significance level of 5%, rendering the relationship statistically insignificant. This finding reveals that while population growth may offer potential as a driver of economic activity through an expanded labor force and consumer base, such potential remains unrealized without corresponding improvements in human capital quality.

This phenomenon aligns with the argument of demographic burden observed in some developing regions, where a growing population without adequate education, skills, or access to employment opportunities leads to increased dependency ratios and social pressure on public services. Adam Smith's classical economic theory underscores the critical role of labor productivity in wealth creation, suggesting that population growth can only contribute positively to economic output if it is accompanied by skill enhancement and human capital investment. In the context of East Java, the lack of statistical significance might reflect regional disparities in educational attainment, access to vocational training, and health outcomes, which limit the productive capacity of the population.

In contrast, the open unemployment rate displays a negative coefficient of -0.693, with a highly significant p-value of 0.000. This indicates that a 1% increase in the open unemployment rate is associated with a 0.693% decline in economic growth. The relationship is both statistically and economically significant, reinforcing the classical economic perspective that labor is a key factor of production, and high unemployment represents an underutilization of this critical

resource. Unemployment not only leads to a reduction in household income and consumption but also exacerbates social inequality and erodes human capital through skill degradation.

Empirical studies in similar contexts corroborate this finding. For instance, Tanggang (2021) found a negative relationship between unemployment and regional economic growth in the Special Region of Yogyakarta, while Shaaibith et al. (2020) and Bezo et al. (2023) reached similar conclusions in Iraq and Albania, respectively. In East Java, the persistence of open unemployment may stem from structural mismatches between the supply of labor and the types of jobs available, particularly in rural and semi-urban areas. It also reflects a possible deficiency in entrepreneurship ecosystems and insufficient absorption capacity in key sectors such as manufacturing, agriculture, and services. Addressing unemployment, therefore, requires not only job creation policies but also reform in education curricula, promotion of digital skills, and regional development initiatives that support inclusive industrialization.

The poverty rate likewise exerts a negative and statistically significant impact on economic growth, with a coefficient of -0.326 and a p-value of 0.000. This indicates that a 1% increase in the poverty rate tends to reduce economic growth by approximately 0.326%. This finding is theoretically consistent with endogenous growth theory, which emphasizes the centrality of human capital, technological innovation, and institutional quality in sustaining long-term economic expansion. Poverty limits individuals' ability to invest in education and health, thereby reducing overall labor productivity and innovation capacity.

Moreover, high poverty levels depress domestic demand, reduce savings and investment rates, and contribute to social instability—all of which are detrimental to sustained economic performance. This result is aligned with earlier studies conducted by Tanggang (2021) and Prabowo Dhinnessa (2023), who also concluded that poverty exerts a significantly negative effect on economic growth in different regions of Indonesia. In East Java, where rural poverty remains prevalent, this calls for comprehensive anti-poverty strategies that go beyond short-term social assistance to include access to microfinance, land reform, infrastructure development, and market integration for small-scale producers.

The simultaneous F-test result indicates that the combined influence of population, open unemployment, and poverty is statistically significant, with a p-value of 0.000. This reinforces the hypothesis that these three socio-economic variables, when considered together, are important determinants of regional economic growth in East Java. The interaction among these variables may also create multiplier effects. For instance, high unemployment can exacerbate poverty, which in turn limits the economic potential of a growing population. Hence, addressing these issues in isolation is unlikely to be effective.

However, the coefficient of determination (R^2) stands at only 0.1622, indicating that the model explains just 16.22% of the variation in economic growth. This suggests that other variables not included in the current model—such as foreign direct investment (FDI), government spending, infrastructure development, access to technology, industrial policy, and political stability—play a more dominant role in shaping economic outcomes in East Java. Thus, future research should consider incorporating these macroeconomic indicators to improve the explanatory power and predictive accuracy of the model.

The divergence between partial and simultaneous test results also provides a methodological insight. Although population is statistically insignificant in the partial test, it contributes to the explanatory strength of the model in the joint analysis. This indicates a possible mediating or moderating relationship, where the effect of population on growth is conditional upon the levels of unemployment and poverty. Such interactions can be further explored through more advanced econometric approaches, such as interaction terms or structural equation modeling (SEM), to capture the complexity of development dynamics.

In terms of policy implications, the results of this study underscore the urgency of adopting an integrated development strategy. First, human capital development must be prioritized through increased investment in education, healthcare, and vocational training. Second, reducing unemployment requires both supply-side and demand-side interventions, including entrepreneurship support, industrial diversification, and labor market reforms. Third,

poverty alleviation should focus on long-term empowerment approaches, such as improving access to financial services, enhancing agricultural productivity, and fostering inclusive growth.

Moreover, the regional government of East Java should intensify efforts to reduce spatial disparities in infrastructure, connectivity, and service delivery, particularly in underdeveloped districts. Public-private partnerships and decentralized governance can also enhance the effectiveness of development programs. Finally, coordination among various levels of government, academia, and civil society is essential for crafting data-driven and context-sensitive policies.

In conclusion, this study reveals that while population size alone does not significantly influence economic growth, unemployment and poverty are critical constraints that must be addressed. The interplay among these variables highlights the need for a holistic approach that integrates demographic, economic, and social policies. Only through such comprehensive efforts can East Java achieve inclusive, equitable, and sustainable economic growth.

The findings of this study demonstrate that the unemployment rate and poverty rate have a significant and negative impact on economic growth in East Java, while population size does not show a statistically significant effect. Despite the positive sign of the population coefficient, its influence on economic growth remains insignificant, indicating that demographic quantity alone is not sufficient to drive regional economic performance without corresponding improvements in human capital and economic structures.

These results are consistent with previous empirical studies that emphasize the detrimental role of high unemployment and poverty in limiting economic potential. High unemployment reflects underutilization of labor resources, while persistent poverty indicates a lack of access to opportunities and basic services, both of which inhibit economic expansion. On the other hand, the insignificance of the population variable suggests that merely having a large population is not enough—its productivity, skills, and integration into the economy are what ultimately matter.

The joint significance of the three variables also confirms that socio-economic conditions and demographic characteristics collectively influence economic performance, though the relatively modest R^2 value implies that other important variables are not captured by the model. Factors such as government spending, investment, inflation, human development, and trade could be among the missing elements that warrant exploration in future research.

Policy Implications and Recommendations

Based on the empirical findings, the researcher offers several recommendations, particularly for policymakers in East Java, to translate these insights into actionable strategies: Given that unemployment and poverty significantly hinder economic growth, while population does not exert a direct influence, there is an urgent need for the implementation of strategic, practical, and context-specific development programs. Several proposed initiatives include:

a. Improving Human Capital Quality

1. BEKASADA Scholarship Program: Provide full scholarships for underprivileged students to pursue vocational and undergraduate education with employment commitments in strategic sectors across East Java.
2. Jatim Skill Academy: Establish modern training centers focused on digital technologies, industrial automation, and smart agriculture to enhance the competitiveness of the youth workforce.

b. Reducing Unemployment

East Java's 100,000 Young Entrepreneurs Program: Offer entrepreneurship training, business mentoring, and access to capital for youth across various economic sectors.

c. Alleviating Poverty

1. Prosperous Independent Village Program: Promote local economic development through the empowerment of agriculture, fisheries, and agro-tourism sectors, supported by cooperatives and entrepreneurial training.

2. Village Youth Employment Program: Engage fresh graduates in community development roles for 1–2 years, while equipping them with leadership and project management skills.
3. East Java MSME Digitalization Program: Provide training, software tools, and digital marketing assistance to scale up and expand market access for local micro and small enterprises.

CONCLUSION

This study finds that the open unemployment rate and poverty rate significantly and negatively affect economic growth in East Java, while population size shows no significant impact. Although the population variable has a positive coefficient, it does not directly influence economic growth without improvements in human capital and infrastructure. The joint effect of all three variables is statistically significant, suggesting that demographic and socio-economic factors together contribute to regional economic performance. However, the relatively low R^2 indicates the presence of other influential factors not captured in this model. In conclusion, reducing unemployment and poverty is essential for stimulating economic growth. To harness the potential of the population, policies must focus on education, skill development, and job creation. An integrated, inclusive approach is required to ensure sustainable economic progress in East Java.

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