

Understanding the Poverty Puzzle in Central Kalimantan: A Regional Economic Perspective

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ABSTRACT

This study aims to provide an empirical explanation of the factors influencing poverty in Central Kalimantan Province by adopting a regional economic perspective. The research employs a panel data regression method, which combines cross-sectional and time-series data, analyzed using EViews 9 software. The variables examined include population size, unemployment rate, human development index, and income distribution inequality, with poverty rate as the dependent variable. The findings reveal that population size has a positive and statistically significant effect on poverty in Central Kalimantan, indicating that an increase in population tends to exacerbate poverty levels. In contrast, unemployment is found to have a positive but statistically insignificant impact, suggesting that joblessness alone may not be a strong standalone predictor of poverty in the region. The human development index exhibits a negative and significant relationship with poverty, confirming that improvements in education, health, and living standards effectively reduce poverty levels. Interestingly, income inequality, as measured by the Gini index, shows a negative but insignificant influence on poverty, implying that disparities in income distribution do not strongly affect poverty rates in this context. Collectively, the four variables—population, unemployment, human development index, and income inequality—are found to significantly influence poverty when considered together. These results underscore the importance of integrated regional development strategies that target not only economic growth but also improvements in human capital and demographic management to combat poverty effectively in Central Kalimantan.

Keywords: Human Development Index, income inequality, panel data, population, poverty

I. INTRODUCTION

Poverty alleviation remains one of the most pressing global challenges and is a fundamental requirement for achieving sustainable development. The United Nations has identified poverty eradication as the first goal in both the Millennium Development Goals (MDGs) and its successor, the Sustainable Development Goals (SDGs), for the period 2015 to 2030 (Rahman, 2021). Despite ongoing development efforts, many developing countries, including Indonesia, continue to struggle with persistent poverty.

In Central Kalimantan, disparities in poverty levels across regions highlight the complexity

of this issue. In 2022, Seruyan and East Barito regencies recorded the highest poverty rates in the province at 7.43% and 6.59%, respectively (BPS, 2022). Although national and regional development initiatives have made some progress, poverty remains a significant socioeconomic challenge in both rural and urban areas. Data from the Central Kalimantan Statistics Office show that the overall poverty rate decreased from 2017 to 2020 but increased again in 2021 and 2022 to 5.16% and 5.28%, respectively (BPS, 2023).

The population size is often a determining factor in poverty rates. Uncontrolled population growth can hinder economic development goals, particularly in terms of improving public welfare (Sukirno, 2020). Between 2010 and 2019, Central Kalimantan's population increased to over 2.71 million, only slightly decreasing in 2020 before rising again in 2022. High population density places additional pressure on public services and employment, thereby exacerbating poverty. Another key factor is unemployment. Maipita et al. (2022) emphasize the strong correlation between unemployment, income inequality, and poverty. Individuals lacking regular employment often belong to lower-income groups, and areas with high unemployment rates typically struggle with poverty and social inequality. In 2022, Central Kalimantan's open unemployment rate was 4.26%, meaning about four to five individuals out of every 100 in the labor force were unemployed (BPS, 2023).

Human development also plays a crucial role in addressing poverty. Improving human capital through education, health, and practical skill development is key to enhancing productivity and income generation. According to Mulyadi (2021), enhancing the Human Development Index (HDI) can significantly impact poverty reduction. In Central Kalimantan, the HDI has shown an upward trend, reaching 71.63 in 2022, reflecting improved access to education and healthcare.

Income inequality, measured by the Gini ratio, is another contributing factor. A higher Gini coefficient indicates greater income inequality, which can worsen poverty. While Central Kalimantan's Gini ratio has generally declined in recent years, disparities persist, particularly between urban and rural areas (Putra & Suryadi, 2021). Todaro and Smith (2020) explain that income inequality may prompt poorer families to have more children as a means of economic support, which in turn increases population pressure and deepens poverty. Overall, understanding the root causes of poverty in Central Kalimantan requires an integrated analysis of demographic, economic, and social indicators. This study seeks to examine the relationship between population size, unemployment, human development, and income inequality with poverty levels across districts in Central Kalimantan using a panel data regression approach. The findings will contribute to more targeted and effective poverty reduction strategies in the region.

II. LITERATURE REVIEW

Poverty remains a pressing issue in many developing regions, and understanding the factors influencing poverty is crucial for effective policymaking. The concept of development economics refers to the ongoing process of improving the standard of living and quality of life through sustainable increases in real income over the long term (Jintar, 2023). This includes both economic and social indicators such as income per capita, education levels, and health outcomes. The effectiveness of development efforts often hinges on the extent to which they address structural and institutional barriers to growth.

The structuralist approach, rooted in Latin American development thought and pioneered by Raul Prebisch in 1949, introduced the center-periphery theory. Structuralists argue that peripheral countries are institutionally underdeveloped compared to core countries, which hinders the application of classical economic models. This theory emphasizes systemic and multidimensional approaches to address inequality and productivity gaps between economic

centers and the periphery (Pangestuty, 2021). The persistence of underdevelopment in many resource-rich yet economically lagging regions, such as Central Kalimantan, reinforces the relevance of structuralist frameworks.

Poverty is inherently multidimensional and involves not only income but also access to resources, rights, and opportunities. The vicious circle of poverty theory posits that poverty is perpetuated by a complex interaction of limited assets, low productivity, and institutional constraints (Maknun, 2020). Moreover, the rights-based resource approach highlights that poverty results from both economic exclusion and the denial of rights and opportunities, such as access to markets, fair wages, and social protection (Mayasari, 2023). These perspectives underscore the need for holistic interventions that address not just economic metrics but also human rights and institutional equity.

Population growth is a critical factor affecting poverty. Classical economists like Smith and Malthus emphasized the interplay between population growth, resource scarcity, and productivity. High population growth can strain public services and limit investment in human capital, exacerbating poverty levels (Faqih, 2020; Jaya, 2022). In Central Kalimantan, rapid population changes have created disparities in resource access and employment opportunities, which are central to poverty dynamics. In rural areas, high dependency ratios and inadequate infrastructure further challenge economic resilience, making population control and education policy critical to long-term poverty reduction.

Unemployment also plays a significant role in poverty. Keynesian theory attributes unemployment to insufficient aggregate demand, which reduces production and employment. In contrast, classical theory suggests that labor markets are self-regulating through price mechanisms. In modern economies, unemployment is exacerbated by mismatches between skills and job availability, leading to open unemployment those actively seeking but unable to find jobs (Desmawan, 2021; Syamsuri, 2018; Susilowati, 2022). High unemployment correlates with increased social vulnerability and poverty. Particularly in regions where industrialization is minimal, underemployment and informal sector dominance further limit income stability and growth prospects.

Human Development Index (HDI) is widely recognized as a comprehensive measure of development. According to UNDP, HDI combines indicators of life expectancy, education, and per capita income. Improvements in HDI are associated with reduced poverty as they reflect enhanced capabilities and opportunities for individuals (Rapii, 2022). In Central Kalimantan, HDI has shown an upward trend, suggesting potential for poverty reduction through human capital development. However, disparities between urban and rural areas remain a challenge, and targeted investments in health and education infrastructure are needed to ensure more equitable development.

Income inequality is another determinant of poverty. The Gini coefficient and Lorenz curve are commonly used to measure the distribution of income within a population. A higher Gini ratio indicates greater inequality, which often correlates with higher poverty levels (Wulakada, 2020; Lie, 2022). In Indonesia, unequal access to resources and economic opportunities contributes significantly to regional poverty disparities, particularly in resource-rich yet underdeveloped provinces like Central Kalimantan. Efforts to reduce inequality through redistributive policies, inclusive economic growth, and social safety nets are essential to complement poverty reduction strategies.

In summary, literature on poverty emphasizes its multifaceted nature and highlights the importance of integrating economic, demographic, and institutional variables in its analysis. Understanding these factors is essential for designing effective poverty alleviation strategies, especially in regions with significant disparities like Central Kalimantan. Combining classical,

Keynesian, and rights-based frameworks allows for a more nuanced and actionable understanding of the root causes and perpetuating mechanisms of poverty. Ultimately, context-specific policies that address both macroeconomic and grassroots challenges are crucial to ensuring sustainable reductions in poverty.

III. METHODS

This study employs a quantitative research approach, which emphasizes numerical data collection, analysis, and interpretation using appropriate statistical techniques. The quantitative method is particularly relevant for examining the relationship between multiple economic and demographic variables and the level of poverty across regions. The scope of the study includes all 13 regencies and 1 city within the Central Kalimantan Province, using a panel data approach that spans from 2010 to 2022. Panel data, which combines cross-sectional and time-series data, allows for more robust estimations by increasing the degree of freedom and reducing omitted-variable bias.

The data used in this research are entirely secondary and were collected from official publications of the Central Bureau of Statistics (Badan Pusat Statistik) of Central Kalimantan. These include yearly data on poverty rates, total population, open unemployment rate, Human Development Index (HDI), and income inequality (proxied by the Gini ratio) for each district and the city. The panel dataset was analyzed using EViews 9 software to perform a regression analysis and determine the influence of the independent variables on poverty.

To estimate the regression model, this study applies a linear panel data model using the following general form:

$$Y = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon_{it},$$

where Y represents the poverty rate, X_1 is the population, X_2 is the unemployment rate, X_3 is the HDI, X_4 is the income inequality (Gini ratio), i denotes the district/city, t denotes the year, and ϵ_{it} is the error term. The analysis evaluates three different models: the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Selection among these models is based on three diagnostic tests: the Chow test (to compare CEM and FEM), the Hausman test (to compare FEM and REM), and the Lagrange Multiplier test (to compare CEM and REM). These tests guide the researcher in choosing the most efficient and consistent model for analysis.

To validate the robustness of the regression model, classical assumption tests are performed. These include tests for multicollinearity using Variance Inflation Factor (VIF) and tolerance values, where a VIF below 10 and a tolerance above 0.10 suggest no multicollinearity. Heteroskedasticity is assessed using residual plots and the Glejser test to ensure the variance of the error terms remains constant. Model reliability is further verified through hypothesis testing using t-tests for individual coefficients and F-tests for overall model significance. The level of significance used in both tests is 5 percent ($\alpha = 0.05$), and results are interpreted accordingly. In addition, the coefficient of determination (R^2) is used to evaluate the explanatory power of the model, indicating how much of the variation in poverty can be explained by the independent variables.

Through this methodological framework, the study seeks to empirically identify the key drivers of poverty across Central Kalimantan's regions and provide policy-relevant insights based on quantitative evidence. The model's structure and testing procedures aim to ensure that the findings are both statistically sound and practically meaningful for regional development planning.

IV. RESULTS AND DISCUSSION

This study applied panel data regression using the Random Effect Model to examine the influence of population, unemployment, human development index, and income inequality on poverty levels across 14 districts and 1 city in Central Kalimantan from 2010 to 2022. The model selection process involved Chow Test, Hausman Test, and Lagrange Multiplier Test, all of which led to the selection of the Random Effect Model due to its suitability in capturing both temporal and regional variation.

Table 1. Results of Random Effect Model Regression

Variable	Coefficient	Std. Error	t-Statistic	Probability
Population (X1)	0.005080	0.002200	2.309604	0.0226
Unemployment (X2)	0.038831	0.024037	1.615638	0.1110
Human Development Index (X3)	-0.377633	0.121772	-3.101537	0.0025
Income Inequality (X4)	-0.064986	0.148103	-0.438802	0.6616
R-squared	0.524211			
F-statistic	9.224657			0.000000

The findings reveal that population size significantly affects poverty levels in a positive direction. The coefficient value of 0.005080 implies that as the population increases by one unit, the poverty rate also increases by approximately 0.51 percent, holding other variables constant. This supports the theory that high population growth, especially when not accompanied by proportional economic expansion, places pressure on public services and reduces per capita access to jobs and income sources. This aligns with the view of Jaya (2022), who emphasized that rapid population growth hinders investment in human capital and increases vulnerability to poverty.

Unemployment also exhibits a positive effect on poverty, although the relationship is not statistically significant at the 5 percent level. This suggests that rising unemployment tends to increase poverty, but the current data do not strongly confirm this relationship. Previous research by Desmawan (2021) noted similar complexities, where labor market mismatches and informal employment may obscure the direct correlation between unemployment and poverty.

The Human Development Index (HDI) has a negative and statistically significant effect on poverty. With a coefficient of -0.377633, the results suggest that improving human development by one unit could reduce the poverty rate by approximately 37 percent. This confirms that investment in education, health, and income can substantially reduce poverty rates. The result supports the argument of Rapii (2022) and Mayasari (2023), who asserted that HDI serves as a robust indicator of socioeconomic well-being and that higher HDI levels are consistently associated with lower poverty incidence.

Income inequality, as proxied by the Gini Ratio, shows a negative but statistically insignificant effect on poverty. This finding is contrary to general expectations and suggests that in the context of Central Kalimantan, income disparities alone do not fully explain variations in poverty levels across districts. A possible explanation is that inequality in this region may be concentrated among higher income groups, or that poverty is more sensitive to basic services and infrastructure rather than income distribution. This contrasts with the argument of Wulakada (2020), who linked higher income inequality to persistent poverty, but may reflect unique structural conditions in the region.

Overall, the R-squared value of 0.524211 indicates that approximately 52 percent of the variation in poverty levels can be explained by the four independent variables used in this model.

The F-statistic is significant at the one percent level, suggesting that the model as a whole is valid and the selected variables are jointly significant in explaining poverty dynamics.

The analysis reveals that population has a positive and statistically significant effect on poverty in Central Kalimantan. This supports the classical demographic-economic theory, which posits that uncontrolled population growth in developing regions intensifies competition over limited resources, thus elevating poverty levels (Faqih, 2020). In the context of Central Kalimantan, high population growth, particularly in rural districts with weak infrastructure, often leads to overcrowded labor markets, decreased land availability per household, and strain on public services such as education and healthcare. These conditions reduce income opportunities and increase household vulnerability. Jaya (2022) highlighted that in areas with rapid population increases and insufficient investment in human capital, poverty tends to deepen due to the limited per capita access to productive assets.

The effect of unemployment on poverty is positive but statistically insignificant. Although the sign is consistent with economic theory which states that higher unemployment reduces household income and increases poverty the result may reflect structural labor market issues in the province. Desmawan (2021) explained that in regions with a large informal sector and low labor productivity, unemployment data may not fully capture underemployment or disguised unemployment. Additionally, seasonal employment in agriculture or extractive industries can lead to misrepresentations of true labor market conditions. In Central Kalimantan, many residents may be working in low-wage, insecure jobs without social protection, which blurs the direct relationship between unemployment and poverty. This aligns with the observation by Syamsuri (2018) that open unemployment is not the only driver of poverty; underemployment and job informality must also be considered.

The Human Development Index (HDI) has a negative and statistically significant relationship with poverty. This result confirms the foundational role of human capital in poverty reduction. According to the UNDP, HDI is a composite index measuring long life expectancy, access to education, and decent standards of living. Higher HDI values reflect improved capabilities and opportunities for individuals to lead productive lives, thereby reducing poverty. Rapii (2022) emphasizes that access to education and healthcare enables households to break intergenerational cycles of poverty. In Central Kalimantan, improvements in HDI over the study period indicate better health outcomes and educational attainment, which may have led to better employment prospects and increased household income, thus lowering poverty rates. These findings are supported by Mayasari (2023), who noted that HDI is not only a development outcome but also a strategic tool for guiding poverty alleviation policies.

The income inequality variable, as measured by the Gini Ratio, shows a negative and statistically insignificant effect on poverty. This result is somewhat counterintuitive, as higher inequality is often associated with higher poverty rates. However, this discrepancy may be due to the specific structure of inequality in Central Kalimantan, where income disparities may be concentrated in urban or resource-based sectors that do not directly affect the majority of the rural poor. Lie (2022) and Wulakada (2020) suggest that in cases where economic growth is extractive or enclave-based, inequality may rise without immediately worsening poverty if the poorest segments are excluded from the formal economy altogether. Moreover, in regions with weak redistribution policies, inequality may coexist with stagnating poverty due to the absence of mechanisms that translate economic growth into widespread welfare improvements.

In conclusion, the findings highlight that population pressure and low levels of human development are the most influential factors driving poverty in Central Kalimantan. While unemployment and inequality remain important, their statistical insignificance in this study suggests the need for more refined measurements and deeper qualitative investigation. Future

studies should consider including variables such as rural-urban migration, access to land, and quality of public services to better capture the multifaceted nature of poverty in the region. Addressing poverty thus requires comprehensive policies that improve education and healthcare access, manage population growth, and enhance employment quality rather than merely focusing on headline labor or income inequality figures.

V. CONCLUSION

Based on the findings of this study, which investigated the effects of population, unemployment, human development index, and income inequality on poverty in the regencies and city of Central Kalimantan during the period of 2010 to 2022, several conclusions can be drawn. First, population has a significant influence on poverty levels, indicating that areas with higher population growth tend to experience higher rates of poverty, likely due to increased pressure on resources and public services. Second, unemployment does not significantly affect poverty in the region, which may be attributed to the dominance of informal and seasonal employment that is not fully captured in official unemployment data. Third, the human development index has a significant negative impact on poverty, highlighting the critical role of improved education, health, and standard of living in reducing poverty. Lastly, income inequality, as measured by the Gini coefficient, does not show a statistically significant relationship with poverty in this context, suggesting that the distribution of income, while relevant, may not be the immediate driver of poverty dynamics in Central Kalimantan. Overall, these results emphasize the importance of human capital development and population management in the design of effective poverty reduction strategies in the region.

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