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Original Article

Regional Fiscal Resources Income Inequality and Poverty in Indonesia

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Abstract

Evaluating fiscal budget utilization is crucial for understanding fiscal conditions and poverty in Indonesia. This study examines the relationships among locally-generated revenue, central government transfers, income inequality, regional economic conditions, and poverty levels across Indonesian provinces. It utilizes a balanced panel dataset covering 34 provinces from 2018 to 2024, comprising 238 observations. The analysis employs the Pooled Ordinary Least Squares method with heteroskedasticity-robust standard errors, incorporating the unemployment rate, average years of schooling, and Gross Regional Domestic Product (GRDP) at current prices as additional explanatory variables. Locally-generated revenue and economic output exhibit a negative relationship with poverty, whereas central government transfers and income inequality show a positive relationship. Unemployment and education were found to be statistically insignificant. A 1% increase in locally-generated revenue is associated with a 0.039 decrease in the poverty rate, while a 1% increase in central transfers is linked to a 0.070 increase. These contrasting relationships highlight the importance of distinguishing between fiscal revenue sources when analyzing provincial-level poverty. The study's findings indicate associations between variables rather than causal relationships. Diagnostic tests revealed the presence of serial correlation and heteroskedasticity, necessitating caution in statistical decision-making and suggesting a need for methodological refinement. Furthermore, further research is required regarding transfer allocation mechanisms and the consideration of regional characteristics in the context of poverty alleviation.

Keywords: Fiscal Decentralization, Income Inequality, Intergovernmental Transfers, Poverty, Regional Revenue.

1. Introduction

Poverty is a challenge shared by every nation in the context of economic development. Approximately 700 million people worldwide still live below the international extreme poverty line, while another 3.5 billion live below the poverty threshold (World Bank, 2024). Factors contributing to the persistence of poverty range from inadequate income to complex multidimensional issues, such as substandard living conditions and a lack of access to healthcare and education. The UNDP (2025) state there is a need for integrated policies to help alleviate multidimensional poverty, which affects approximately 1.1 billion people. The fact that Sustainable Development Goal (SDG) 1 designates poverty eradication as the primary objective signals that this issue is a priority for all nations (United Nations, 2026). Reducing poverty requires a range of factors such as equitable fiscal policy, the effective provision of public services, and inclusivity even though economic growth remains important (OECD, 2024).

Poverty alleviation in Indonesia has made significant progress; however, inter-regional inequality remains a widespread issue. Two decades of relatively stable economic growth,

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supported by fiscal decentralization, have not automatically led to a reduction in inequality. Poverty remains concentrated in Eastern Indonesia, particularly in Papua, whereas several provinces on Java have recorded significant declines in poverty rates. Factors such as human capital, economic opportunities, fiscal capacity, and infrastructure rather than economic growth alone, show a strong correlation with poverty levels (Miranti, 2017; Siburian, 2022)

Disparities in fiscal capacity among provinces are a primary driver of inter-regional inequality. Provinces with strong economic bases are better positioned to drive regional development and fund quality public services, as evidenced by their ability to generate higher Locally-Generated Revenue (PAD). Conversely, a high reliance on central government transfers tends to occur in provinces with relatively low levels of Locally-Generated Revenue (Saragih, 2016; Siburian, 2022). The implementation of regional autonomy is an effort to reduce regional disparities through various mechanisms, including the General Allocation Fund (DAU), Revenue-Sharing Fund (DBH), and Special Allocation Fund (DAK). Brodjonegoro and Martinez-Vazquez (2004) state that these instruments were designed to equalize regional fiscal capacity, thereby improving the quality of public services across all provinces in Indonesia.

Effective poverty alleviation strategies remain a subject of considerable debate; empirical evidence indicates that high poverty rates actually persist in provinces receiving relatively large amounts of transfer funds. This does not necessarily imply that poverty is caused by fiscal transfers; rather, it may stem from regional shortcomings, such as structural barriers. These barriers can range from a reliance on central government transfers and poor institutional quality to inefficiencies in expenditure budgeting (Aprianti et al., 2025; Putra, 2017; Siburian, 2022).

Fiscal federalism provides a theoretical basis for allocating public service responsibilities and revenue authority across levels of government (Musgrave, 1959; Oates, 1972). In Indonesia, however, fiscal decentralization faces persistent challenges, including uneven provincial revenue capacity, dependence on central government transfers, and weaknesses in regional financial management. These challenges can limit provincial governments' ability to translate fiscal authority into better public services and local economic development. Strengthening locally generated revenue, improving expenditure efficiency, and aligning intergovernmental transfers with regional needs are therefore central to improving the outcomes of Indonesia's fiscal decentralization.

Poverty reduction depends not only on fiscal resources but also on the productivity of the population, income distribution, and the employment opportunities available in a given region. Endogenous growth theory emphasizes the critical role of productivity and human capital in efforts to increase income (Lucas, 1988; Romer, 1986). Meanwhile, other research highlights that equitable distribution is a paramount factor in economic growth, ensuring that income inequality does not become too high (Bourguignon, 2003; Ravallion, 2001).

In the context of fiscal decentralization in Indonesia, a key question is whether greater fiscal capacity at the provincial level can lead to poverty reduction. Existing studies offer conflicting perspectives: while regions with higher revenues have the potential to strengthen public services, it is also argued that such capacity might foster a dependency on central government transfers, thereby weakening the generation of locally sourced revenue. These explanations remain incomplete, as they fail to address how the composition of a province's revenue relates to the effectiveness of its public spending and the distribution of benefits to the population factors crucial to poverty alleviation. Higher regional revenue does not automatically guarantee positive outcomes; rather, the results depend on how that revenue is utilized and distributed.

The relationship between fiscal policy and poverty reduction efforts is not always consistent. Existing studies have largely focused on specific regional aspects such as economic growth, income levels, and fiscal decentralization while often overlooking other critical variables like geographic location and the specific timeframe of analysis. Therefore, this study aims to examine the relationship between poverty and various factors including central government transfers, locally generated revenue, unemployment, education, and regional inequality across Indonesia's 34 provinces over the period from 2018 to 2024, comprising a total of 238 observations.

2. Literature Review

2.1. Local Government Revenue

The ability of local governments to generate local revenue can have a positive impact on the provision of public services that are in accordance with local community preferences. This locally generated revenue reflects the government's capacity to derive income from economic activities and resources within its jurisdiction. In the context of fiscal decentralization, the ability to generate local government revenue supports fiscal autonomy, allowing regions to no longer rely entirely on central transfers and positively impacting public services and more effective local economic development. The greater the economic opportunities for the community, the greater the increase in household welfare, which in turn can reduce poverty.

In the Indonesian context, the implementation of Indonesian Law No. 1/2022, which regulates the financial relationship between the central and regional governments, has consequences for the proportion of fund allocations within the integrated fiscal relations scheme. This regulation mandates the optimization of regional taxes, user fees, and locally-generated revenue all of which play a crucial role in the government's fiscal decentralization system (Lewis, 2023). Furthermore, it fosters incentives to boost such revenue through specific mechanisms within the intergovernmental fiscal balance scheme specifically the General Allocation Fund (DAU) and mandates that at least 10% of receipts from groundwater tax, the electricity tax component of final consumption tax, and the "piggyback" tax (surcharge) on motor vehicle ownership be allocated to improving water access and quality, maintaining local public transportation, and developing public services. Reliance on central government transfer funds could hinder public service provision and overall national progress. A region's ability to establish fiscal autonomy through increased infrastructure spending has a positive impact on poverty reduction as seen in Southeast Sulawesi (L. D. Saputra et al., 2025) and Yogyakarta (Noermanisa, 2023). Higher regional revenue reflects superior fiscal performance, thereby helping to alleviate poverty (Noermanisa, 2023).

H1: Local government revenue can reduce poverty.

2.2. Government Transfers

A major transition in fiscal management has taken place in Indonesia at both central and regional government levels since the end of the New Order era. The system shifted from centralized control to one that enhances the capacity of regions to manage their finances independently, following the implementation of fiscal federalism in 2000. Through Law No. 22/1999 on Regional Government and Law No. 25/1999 on Fiscal Balance between the Central and Regional Governments, Indonesia implemented broad regional autonomy and fiscal decentralization starting in 2001. Regional transfer mechanisms became specialized through the General Allocation Fund (DAU), Special Allocation Fund (DAK), and Revenue Sharing

Fund (DBH) components of a fiscal reform process aimed at addressing both vertical and horizontal fiscal imbalances (Anggraeni et al., 2023; Pabayo, 2025).

In the context of fiscal decentralization, governments are encouraged to be self-reliant in financial management. However, the ability of regions to provide public goods and services varies due to disparities in fiscal capacity. Regions with smaller economic bases face limitations in financing public services compared to those with greater fiscal capacity. Fiscal decentralization also introduced trade-offs; regions might engage in a "race to the bottom" to discourage out-migration and maximize tax revenue collection (van der Kamp et al., 2017).

For this reason, the government optimizes the role of intergovernmental transfers to reduce horizontal fiscal imbalance. Consequently, the government optimizes the role of intergovernmental transfers to mitigate horizontal fiscal imbalances. These transfers enable the government to allocate resources to regions, thereby reducing fiscal disparities in public service delivery. This intergovernmental transfer supports the implementation of modern government functions, which are the allocation function, redistribution function, and stabilization (Musgrave, 1959).

Intergovernmental transfers can influence poverty levels by bolstering regional fiscal capacity. When regional governments secure additional funding through transfers, they gain greater fiscal space to optimize the provision of public facilities and development programs. Improvements in public services, access to education, healthcare, basic infrastructure, and social protection programs that can foster inclusive opportunities for economic growth and human development, thereby reinforcing anti-poverty initiatives. However, fiscal federalism does not automatically result in poverty reduction at the regional level. The effectiveness of these transfers depends on how regional governments allocate resources, the capacity and quality of institutions, spending priorities, and the accurate targeting of beneficiary programs.

Fiscal decentralization in Indonesia influences macroeconomic development performance; however, inter-provincial fiscal disparities lead to uneven ratios of capital expenditure to regional revenue, thereby impacting economic performance across various regions (Pabayo, 2025). Nevertheless, a study by Arianto et al. (2022) observes that fiscal decentralization in Indonesia specifically regarding the General Allocation Fund (DAU) disadvantages archipelagic provinces due to post-1998 reform regulations that prioritize land area and population size as key indicators. Regarding poverty, the implementation of fiscal decentralization has a significant negative impact on poverty levels, a trend reinforced by the optimization of regional revenue and improvements in the quality of regional expenditure (Wibowo & Oktivalerina, 2022).

Across provinces, the General Allocation Fund (DAU), Special Allocation Fund (DAK) contribute to reducing rural poverty in Indonesia (Putra, 2017). Similar findings in the provinces of North Sumatra indicate that the General Allocation Fund (DAU) and Speciallize Allocation Fund (DAK) plays a significant role in reducing regional poverty (Malau et al., 2023). However, the General Allocation Fund (DAU) was not found to be significant in reducing poverty in the Province of Yogyakarta (Lindrianti, 2024).

H2: Government transfers through the DAU/DAK are expected to reduce poverty.

2.3. Unemployment

Unemployment is a primary risk factor that can push an individual into poverty (Cahayani, 2017; Sihombing & Arsani, 2021). Conversely, individuals who are employed whether under contract or in permanent positions can significantly reduce their risk of poverty over time. Unemployment carries a higher probability of increasing poverty in the long run because economic constraints can hinder the ability to meet basic needs; thus, social investment is required to assist impoverished groups, particularly women and children. Not

working is also exacerbate the poverty through limitation of the opportunity, thus, marginalized group cannot improve their live, especially in the rural and agriculture area (Fattah et al., 2025; Suparman et al., 2024).

The relationship between unemployment and poverty can be explained through labor market theory and labor income mechanisms. In classical economic analysis, Keynes (1937) provided an important explanation regarding unemployment which does not always occur due to individual choices but can arise due to low aggregate demand and limited job opportunities in the economy. From a household perspective, employment is the primary source of income for most of the working-age population. When someone loses their job or does not get a job opportunity, their labor income will be reduced or lost. This decrease in income can reduce the ability of households to meet basic needs and increase the risk of poverty. Individual well-being can be compromised by financial or psychological pressures, leading to a decline in the population's welfare and contributing to increased poverty.

H3: Unemployment rate positively correlated with an increase in poverty.

2.4. Education

Education is a public good guaranteed by the Indonesian government through a mandatory 12-year schooling policy. Investment in education is a long term investment (Shi & Qamruzzaman, 2022; Veen & Preece, 2005), including reduce intergeneration poverty (Zuo et al., 2023). Human capital theory considers education as an investment, as Smith et al. (1976) saw that individual skills through education and training have economic value (Schultz, 1961) saw education as an investment capable of enhancing human productivity, while (Becker, 2009) developed a human capital framework wherein education, training, and experience boost both productivity and individual income. Enhancing individual capacity through education improves opportunities for higher earnings, thereby helping the poor rise above the poverty line.

In Indonesia, the government provides poverty alleviation assistance programs such as the Kartu Indonesia Pintar (Smart Indonesia Card/KIP), the Program Keluarga Harapan (Family Hope Program/PKH), and the Lembaga Pengelola Dana Pendidikan (LPDP/Education Fund Management Agency) scholarship scheme that reach various segments of society, enabling individuals to pursue education from the primary level through to higher education. Education significantly reduces poverty levels; higher education, in particular, boosts productivity and supports poverty alleviation efforts. In the long run, education fosters financial inclusion and reduces poverty (Shi & Qamruzzaman, 2022).

H4: Level of education can support poverty alleviation.

2.5. Income Inequality

Income inequality remains persistent at the national level in Indonesia. High income inequality is associated with a decline in the public's purchasing power, which in turn leads to an increase in poverty (Rinaldi & Rahmadana, 2020). The inability to access basic needs leaves individuals vulnerable to living below the poverty line.

The success of economic growth is not enough if it is not accompanied by an increase in social welfare. Economic growth does not automatically increase welfare and reduce poverty if there are no efforts to reduce income inequality (Agussalim et al., 2024). This gap between the rich and the poor can exacerbate poverty conditions in Indonesia (Aji et al., 2021; Wahyuningsih et al., 2019). On the other hand, efforts to reduce income inequality through the provision of infrastructure, public services provision, and government intervention through a mix of fiscal policies simultaneously reduce both inequality and poverty (Agussalim

et al., 2024) Thus, the government needs to focus on pro-poor growth to enhance the impact of inclusive development for the public.

H5: Income inequality increases the level of poverty.

2.6. Economic Growth

The relationship between economic growth and poverty can be explained through the growth-poverty nexus and income mechanisms. Increased economic activity reflects a rise in the production of goods and services within a region. These activities can create employment opportunities, increase income from production factors, expand business activities, and increase the revenue base of local governments. Through these mechanisms, increased economic activity has the potential to improve public welfare and reduce poverty.

Various studies indicate that economic growth contributes to poverty reduction (Hlongwane, 2025; Nurlina et al., 2024). In Indonesia, economic growth continues to improve reducing poverty levels, although results may vary between regions (Balisacan et al., 2003; Dartanto & Patunru, 2015). Increased economic growth supports the consumption ability, thereby helping to reduce poverty (Runtiningsih et al., 2026).

H6: Economic growth decreases the level of poverty

3. Methods

3.1. Research Design and Data

This study employs secondary panel data to examine the potential impact of regional fiscal capacity, income inequality, economic stability, unemployment, and education on poverty across Indonesia's 34 provinces from 2018 to 2024, comprising a total of 238 observations. Data from the new provinces established in 2023 and 2024 namely Southwest Papua, Highland Papua, Central Papua, and South Papua were excluded from the analysis. This exclusion ensures data comparability and continuity throughout the observation period. The data were obtained from Statistics Indonesia (BPS) and the Ministry of Finance.

This study covers these 34 provinces based on their pre-2022 administrative boundaries. The dependent variable is the poverty rate, sourced from official BPS data. The independent variables comprising locally-generated revenue, central government transfers, unemployment, average years of schooling, the Gini ratio, and Gross Regional Domestic Product (GRDP) are detailed in Table 1 below.

Table 1. Operational Definition of Variables

Variable	Operational definition	Form in model
Poverty rate	Share of the provincial population below the official poverty line (%)	Level; dependent variable
Locally generated revenue	Provincial own-source revenue	Natural logarithm
Central government transfers	Transfers received by the province from the central government	Natural logarithm
Open unemployment rate	Openly unemployed persons as a percentage of the labour force	Level (%)
Average years of schooling	Mean years of schooling for the population aged 15 years and over	Level (years)
Gini ratio	Provincial indicator of income inequality; scale must match the BPS series used	Level
Gross regional domestic product	Provincial GRDP at current prices	Natural logarithm

Source: Statistics Indonesia (BPS) and Ministry of Finance of the Republic of Indonesia, compiled by the author

The natural logarithm transformation is employed because fiscal variables and Gross Regional Domestic Product (GRDP) exhibit significant variation and are expressed in substantial monetary values. This transformation is necessary to reduce large scale disparities across provinces, limit the influence of specific observations, and allow the dependent variable to be expressed in percentage points.

3.2. Empirical Model

The empirical relationship between regional fiscal and socioeconomic characteristics and poverty is specified as follows:

$$\begin{aligned}\text{Poverty Rate}_{it} = {} & \beta_0 + \beta_1 \text{Ln Locally generated revenue}_{it} \\ & + \beta_2 \text{Ln Central government transfer revenue}_{it} \\ & + \beta_3 \text{Open unemployment rate}_{it} \\ & + \beta_4 \text{Average years of schooling for population aged 15 years and over}_{it} \\ & + \beta_5 \text{Gini Ratio}_{it} + \beta_6 \text{Ln Gross regional domestic product at current prices}_{it} \\ & + \varepsilon_{it}\end{aligned}$$

Were indexes provinces and indexes years. Estimation is performed using Ordinary Least Squares with robust variance-covariance estimators to address potential heteroskedasticity and autocorrelation. Before estimation, descriptive statistics are calculated to characterize the variables' distributions. Then diagnostic tests are carried out, such as the Kolmogorov-Smirnov for residual normality, the VIF for multicollinearity, the Breusch Pagan for heteroskedasticity and the Wooldridge for first-order autocorrelation in panel data. Robust standard errors are employed to guarantee consistent inference in the presence of heteroscedasticity and autocorrelation. At the same time, residual normality and weak multicollinearity support the adequacy of the model specification. At the same time, residual normality and the absence of severe multicollinearity support the adequacy of the model specification.

3.3. Estimation Strategy

The baseline empirical model is estimated using Ordinary Least Squares (OLS). However, conventional OLS inference assumes a constant error variance and independence of the disturbances. These assumptions may be restrictive in provincial panel data because provinces differ substantially in population size, fiscal capacity, economic structure, and institutional characteristics. Such differences may generate heteroskedastic disturbances. In addition, observations belonging to the same province over successive years may exhibit serial dependence.

To obtain more reliable statistical inference, this study employs a robust variance covariance estimator. Robust covariance estimation follows the general heteroskedasticity consistent framework introduced by White (1980) under which the estimated regression coefficients remain those obtained from least squares while the variance covariance matrix used for hypothesis testing is adjusted for violations of the conventional homoskedasticity assumption. Given the panel structure of the data, statistical inference is preferably based on standard errors clustered at the provincial level. Cluster-robust estimation permits arbitrary heteroskedasticity and within-province correlation of disturbances over time while maintaining the assumption that disturbances are independent across provinces. This approach follows the panel-data robust covariance framework discussed by Arellano (1987) as well as Cameron and Miller (2015).

Accordingly, the reported statistical significance is based on the robust variance covariance matrix rather than the conventional OLS variance estimator. The robust correction affects the estimated standard errors, confidence intervals, t-statistics, and hypothesis tests, but does not alter the OLS coefficient estimates themselves. This estimation strategy is particularly relevant because the diagnostic tests indicate violations of the conventional error assumptions.

4. Results and Discussion

4.1. Research Results

The regression analysis based on panel data for 34 Indonesian provinces for the period 2018-2024 reveals significant interplays among major regional fiscal variables, income disparity, economic growth, and the poverty rate.

Table 2. Descriptive Statistics Results

Variable	Mean	Standard Deviation	Minimum	Maximum
Poverty Rate	10.24239	5.231831	3.42	27.43
Ln Locally-generated revenue	8.446629	1.113917	6.577736	10.91987
Ln Central government transfer revenue	9.810188	0.6553779	8.653398	11.32466
Open unemployment rate	4.877999	1.598985	1.14	10.015
Average years of schooling for population aged 15 years and over	9.1325	0.8421207	6.66	11.49
Gini Ratio	34.67195	4.140125	23.95	44.9
Ln Gross regional domestic product at current prices	12.48608	1.156506	10.50421	16.25323

Source: Author's calculation based on data from Statistics Indonesia (BPS) and the Ministry of Finance, 2018-2024

As shown in Table 2 Descriptive Statistics, the summary statistics of the poverty rates indicate that the mean poverty rate at the provincial level is 10.24% and has a standard deviation of 5.23%. This fairly large standard deviation indicates that there are large differences in poverty situations between regions, some provinces having a poverty rate smaller than 5% and others a rate of more than 15-20%. Such variation can be seen in the economic and development structure across the provinces in Indonesia. The natural log of own-source revenue is 8.45, indicating that provinces have a moderate own-source revenue level. The figure varies widely across regional economies of natural resources, industry, and services. By contrast, the natural log of central government transfers is 9.81, suggesting that provinces tend to get more funds from the central government than they raise locally. This trend reflects several areas that are still heavily dependent on fiscal handouts from the national pot. The Gini ratio, meanwhile, is 34.67 on average for a province, indicating a middling level of income inequality that varies greatly by province. In certain territories, the distribution of income is relatively even, while in others, it is more heavily concentrated, potentially hindering the ability of economic expansion to benefit the underprivileged.

Table 3. Ordinary Least Squares Variance-Covariance of the Estimators (VCE) Robust

Dependent variable: Ln GDP per capita	
Independent Variables	Coefficient (Robust Standard Error)
Ln Locally generated revenue	3.87736*** (0.5386527)
Ln Central government transfer revenue	7.033986*** (0.4952526)
Open unemployment rate	-0.1708717 (0.1454773)
Gini Ratio Average years of schooling for population aged 15 years and over	-0.226185 (0.3271386)
Gini Ratio	0.5382113*** (0.3271386)
Ln Gross regional domestic product at current prices	-1.255323** (0.5577417)
Constant	-26.09934 4.245157
Number of observations	238
R-squared	0.6299
F statistic	60.21***

Dependent variable is poverty rate, *significant at the 10%, ** significant at the 5%, *** significant at the 1%.

Source: Author's estimation based on data from Statistics Indonesia (BPS) and the Ministry of Finance, 2018-2024

Based on Table 3, Ordinary Least Squares Variance-Covariance of the Estimators VCE Robust, the model explains about 63% of the variation in poverty rates (R^2=0.6299), indicating relatively good explanatory ability for the cross-provincial model. Looking at the regression coefficients, ln PAD has a strong negative and significant effect on the poverty rate (-3.877), with a p-value of 0.01. Locally generated revenue rises by 1% when the poverty rate falls by 3.877 percentage points. This justifies the important role of stronger regional fiscal capacity in enabling more targeted and effective local poverty reduction programs. In contrast, ln central government transfers exhibit a positive and highly significant coefficient of 7.034 (p-value 0.01), implying that a 1% increase in transfers is linked to higher poverty rates. This finding raises questions about the effectiveness and focus of the central transfers in directly mitigating poverty.

Furthermore, as seen in Table 3, the Gini coefficient has a positive and significant coefficient of 0.538 (p-value 0.01); that is, a one-unit increase in the Gini coefficient increases the poverty rate by 0.538 percentage points, confirming that income inequality has a direct effect on the magnitude of poverty. lnGRDP at current price is negative and significant at the 5% level with a coefficient of -1.255, implying that an increase in regional economic growth leads to a decrease in poverty, ceteris paribus, when well distributed.

The open unemployment rate and average years of schooling were statistically insignificant in this model. The phenomenon of a large portion of Indonesia's workforce being employed in the informal sector characterized by unstable wages results in unemployment figures that appear insignificant. This indicates that the reported unemployment rates do not accurately reflect the actual conditions within society. Furthermore, the average duration of

schooling is also low, as most individuals complete only primary or lower secondary education, thereby limiting its impact on poverty reduction. More substantial poverty reduction tends to occur with higher education levels, particularly among college graduates with skills demanded by modern industries.

A significant limitation of this study concerns the measurement of the dependent variable. The poverty rate results are computed using the official BPS poverty line, which was around Rp 595,242 per capita per month as of September 2024. So those who earn just a little more than Rp 600,000 are considered non-poor. However, this threshold remains far below a more realistic standard of living. Using the nominal conversion of the World Bank's upper-middle-income country poverty line of $8.30 per day, the equivalent threshold reaches approximately Rp 4.48 million per person per month based on current exchange rates. This relatively low official poverty line may underestimate the true extent of economic vulnerability.

Table 4. Diagnostic Test Results

Diagnostic Test	Ordinary Least Squares	Ordinary Least Squares VCE Robust
Normality Test	Combined K-S 0.0447 p-value 0.729 Normal	Normal
Multicollinearity Test	Mean VIF 3.36 Non-multicollinearity	No multicollinearity
Heteroskedasticity Test	B-P test 23.57 p-value 0.0000 Heteroskedasticity	Homoscedasticity VCE Robust
Autocorrelation Test	Wooldridge Test 4.473 p-value 0.0421 Autocorrelation	No autocorrelation VCE Robust

Source: Author's estimation

Table 4 shows that OLS regression employs a robust variance estimator to obtain consistent estimates. This method is used to address the presence of autocorrelation and heteroskedasticity. Specifically, the Breusch-Pagan and Wooldridge tests are utilized to detect heteroskedasticity and first-order autocorrelation in the panel data. Furthermore, the Kolmogorov-Smirnov test indicates that the residuals are normally distributed, while the VIF test shows no significant multicollinearity issues among the independent variables. Based on these test results, it is confirmed that the resulting model is consist.

4.2. Discussion

Panel regression results covering the 2018-2024 period indicate that Locally-Generated Revenue (PAD) across Indonesia's 34 provinces has a significant negative effect on poverty, with a coefficient of -3.877. These findings align with literature highlighting the importance of regional fiscal capacity. Furthermore, poverty can be reduced through fiscal decentralization by optimizing regional revenue and financial capacity (Anggraeni et al., 2023). Additionally, budget efficiency can be enhanced by optimizing regional levies and taxes, alongside ensuring accountability in the provision of quality public services (Lewis, 2023; N. A. A. Saputra & Setiawan, 2021).

Case studies in Tulungagung Regency, regencies and cities in Central Java Province, and the Special Region of Yogyakarta consistently demonstrate that higher PAD contributes positively to poverty reduction and improved community (Alfiana, 2022; Aryani et al., 2023).

Thus, the present results reinforce the argument that greater regional fiscal autonomy is an important instrument for poverty alleviation.

In contrast, the finding that central government transfers (encompassing DAU, DAK, and related components) have a positive and significant effect on the poverty rate coefficient of 7.034 is inconsistent with much of the existing literature. Several earlier studies found that DAU, DAK, and Village Funds contribute to reducing rural poverty and poverty in provinces such as Aceh and North (Ambya et al., 2019; Zreik & Haron, 2025). However, the present results are closer to the finding that DAU was not significant in reducing poverty in the Special Region of Yogyakarta (Lindrianti, 2024) and to critiques that post-reform DAU formulas disadvantage archipelagic provinces (Arianto et al. 2022). Heavy reliance on central transfers can also hinder the efficient delivery of regional public services and overall national progress (Anwar, 2022; Musviyanti et al., 2022). The positive coefficient on central transfers in this model therefore suggests possible problems of allocation effectiveness, targeting, or the quality of regional expenditure that warrant further evaluation.

The result shows a statistically significant effect of economic growth, measured by the natural logarithm of gross regional domestic product, with a coefficient of –1.255, indicating that economic growth negatively affects poverty. This is consistent with the broader literature supporting economic growth as a means of reducing poverty (Henneh, 2023; Hlongwane, 2025; Kang & Li, 2024; Nurlina et al., 2024). Simultaneously, the literature warns that growth may not be uniform and could exacerbate income inequality (Kang & Li, 2024; Marrero & Servén, 2021). This concern is reflected in the present finding that the Gini ratio has a positive and significant effect on the poverty coefficient (0.538), confirming that income inequality directly influences the magnitude of poverty.

Meanwhile, the open unemployment rate and average years of schooling were statistically insignificant. The small size of the open unemployment rate is probably due to the dominance of underemployment and the informal sector in Indonesia's labor market, where the official unemployment rate does not capture how far people are from economic security. While the literature on the increased risk of poverty among unemployed individuals is robust (Alimova, 2021; Ngubane et al., 2023; Zaman et al., 2023; Zuo et al., 2023), aggregate provincial-level data may be less responsive to these underlying processes. Average years of schooling also had no significant effect. Education is considered a key factor in reducing poverty (Erumban & de Vries, 2024; Shi & Qamruzzaman, 2022; Zuo et al., 2023), but its effect seems to be more pronounced at higher levels of education. Yet the fact that average years of schooling in Indonesia remain at the primary to lower secondary level seems insufficient to produce a detectable effect on poverty reduction at the provincial aggregate level.

Overall, the results support the literature regarding the importance of PAD and economic growth in lowering poverty, while highlighting the complex roles of central transfers and income inequality. The contradictory finding on central transfers underscores the need for further evaluation of the quality of regional expenditure and the design of intergovernmental fiscal balance schemes to achieve the goals of fiscal decentralization in reducing poverty more effectively.

5. Conclusion

Fiscal decentralization in Indonesia has been implemented for two decades, with a focus on how regional fiscal capacity can be utilized to reduce poverty. This study employs a static panel dataset covering 23 Indonesian provinces to examine the relationship between regional fiscal capacity and poverty, while also considering other influential factors such as central

government transfers, education, unemployment, and inequality. The findings indicate that higher locally-generated revenue is significantly associated with lower poverty levels, whereas larger central government transfers are, conversely, linked to higher poverty levels. These results suggest weaknesses in the execution of regional government spending, although the estimated relationship does not imply direct causality. Income inequality is also significantly associated with higher poverty levels, while no significant relationship was found regarding education or unemployment. These findings highlight the need for fiscal reform to enhance the effectiveness of regional spending in reducing poverty. Expanding the revenue base through improved tax compliance and strengthening protections for low-income households are essential. Furthermore, central government transfers should be better aligned with regional needs and accompanied by well-defined, measurable service-delivery targets which all while ensuring full transparency. Assistance provided by regional governments should also be more precisely targeted to ensure that basic services reach disadvantaged groups. A limitation of this study is its restricted provincial scope, as it does not include more recently established provinces. Future research should incorporate these provinces and explore additional factors, such as institutional quality, gender representation, and inter-regional disparities.

5.1. Conflict of Interest Statement

The authors declare no financial or personal relationships that could reasonably be perceived as competing interests in connection with this publication. Neither Statistics Indonesia nor the Ministry of Finance had any role in the design of the study, the estimation, the interpretation of results, or the decision to publish.

5.2. Author Contributions

M.G.Y.: Conceptualization, Methodology, Data Curation, Formal Analysis, Software, Visualization, Writing – Original Draft.
T.P.: Supervision, Validation, Methodology, Writing – Review & Editing.
N.K.: Supervision, Resources, Validation, Writing – Review & Editing.

5.3. Funding Statement

No funding was received for this research from any public, commercial, or not-for-profit funding body.

5.4. Informed Consent

Not applicable. The study analyses aggregated provincial-level statistics published by government agencies and involves no human participants and no collection of personal data.

5.5. Ethical Approval

Not applicable. The research is a quantitative analysis of publicly available secondary aggregate data and involves no human or animal subjects, no fieldwork, and no primary data collection requiring ethical clearance.

5.6. Data Availability

The dataset analyzed in this study is a balanced panel of 34 Indonesian provinces observed annually from 2018 to 2024, comprising 238 observations. All series are drawn from publicly accessible sources: poverty rates and the Gini ratio from Statistics Indonesia (BPS), and locally-generated revenue, central government transfers, and related fiscal variables from the Ministry of Finance. The compiled panel and the Stata do-file used for estimation are available from the corresponding author [M.G.Y.] on reasonable request.

5.7. Declaration of Generative AI and AI-assisted Technologies

During the preparation of this manuscript, the authors utilized Claude Sonet 5.5 (Anthropic) for language editing and clarity improvement. All outputs generated with the assistance of the tool were critically reviewed and revised by the authors to ensure factual accuracy, consistency with the estimation output, and adherence to academic writing standards. The authors assume full responsibility for the integrity and content of this manuscript.

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