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The Unequal Effects of Fiscal Decentralization: Urban–Rural Evidence from Indonesia

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Research Article

Keywords: Fiscal decentralization, Inequality, Urban-rural disparities, Dynamic models

Posted Date: August 20th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10695980/v1

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Additional Declarations: No competing interests reported.

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ABSTRACT

Fiscal decentralization has been widely promoted as a policy instrument to improve regional economic performance and reduce income inequality by granting greater fiscal autonomy to local governments. Nevertheless, empirical evidence remains inconclusive, particularly regarding whether its effectiveness differs between urban and rural regions. This study examines the impact of fiscal decentralization on income inequality across Indonesian provinces by comparing its effects in urban and rural areas. Using provincial panel data, the analysis employs a two-step First Difference Generalized Method of Moments (FD-GMM) estimator to capture the dynamic nature of income inequality while addressing potential endogeneity. Fiscal decentralization is specified as the main explanatory variable, with human development and governance quality included as control variables. The results reveal that income inequality exhibits strong persistence over time. Fiscal decentralization has a positive but statistically insignificant effect on inequality in urban regions, suggesting that greater fiscal autonomy alone is insufficient to generate meaningful redistributive outcomes in more developed areas. In contrast, fiscal decentralization significantly reduces income inequality in rural regions, indicating that enhanced local fiscal authority contributes to more equitable income distribution where fiscal transfers and public spending are more development-oriented. These findings suggest that the effectiveness of fiscal decentralization depends on regional characteristics and institutional contexts. Accordingly, fiscal decentralization policies should adopt a place-based approach by strengthening fiscal capacity, improving institutional quality, and directing public expenditure toward inclusive development priorities, particularly in rural areas, to achieve more balanced and equitable regional development in Indonesia.

Keywords: Fiscal decentralization, Inequality, Urban-rural disparities, Dynamic models
JEL: H7, D31, R12, C32

INTRODUCTION

Indonesia, as an extensive archipelagic country with socio-economic diversity, faces significant challenges in equitable development. The disparity between advanced and underdeveloped regions remains evident across economic sectors, infrastructure, and access to basic services such as education and healthcare. The government plays a crucial role in addressing these issues by enhancing the effectiveness of fiscal resource management through fiscal autonomy, hereafter referred to as fiscal decentralization (Grigoryan et al., 2025). In 2022, Indonesia enacted a new law, namely Law No. 1/2022 concerning fiscal decentralization, with broader and implicit objectives to facilitate central government control over regions, thereby improving the equitable distribution of inter-regional transfers, increasing local government tax mobility, enhancing expenditure efficiency, and improving service delivery outcomes. (Lewis, 2023).

Fiscal decentralization enables local governments to design and implement development programs that better suit the needs and characteristics of their regions. This approach allows for a more equitable and efficient allocation of resources, as well as improved delivery of public services that are more targeted and aligned with local community priorities and aspirations (Siburian, 2020). However, some studies identify several challenges in implementing fiscal decentralization. In Indonesia, local governments still heavily rely on transfers from the central government. This reflects limited fiscal capacity, which weakens the potential benefits of decentralization (Siddiquee et al., 2012). This condition is evident in the physical structure of the area, which is dominated by the transfer of funds of more than 70% (Fitrianti et al., 2025).

In some countries, including China, fiscal decentralization has led local governments to shift their spending focus to non-essential sectors, due to increased personal interests among local officials influencing fund allocation (S. Li & Li, 2024). Similarly, in Hungary, Poland, the Czech Republic, and Slovakia, national fiscal policies and regulatory frameworks limit the ability of local governments to generate their own tax revenue (Nam & Radulescu, 2003). This evidence suggests that without effective oversight mechanisms and properly aligned incentives, fiscal decentralization does not necessarily enhance local expenditure efficiency or promote equitable development across regions.

Fiscal decentralization can help reduce regional income disparities, especially when local governments have the autonomy to design development programs and distribute resources efficiently (Lessmann, 2009; Siburian, 2020). The effectiveness of fiscal decentralization in addressing this gap is highly influenced by the quality of governance. In environments with good governance, it tends to produce better results in reducing regional disparities. Conversely, poor governance can exacerbate regional inequalities, even when fiscal decentralization has been implemented (Kyriacou et al., 2015; Muinelo-Gallo & Miranda, 2014). Next, institutional quality, including anti-corruption efforts, plays an important role in the effectiveness of fiscal decentralization. Strong anti-corruption measures can enhance the positive impact of fiscal decentralization in reducing regional disparities (Kyriacou et al., 2015; Nirola et al., 2022).

Although various literature has examined the relationship between fiscal decentralization and inequality, most studies still focus on its impact at the national level or use aggregate measures of inequality. This research offers a new contribution by specifically analyzing inequality through the Gini Ratio in rural and urban areas, providing a deeper understanding of how decentralization affects inequality across different regional contexts. Additionally, applying a multi-model approach to the analysis enables a more comprehensive evaluation of the influence of fiscal decentralization on inequality in both

urban and rural areas, thereby enriching understanding of inequality dynamics across environments.

LITERATURE REVIEW

Fiscal decentralization is the process of transferring responsibility for revenue and expenditure management from the central government to local governments, with the aim of improving efficiency, accountability, and the relevance of policies to local needs. According to the literature, fiscal decentralization theories are divided into two main generations. The first-generation theories emphasize economic efficiency and the balance in the provision of public goods. In this context, the Oates Decentralization Theorem explains that local governments are better able to provide public goods that align with the preferences of the local community, thereby creating resource allocation efficiency (Oates, 1999; Plaček et al., 2020; Ter-Minassian, 2015). Meanwhile, the Tiebout Model proposes that individuals will 'vote with their feet' by moving to the area that best matches their preferences for public goods and tax levels, thereby encouraging competition among local governments to improve the quality of public services (Plaček et al., 2020; Ter-Minassian, 2015). Next, the Musgrave framework highlights three main functions of fiscal policy—resource allocation, income distribution, and economic stabilization—and emphasizes the importance of coordination among different levels of government in achieving these objectives (Barnes, 2022).

Meanwhile, the second-generation theory focuses on institutional aspects, governance, and incentives in the implementation of fiscal decentralization (Oates, 2005). This theory highlights the importance of fiscal federalism, emphasizing that regional fiscal autonomy will improve accountability, policy innovation, and efficiency in public financial management (Vo, 2010). In addition, this theory emphasizes the role of intergovernmental transfers, such as grants and balancing funds, in creating fiscal equality among regions and preventing excessive fiscal disparities (Voorhees, 2017). Thus, fiscal decentralization is not only seen as an economic efficiency mechanism but also as a governance instrument that strengthens local governments' role in supporting equitable development and community welfare.

In high-income countries, decentralization tends to reduce regional disparities, while in low- and middle-income countries, it often increases disparities (Digdowiseiso et al., 2022). Next, according to Bellofatto & Besfamille (2021), decentralization initially increased disparities but ultimately reduced inequalities as it progressed. The quality of institutions plays a crucial role in determining the effectiveness of fiscal decentralization in reducing inequality. Local governments with strong governance, high transparency, and good accountability tend to be more capable of optimally utilizing fiscal decentralization to

achieve goals of equity and the reduction of disparities (Alfada, 2019; Digdowiseiso et al., 2020). In addition, the effectiveness of decentralization is also heavily influenced by the level of corruption control and political stability in the region. Local governments that have strong oversight mechanisms and are able to suppress corrupt practices are proven to be more successful in using fiscal decentralization as a tool to reduce economic and social inequalities between regions (Oumbe et al., 2025). Furthermore, according to Siburian (2021), fiscal decentralization, when combined with an increase in government quality, can effectively reduce regional inequality. Based on the statement above, the following hypothesis can be formulated.

H1: Fiscal decentralization has a negative effect on regional inequality

H2: The quality of governance has a negative effect on regional inequality

The Human Development Index (HDI) serves as a control variable in analyzing the relationship between fiscal decentralization and inequality. Regions with higher levels of fiscal decentralization generally show an increase in HDI, because resource allocation closer to the needs of the community can promote improvements in education, health, and living standards (Daud & Soleman, 2020; Sofilda et al., 2023). However, the effectiveness of these relationships heavily depends on the economic context and the quality of governance in each region. With good governance and efficient fiscal management, decentralization can significantly contribute to improving human welfare and reducing disparities between regions.

Various studies show that regions with higher HDI scores tend to have better overall development performance, which in turn contributes to reducing inter-regional disparities. In Indonesia, for example, an increase in HDI scores has been linked to a decrease in regional inequality levels, indicating that progress in education, health, and living standards plays an important role in promoting equitable development (Alfons et al., 2024). Meanwhile, in China, HDI is used as a key indicator to highlight regional disparities, and research indicates that raising HDI could significantly narrow interregional gaps by strengthening local human development and economic capacity (Y. Li, 2012; Liao & Wei, 2015). The hypothesis that can be built based on the above statement is as follows.

H3: HDI has a negative effect on regional inequality

Furthermore, fiscal decentralization significantly affects population dynamics and regional disparities by shaping local economic conditions. Areas that effectively use decentralization to develop infrastructure, improve public services, and create economic opportunities tend to attract more residents, leading to faster population growth. However, if decentralization instead widens disparities in resource distribution and governance

quality, residents may move from less developed regions to more prosperous areas. As a result, population growth and economic activity tend to concentrate in regions with better fiscal management, while poorer areas lag behind because they cannot attract investment and skilled human resources. This creates a cycle of increasing inequality that widens the gap between rich and poor regions, making the effectiveness of fiscal decentralization in promoting equity highly dependent on institutional capacity and the redistribution policies implemented (Aritenang & Chandramidi, 2022; Muhlisin et al., 2025).

Population growth can exacerbate regional inequalities if the economic benefits of increased population are not distributed evenly. Migration, for example, often widens the gap between regions because skilled workers tend to move to more developed areas with greater economic opportunities, while less developed areas lose productive human resources and fall behind in growth (Barufi, 2018; Incaltarau et al., 2021). In China, this dynamic is clearly visible, as population mobility widens the gap between the more economically developed eastern regions and the relatively lagging western regions, indicating that without policies for equitable development and the strengthening of the capacity of underdeveloped areas, decentralization and population growth can deepen regional disparities (Pingzhong, 2008). Based on the above statement, the following hypothesis can be formulated.

H4: Population growth has a positive effect on regional inequality.

METHODOLOGY

This research uses a dynamic panel data model to examine the relationship between dependent and independent variables over time and across regions. Using panel data offers advantages in controlling unobserved heterogeneity and improving the efficiency of parameter estimation (Baltagi, 2021). This study also uses several control variables, which help reduce confounding factors that could distort the relationship between the independent and dependent variables (Campayo-Sanchez & Nicolau, 2025; M. Li, 2021; York, 2018). In addition, this variable improves the model's accuracy and interpretability, thereby making the research results more reliable (Bernerth & Aguinis, 2016; Campayo-Sanchez & Nicolau, 2025). Overall, control variables purify the causal effect by eliminating alternative explanations, thereby strengthening the validity of the conclusions (Becker et al., 2016; M. Li, 2021).

Table 1. Variable Description

No	Variables	Label	Indicator	Unit	Source
Dependent Variable					
1	Urban Inequality	$ineq_urban$	Urban Gini Ratio	Unit	Statistics Indonesia
2	Rural Inequality	$ineq_rural$	Rural Gini Ratio	Unit	
Independent Variable					

3	Fiscal Decentralization	FD	$\frac{local\ own\ revenue}{total\ regional\ revenue}$	Unit	Ministry of Finance Indonesia
Control Variables					
4	Quality of Government Governance	gov	The capacity aspect of democratic institutions in the democracy index	Unit	
5	Human Development Index	HDI	Human Development Index	Unit	Statistics Indonesia
6	Population Growth	$popgrowth$	$\frac{Total\ Population_{it}}{Total\ Population_{it-1}}$	Percentage	

Source: Author's own development (2026)

This research uses the First-Difference Generalized Method of Moments (FD-GMM). This analysis technique is widely used in econometrics and statistics to estimate parameters in models with moment conditions (Arellano & Bond, 1991; Roodman, 2009). In this research case, the two-step FD-GMM estimation technique is used, where the two-step FD-GMM estimator involves an initial estimation using a preliminary weighting matrix, followed by a second step that refines the estimate using the optimal weighting matrix obtained from the first step (Drukker et al., 2013; Hayakawa, 2015; Hu et al., 2014; Kim, 2020). The two-step GMM estimator is asymptotically more efficient than the one-step because it accounts for uncertainty in the weighting matrix (Hwang & Sun, 2018; Jin & Lee, 2021; Y. Sun, 2014). However, with a limited sample, its performance can be less stable, so adjustments such as asymptotic smoothing are needed (Hu et al., 2014; Hwang & Sun, 2018; Sun, 2014). In addition, this method can reduce bias and produce more consistent estimates (Jin & Lee, 2021; Kim, 2020; Windmeijer, 2005).

This study employs the dynamic panel data approach proposed by (Arellano & Bond, 1991) to effectively address endogeneity issues. The basic model is stated as follows.

$$Y_{it} = \alpha Y_{it-1} + \beta X_{it} + \mu_{it} + \varepsilon_{it} \quad (1)$$

where Y_{it} is the dependent variable for province i in the period t, $Y_{it-1}$is the lag of the dependent variable, X_{it} is an independent variable vector, μ_i represents the effect of unobserved individual fixed effects, and ε_{it} is an idiosyncratic mistake.

The main issue with this model is the correlation between $Y_{it-1}$and $\mu_i$which causes the OLS and Fixed-Effects estimators to be biased. To address this issue, a first difference transformation is performed for the two-step FD-GMM estimation to eliminate the effects of fixed individuals.

$$\Delta Y_{it} = \alpha \Delta Y_{it-1} + \beta \Delta X_{it} + \Delta \varepsilon_{it} \quad (2)$$

This transformation removes influence μ_i, about causes a correlation between $\Delta Y_{it-1}$and $\Delta \varepsilon_{it}$, so a valid instrument is needed. In the FD-GMM approach, the deepest lag value of the endogenous variable (such as $Y_{i,t-2}$ or $Y_{i,t-3}$) used as an internal instrument with the assumption that there is no autocorrelation ε_{it}. Thus, the conditions of the moments used are as follows.

$$E\left[Y_{i,t-s} \,.\, \Delta \varepsilon_{it}\right] = 0 \text{ for } s \geq 2 \quad (3)$$

Next, a diagnostic test is conducted to assess the validity of the model, namely the Arellano–Bond (AR) test to detect residual autocorrelation and the Sargan test to examine the validity of the instruments. The model is considered valid if there is no second-order autocorrelation (AR (2)) and the Sargan test fails to reject the null hypothesis. When there is no autocorrelation at ε_{it}, then Y_{it-1} still used in the model, and its bias influence is corrected through GMM instruments.

Based on the statements above, this research uses an empirical multi-model approach to examine how fiscal decentralization affects urban and rural inequality. The two-step FD-GMM empirical model that can be formulated is as follows.

Empirical Model 1

$$\Delta ineq_urban_{it} = \alpha \Delta ineq_urban_{it-1} + \beta 1 \Delta FD_{it} + \beta 2 \Delta gov_{it} + \beta 3 \Delta HDI_{it} + \beta 3 \Delta popgrowth_{it} + \Delta \varepsilon_{it} \quad (4)$$

Empirical Model 2

$$\Delta ineq_rural_{it} = \alpha \Delta ineq_rural_{it-1} + \beta 1 \Delta FD_{it} + \beta 2 \Delta gov_{it} + \beta 3 \Delta HDI_{it} + \beta 3 \Delta popgrowth_{it} + \Delta \varepsilon_{it} \quad (5)$$

In this study, *ineq_urban* represents urban income inequality, while *ineq_rural* refers to rural income inequality. Fiscal decentralization is denoted by *FD*, which serves as the main explanatory variable. The model also incorporates several control variables, including *gov* as the quality of governance indicator, *HDI* as the Human Development Index, and *popgrowth* as population growth. Meanwhile, ε represents the random error term or idiosyncratic disturbance. The subscript *i* indicates cross-sectional data consisting of 34 provinces in Indonesia, whereas *t* denotes the time-series dimension covering the period from 2015 to 2024.

RESULT

Overview of Fiscal Decentralization

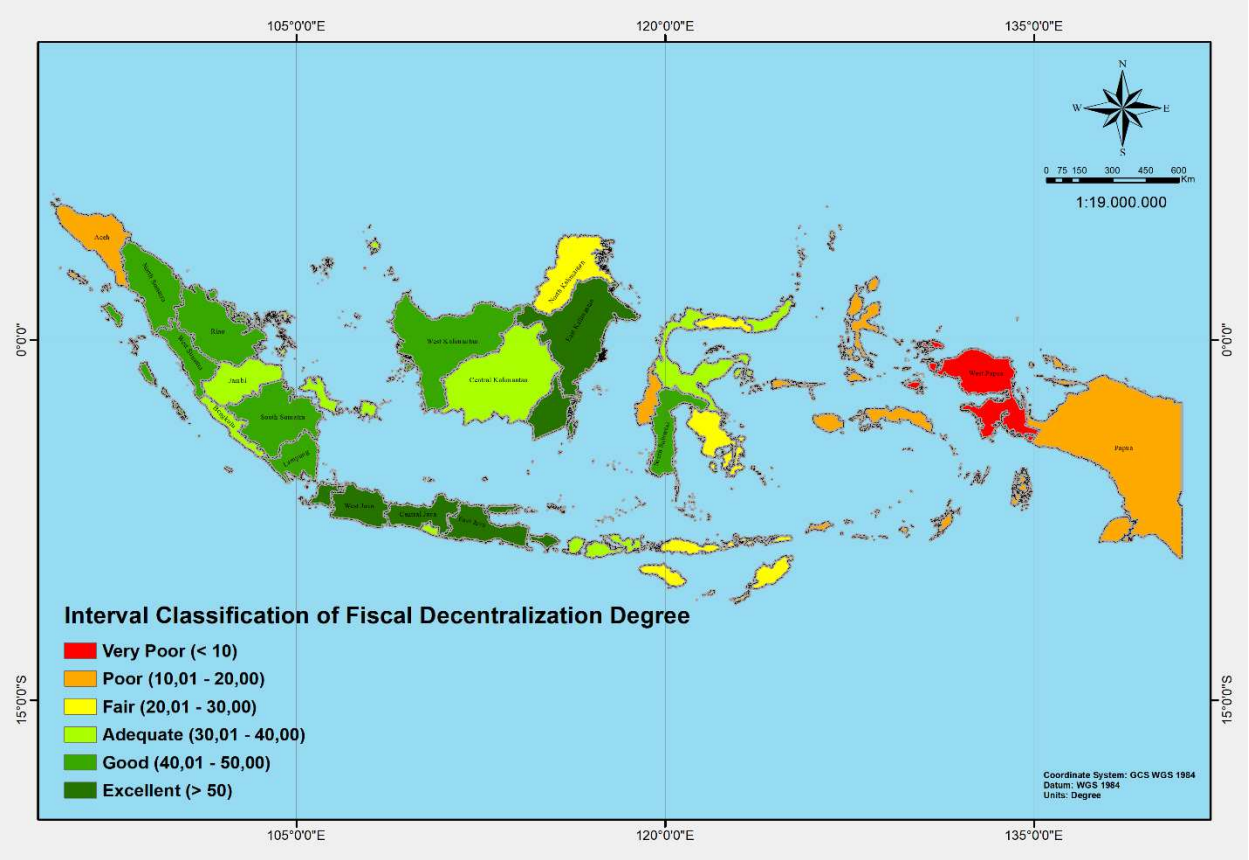


Figure 1. Classification of Average Fiscal Decentralization Degree in Indonesia in 2015-2024

Source: Author's own development (2026)

The efficient level of fiscal decentralization in Indonesia shows a striking difference in the ability of provinces to manage finances independently. Fiscal decentralization, which includes the sharing of financial resource management power between central and local governments, is essential to support regional development and more public services. Provinces in Indonesia are grouped into five categories based on their level of fiscal decentralization, ranging from very poor to excellent, with colors that distinguish each category to make it easier to understand the difference.

Based on Figure 1, the level of fiscal decentralization in Indonesia, there is a striking inequality between provinces in western and eastern Indonesia. Provinces in the western part such as Java and Sumatra generally show a better level of fiscal decentralization, falling into the Good and Adequate category, which reflects more efficient and independent fiscal management. In contrast, regions in eastern Indonesia, especially Papua and West Papua, are listed in the Very Poor category, indicating the region's low ability to manage regional

finances. Factors such as geographical remoteness, low infrastructure, and high dependence on the central budget are the main causes of this lag.

Descriptive statistics

Table 2 presents descriptive statistics for all research variables across 34 provinces in Indonesia from 2015 to 2024. The total number of rural disparity observations is 330, fewer than the number in urban areas, because Jakarta Province is classified as only an urban area.

Table 2. Descriptive Statistics

Variables	N	Mean	Std. Dev	Min	Max
ineq_urban	340	0.362	0.0433	0.248	0.456
ineq_rural	330	0.307	0.0449	0.196	0.476
FD	340	0.389	0.165	0.0427	0.762
gov	340	72.40	9.655	44.49	93.98
HDI	340	71.01	4.095	57.25	83.08
popgrowth	340	1.621	0.708	0.310	7.209

Source: Author's calculation (2026)

In general, using the Gini ratio indicator, the average urban inequality (ineq_urban) value is 0.362 with a standard deviation of 0.0433, while rural inequality (ineq_rural) has an average of 0.307 with a standard deviation of 0.0449. This indicates that income distribution inequality in urban areas is consistently higher than in rural areas. Since higher inequality values approaching 1 indicate greater disparity, these results confirm that urban areas experience a more uneven income distribution. This condition reflects a structural economic dualism between growth centers in urban regions and hinterland areas, which serve as buffer zones but remain socio-economically lagging. Meanwhile, the fiscal decentralization variable (FD) averages 0.389, indicating a moderate but heterogeneous degree of fiscal authority delegation across provinces, with a maximum of 0.762. These differences highlight disparities in fiscal capacity and the effectiveness of public financial management, which can directly impact the success of redistribution policies and regional development equity.

Furthermore, the governance variable (gov) has an average score of 72.40 and a standard deviation of 9.655, indicating heterogeneity in institutional quality and bureaucratic effectiveness across provinces. Higher values reflect progress in governance practices and fiscal transparency, while lower values suggest the need to strengthen institutional capacity to support effective policy implementation. The average Human Development Index (HDI) is 71.01, with a standard deviation of 4.095, indicating that most provinces are in the middle to upper-middle development category, although regional development gaps remain evident, with scores ranging from 57.25 to 83.08. The population

growth variable (popgrowth) has an average of 1.621% with a standard deviation of 0.708, indicating substantial demographic variation among provinces. High population growth rates in some areas could potentially exert pressure on economic capacity, infrastructure, and equitable welfare distribution. Overall, these descriptive statistics confirm that economic disparities in Indonesia still exhibit significant spatial variation, with institutional influence, fiscal capacity, and demographic characteristics interacting to shape regional inequality patterns. This variation provides a strong empirical basis for applying a dynamic two-step FD-GMM panel model, which can capture the complexity of relationships among variables and address potential endogeneity in the dynamics of regional inequality and economic development.

Two-Step FD-GMM Model Result

Table 3 presents the results of the two-step FD-GMM model estimation to analyze the effect of fiscal decentralization on inequality in Indonesia, with control variables including governance quality, the human development index, and population growth, both in urban areas (ineq_urban) and rural areas (ineq_rural).

Table 3. Results of Two-step FD-GMM Estimation

Variables	ineq_urban		ineq_rural	
	Short-Run	**Long-Run**	**Short-Run**	**Long-Run**
L1. Depend. Var.	0.293***		0.364***	
	(0.0449)		(0.0214)	
FD	0.00530	0.00751	-0.0274***	-0.0430***
	(0.00875)	(0.01223)	(0.00735)	(0.01112)
gov	-1.58e-05	-2.2e-05	-1.02e-04***	-1.6e-04***
	(3.00e-05)	(4.2e-05)	(3.24e-05)	(5.4e-05)
HDI	-0.00228***	-0.00322***	-0.00138***	-0.00217***
	(0.000426)	(0.000441)	(0.000307)	(0.000471)
popgrowth	0.000801***	0.001133***	-0.000531	-0.000834
	(0.000269)	(0.000361)	(0.000509)	(0.000807)
Wald Chi2	1924.18		7529.87	
	[0.0000]		[0.0000]	
AR (2)	-0.49312		1.1169	
	[0.6219]		[0.2640]	
Sargan Test	32.29352		30.30178	
	[0.5994]		[0.6943]	
Observations	272		264	
Number of prov	34		33	

Source: Author's calculation (2026)

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Before interpreting the relationships between variables, diagnostic tests were conducted to ensure the validity and consistency of the estimators. The results of the Arellano–Bond (AR(2)) test indicate that the statistical values for the urban inequality model (–0.49312; p=0.6219) and the rural inequality model (1.1169; p=0.2640) are not significant at the 5% level, meaning there is no second-order autocorrelation in the residuals of the first-difference transformed data. This condition suggests that the dynamic model specification used has met the internal consistency assumptions. Furthermore, the Sargan test yields a statistic of 32.29352 (p=0.5994) for the urban model, and 30.30178 (p=0.6943) for the rural model, so the null hypothesis of instrument validity is not rejected. These results confirm that all instruments used in the FD-GMM estimation are valid and uncorrelated with the error term. Additionally, the highly significant Wald Chi-Square values (p<0.01) for both models indicate that all explanatory variables jointly have a significant effect on income inequality. Therefore, all diagnostic indicators confirm that the two-step FD-GMM model has met the criteria of validity, efficiency, and asymptotic consistency, allowing the estimation results to be interpreted econometrically and substantively.

The lag coefficient of the dependent variable (L1. Dependent Variable) is significantly positive at the 1% level (p<0.01) in both models, with coefficients of 0.293 for urban inequality and 0.364 for rural inequality. Furthermore, the fiscal decentralization variable (FD) shows different results across regions. In urban areas, fiscal decentralization (FD) has a positive but not significant effect (p>0.01; 0.05; 0.1), both in the short term (coefficient=0.00530) and in the long term (coefficient=0.00751). Conversely, in rural areas, fiscal decentralization (FD) has a significantly negative effect at the 1% level (p<0.01), both in the short term (coefficient = –0.0274) and in the long term (coefficient = –0.0430).

Furthermore, the governance quality (gov) variable also has a significant negative effect on inequality at the 1% level (p<0.01), especially in rural areas, with coefficients of –1.02e–04 in the short term and –1.6e–04 in the long term. Meanwhile, in urban areas, governance quality also has a negative effect, but it is not significant (p>0.01; 0.05; 0.1), with short-term coefficient values of –1.58e-05 and –2.2e-05 in the long term. Furthermore, the Human Development Index (HDI) variable shows a significant negative effect at the 1% level (p<0.01) on inequality in both urban and rural areas, with coefficients of –0.0022 in the short term for urban areas and –0.00138 in the short term for rural areas. In the long term, the impact of the Human Development Index becomes even greater, with coefficient values of –0.00322 for urban areas and –0.00217 for rural areas. Lastly, the population growth variable (popgrowth) shows contrasting results between urban and rural areas. In urban areas, population growth has a significant positive effect (p<0.01), with coefficients of 0.000801 in the short term and 0.001133 in the long term, while in rural areas, population growth has a

negative but not significant effect (p>0.01; 0.05; 0.1), with short-term and long-term coefficient values of –0.000531 and –0.000834, respectively.

DISCUSSION

The results of the two-step FD-GMM model estimation indicate that income inequality in Indonesia is both dynamic and persistent. The significant positive coefficient of the lagged dependent variable (L1. Dependent Variable) in both urban and rural areas confirms the presence of path dependency in the inequality dynamics. This means that high inequality in the previous period can persist into the next, reflecting structural rigidity in regional income distributions. This condition suggests that efforts to promote equality cannot rely solely on market mechanisms and require systematic, sustained public policy interventions. This phenomenon aligns with the theory of dynamic inequality persistence, which states that the accumulation of inequality stems from the limited access of the poor to physical and human capital (Galor & Zeira, 1993). For example, an analysis of income and wealth inequality in the U.S. from 1870 to 2019 reveals persistent characteristics in wealth distribution, influenced by factors such as globalization and education (Gayán-Navarro & Sanso-Navarro, 2024).

Research findings indicate that fiscal decentralization has different impacts across regions. In urban areas, fiscal decentralization actually worsens income inequality and the uneven distribution of resources and public services. High-income regions are better able to utilize fiscal autonomy, while low-capacity fiscal regions fall behind. Additionally, policy focus on industrial growth and fiscal competition between regions exacerbates socio-economic disparities (Muhlisin et al., 2025; X. Zhang et al., 2025). Conversely, in rural areas, fiscal decentralization helps reduce inequality. Through increased fiscal capacity and effective public spending, there has been a sectoral shift from agriculture to other productive sectors, which drives inclusive growth. Redistributive fiscal policies and good regional governance strengthen the impact of redistribution, especially through investments in education, infrastructure, and human development (Muhlisin et al., 2025; Siburian, 2020; Su et al., 2019). Thus, the effectiveness of fiscal decentralization is context-dependent: it can increase disparities in developed regions but, if supported by efficient fiscal governance and redistributive policies, can reduce them in underdeveloped areas.

Furthermore, the quality of governance has different impacts between rural and urban areas. In rural areas, governance has a negative, significant effect on income inequality, whereas in urban areas, its effect is negative but not significant. These findings confirm that governance is more effective in promoting economic equality in rural areas through strengthening community participation, public accountability, and transparency,

which contribute to reducing poverty and income disparities (Lonsdale & Enyedi, 2019; Rusli et al., 2023).

In rural areas, good governance also helps reduce social inequality, mitigate environmental degradation, and support the transition toward sustainable development. Cross-country evidence shows that local governance reforms improve the effectiveness of need-based fiscal allocation and strengthen inclusive rural development capacity (Basumatary & Panda, 2019; Born et al., 2019; Opoku et al., 2024; Rusli et al., 2023). Conversely, in urban areas, the relationship between governance and income inequality is more complex. Efficient governance indeed promotes economic growth and policy innovation, but it does not always lead to income redistribution. Urban policy orientations that focus on growth and industrialization often deepen disparities, as the benefits of development tend to be concentrated among high-income groups (Dossou, 2023; Huang & Ho, 2018; H. Zhang et al., 2024).

Overall, these findings confirm that governance's impact is context dependent. Governance has proven more effective at reducing disparities in rural areas, whereas in urban areas its impact tends to be weak or insignificant. Therefore, policies aimed at improving governance need to be designed based on regional characteristics, focusing on strengthening institutions and fiscal equalization in rural areas, as well as adopting a more inclusive urban governance approach to prevent the widening of social inequalities (Murshed, 2023; Rusli et al., 2023).

Furthermore, the HDI has a negative, significant effect on income inequality in both urban and rural areas, with a stronger impact in urban areas. Various studies show a negative correlation between HDI and income inequality, indicating that improvements in human development quality tend to be followed by a decrease in the Gini coefficient as a measure of inequality (Castells-Quintana et al., 2019; Ortiz et al., 2020). In urban areas, the influence of HDI on reducing inequality is more prominent due to the dynamics of urbanization, which initially widened the gap through the concentration of economic growth and resource access. In this context, an increase in HDI acts as a corrective factor, reducing inequality by expanding access to education, health, and economic opportunities (Suárez et al., 2012; Zhao & Wu, 2024). The situation is different in rural areas; although HDI still contributes to reducing inequality, the mechanism tends to differ. Inequality in rural areas is more influenced by limited access to basic services and the quality of human resources, so the impact of HDI on equality occurs more gradually (de Souza et al., 2021; P. Sun, 2026). Therefore, steps need to be taken to improve access to education and training for underprivileged groups, as well as to increase investment in infrastructure and public services in underdeveloped areas (Dluhopolskyi & Zhukovska, 2023).

Population growth shows different impacts on income inequality between urban and rural areas. In urban areas, population growth has a positive and significant effect on inequality, while in rural areas, its effect is negative but not significant. In urban areas, population growth tends to widen income inequality. Urbanization and economic expansion indeed improve the overall standard of living, but the benefits are not distributed evenly, thereby reinforcing income gaps among different social groups. The main mechanism comes from the concentration of economic activities and investments in city centers, which provide greater advantages to high-income groups compared to low-income groups (Butler et al., 2020; Østby, 2016; Yao & Jiang, 2021). This difference is reinforced by the more complex and competitive urban economic structure compared to rural areas (Berdegué & Soloaga, 2018; Butler et al., 2020; Yao & Jiang, 2021). The same cannot be said for rural areas; population growth tends to reduce income inequality, but this effect is not statistically significant. A decline in the rural population is often associated with increased inequality, as economic activity and investment shrink. However, when population growth occurs, its impact on income distribution is relatively limited and insufficient to alter the existing inequality structure (Berdegué & Soloaga, 2018; Butler et al., 2020).

Policy Implication

Overall, this research confirms that fiscal decentralization is not a neutral policy with respect to inequality. In developed areas, such as urban regions, fiscal decentralization can widen disparities if not accompanied by corrective mechanisms and redistributive policies. Conversely, in underdeveloped areas such as rural regions, fiscal decentralization can be an effective tool for promoting equality when supported by adequate institutional capacity and fiscal governance. These findings imply the need for a more adaptive fiscal decentralization policy design based on regional characteristics to sustainably reduce income inequality.

The results of this study indicate that fiscal decentralization should be designed using a place-based approach, considering that its impact on income inequality varies significantly between urban and rural areas. In urban areas, fiscal decentralization tends to worsen inequality due to differences in fiscal capacity and the concentration of development benefits. Therefore, strengthening redistributive fiscal transfer mechanisms and sharpening regional spending priorities are necessary so that fiscal decentralization does not deepen income gaps. Conversely, in rural areas, fiscal decentralization reduces income inequality, demonstrating that fiscal autonomy can enhance the effectiveness of resource distribution when aligned with local needs. Future fiscal policies should focus on strengthening the fiscal capacity and institutional framework of rural local governments to sustain these equitable impacts.

CONCLUSION

This study concludes that fiscal decentralization has different impacts on inequality between urban and rural areas in Indonesia. The estimation results indicate that fiscal decentralization tends to worsen income inequality in urban areas, while reducing it in rural areas. In urban areas, fiscal autonomy actually widens the gap, as regions with strong economic bases and high fiscal capacity are better able to exercise fiscal authority than those with limited capacity. Fiscal competition and policy orientation focused on economic growth and industrialization reinforce the concentration of development benefits among high-income groups, so fiscal decentralization does not automatically lead to equitable distribution. Conversely, in rural areas, fiscal decentralization is more effective at suppressing income inequality. Increasing fiscal authority at the local level allows for public spending allocations that better meet community needs, especially through investments in education, basic infrastructure, and human development. In this context, fiscal decentralization functions as a redistributive instrument that promotes more inclusive economic growth.

The control variables in this study—including governance quality, the human development index, and population growth—generally show a consistent influence on income inequality, but do not alter the main conclusion regarding the role of fiscal decentralization. The presence of these variables strengthens the validity of the estimation results by ensuring that differences in the impact of fiscal decentralization across regions are not influenced by other structural and demographic factors.

Limitation of The Study

This research has several limitations that need to be considered when interpreting the empirical findings. Although the use of two-step FD-GMM allows for testing income inequality dynamics, the analysis results more closely reflect short-term relationships, leaving the long-term implications of fiscal decentralization on inequality unexplored. Additionally, the use of aggregate data at the regional level can mask variations in inequality within the region, both among income groups and across economic sectors, thereby affecting the strength of the estimated relationships.

On the other hand, the indicators of fiscal decentralization and income inequality used are quantitative and do not fully reflect the qualitative dimensions of fiscal policy, such as the quality of public spending, the effectiveness of policy implementation, and the institutional capacity of local governments. Limitations in the availability and consistency of regional data also restrict the depth of analysis, especially in capturing more detailed variations in fiscal policy across regions and periods. Therefore, the findings of this study should be understood as an aggregate empirical overview, and future research is recommended to utilize more disaggregated data and diverse analytical approaches to gain

a more comprehensive understanding of the impact of fiscal decentralization on income inequality.

Future Research Directions

Future research is recommended to expand the scope of analysis by using more disaggregated data, at the household, district/city, and economic sector levels, to capture heterogeneity in disparities that are not observable in aggregate data. Using a longer time horizon is also important to evaluate the long-term impacts of fiscal decentralization on income inequality. Additionally, future studies can integrate qualitative indicators, such as the quality of public spending, institutional capacity, and the effectiveness of regional fiscal policy implementation, to gain a deeper understanding of the mechanisms underlying the distribution of fiscal decentralization. Employing diverse methodological approaches and spatial analysis can also be considered to test the robustness of findings and to capture inter-regional relationships in inequality dynamics.

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