JOURNAL OF ECONOMIC DEVELOPMENT
Volume 51, Number 2, June 2026

REASSESSING THE CAUSAL IMPACT OF FISCAL DECENTRALIZATION ON POVERTY SEVERITY IN INDONESIA

AHMAD AND MUHAMAD ARMAWADDIN

Halo Oleo University, Indonesia

This study reassesses the causal impact of fiscal decentralization on poverty severity in Indonesia using province-level panel data for the post-decentralization period. While existing studies largely focus on poverty incidence and rely on conventional estimators, this paper emphasizes poverty severity and explicitly addresses fiscal endogeneity. An instrumental-variable approach is employed to identify the causal effects of own-source revenue, intergovernmental transfers, and expenditure composition. The results show that fiscal decentralization has a limited and highly conditional impact on poverty severity. Once endogeneity is controlled for, only own-source revenue exhibits a statistically significant poverty-reducing effect, whereas transfers and sectoral expenditure shares have no robust causal impact. These findings suggest that strengthening local revenue capacity and fiscal accountability matters more than relying predominantly on transfer-based decentralization.

Keywords: Fiscal Decentralization; Poverty Severity; Instrumental Variables; Local Government Finance; Indonesia
JEL Classification: H71; I32; O23; R58

1. INTRODUCTION

Fiscal decentralization is widely promoted as a policy instrument to improve allocative efficiency, strengthen accountability, and enhance welfare outcomes, particularly in developing economies characterized by spatial heterogeneity in preferences and needs (Oates, 1972; Weingast, 2009). By devolving authority to subnational governments, decentralization is expected to improve policy targeting and service delivery, thereby contributing to poverty reduction (Faguet, 2014).

Indonesia provides a particularly relevant context for reassessing the decentralization-poverty nexus. Following the “big bang” decentralization reform in the early 2000s, subnational governments were granted extensive expenditure responsibilities, while revenue authority remained largely centralized (Rodden, 2003; Martinez-Vazquez et al., 2017). As a result, provincial governments continue to rely heavily on intergovernmental transfers, raising concerns that decentralization in Indonesia may be administrative rather than genuinely fiscal in nature (Prud'homme, 1995; Lewis, 2015). Recent evaluations confirm that after two decades of reform, Indonesian subnational governments remain heavily dependent on central transfers with limited revenue autonomy (Lewis, 2023).

Existing empirical studies on fiscal decentralization and poverty report mixed findings. While some studies suggest that decentralization enhances poverty outcomes through improved responsiveness and accountability (Bardhan and Mookherjee, 2006; Faguet, 2014; Sepulveda and Martinez-Vazquez, 2011), others emphasize that its distributive effects depend critically on institutional quality, local capacity, and regional disparities (Rodden, 2003; Weingast, 2009; Lessmann, 2012). Recent subnational evidence from Indonesia further suggests that the poverty-reducing impact of decentralization remains limited and conditional (Siburian, 2022). Moreover, much of the literature relies on poverty headcount measures, which obscure variations in deprivation among the poorest households (Sen, 1976).

This study addresses these limitations by reassessing the causal impact of fiscal decentralization on poverty severity in Indonesia. Using province-level panel data and an instrumental-variable framework, the analysis focuses explicitly on poverty severity rather than poverty incidence, while accounting for the endogeneity of fiscal capacity and transfer allocation (Oates, 1999; Martinez-Vazquez et al., 2017).

This paper makes three contributions. First, it provides causal evidence on the decentralization-poverty relationship by explicitly addressing fiscal endogeneity. Second, it adopts a distribution-sensitive perspective by focusing on poverty severity. Third, it offers policy-relevant insights into decentralization design, emphasizing the central role of genuine local revenue autonomy in reducing deep poverty.

The paper is divided into five sections. Section 2 provides a review of the related literature. Section 3 presents the empirical model and identification strategy. Section 4 reports the empirical investigations and discusses the findings. Finally, Section 5 concludes the research.

2. LITERATURE REVIEW

The theoretical foundations of fiscal decentralization are rooted in the classic theory of fiscal federalism, which emphasizes the efficiency gains from decentralizing public service provision in the presence of heterogeneous local preferences (Musgrave, 1959; Oates, 1972). Subsequent contributions highlight that these gains critically depend on institutional arrangements governing revenue authority, accountability, and intergovernmental relations (Oates, 1999; Weingast, 2009).

Second-generation fiscal federalism shifts attention from allocative efficiency toward political and institutional incentives. In this framework, revenue autonomy plays a central role by strengthening accountability links between local governments and taxpayers, whereas heavy reliance on transfers may generate soft budget constraints and weaken fiscal discipline (Rodden, 2003; Weingast, 2009). Empirical studies increasingly support this distinction, finding stronger welfare effects from revenue-side decentralization than from expenditure decentralization alone (Martinez-Vazquez et al., 2017; Sepulveda and Martinez-Vazquez, 2011). Cross-country evidence confirms that transfer dependency weakens the distributive benefits of decentralization, whereas genuine revenue autonomy strengthens them (Goerl and Seiferling, 2014; Baskaran and Feld, 2022).

Empirical evidence on decentralization and poverty remains heterogeneous. Cross-country and subnational studies report both poverty-reducing and poverty-neutral effects, reflecting differences in institutional capacity, governance quality, and measurement strategies (Bardhan and Mookherjee, 2006; Faguet, 2014; Sepulveda and Martinez-Vazquez, 2011). In developing-country contexts, decentralization outcomes are often constrained by limited administrative capacity, elite capture, and territorial inequality, particularly when decentralization is transfer-driven rather than revenue-based (Prud'homme, 1995; Lessmann, 2012). The moderating role of governance quality further conditions these outcomes, with stronger institutional environments yielding more favorable poverty effects (Psycharis et al., 2022).

A related strand of the literature emphasizes the importance of poverty measurement. Conventional headcount indices capture the incidence of poverty but fail to account for the depth and severity of deprivation among the poorest households. Distribution-sensitive measures, such as the Foster-Greer-Thorbecke class of indices, provide a more informative basis for evaluating policy impacts on deep poverty (Sen, 1976).

This paper contributes to the literature by integrating insights from second-generation fiscal federalism with a distribution-sensitive approach to poverty measurement. By focusing on poverty severity and employing an instrumental-variable strategy, the study advances causal understanding of how fiscal decentralization affects welfare outcomes in developing economies.

3. MODEL

The goal of this section is to present the analytical framework used to evaluate the causal impact of fiscal decentralization on poverty severity in Indonesia. Since the paper is empirical in nature, the model is formulated as an econometric framework linking poverty severity to indicators of subnational fiscal decentralization, while explicitly accounting for endogeneity in fiscal variables.

3.1. Poverty Measure and Data

The analysis employs an unbalanced panel of Indonesian provinces from 2018 to 2023. Poverty outcomes are measured using the Foster-Greer-Thorbecke poverty severity index (P2), which assigns greater weight to households further below the poverty line and is widely used in distribution-sensitive poverty analysis (Foster et al., 1984; Sen, 1976). The P2 index is defined as:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^\alpha, \tag{1}$$

where N is the total population, q is the number of individuals below the poverty line z, y_i is the income of individual i, and $\alpha = 2$ captures the severity of poverty by assigning disproportionately greater weight to the poorest households.

Fiscal decentralization is captured through indicators of own-source revenue, intergovernmental transfers, and expenditure composition, expressed as shares of total provincial revenue or expenditure. These measures are standard in the fiscal federalism literature and reflect both revenue-side and expenditure-side dimensions of decentralization (Oates, 1999; Martinez-Vazquez et al., 2017).

3.2. Empirical Model

To assess the relationship between fiscal decentralization and poverty severity, the baseline empirical specification is written as:

$$P_{2,it} = \beta_0 + \beta_1 OSR_{it} + \beta_2 TR_{it} + \beta_3 EDU_{it} + \beta_4 HLT_{it} + \beta_5 CAP_{it} + \varepsilon_{it}, \tag{2}$$

where $P_{2,it}$ denotes the poverty severity index in province i at time t; OSR is own-source revenue as a share of total revenue; TR is intergovernmental transfers as a share of total revenue; EDU, HLT, and CAP are education, health, and capital expenditure shares, respectively; and ε_{it} is the error term.

The coefficient β_1 captures the effect of local revenue autonomy on poverty severity, while β_2 reflects the role of transfer dependence. The expenditure coefficients capture whether sectoral spending allocations are associated with distribution-sensitive poverty outcomes.

3.3. Identification Strategy

To identify causal effects, the study employs an instrumental-variable approach that treats own-source revenue and intergovernmental transfers as endogenous. This strategy addresses potential reverse causality and omitted-variable bias arising from the joint determination of fiscal capacity and poverty outcomes (Rodden, 2003).

Estimates from pooled Ordinary Least Squares are compared with two-stage least squares results to illustrate the consequences of ignoring fiscal endogeneity (Oates, 1999). The instruments employed include regional group classification, political alignment with central government, and gross regional domestic product, which are expected to influence fiscal capacity without directly affecting poverty severity.

Identification relies on the relevance and exogeneity of the instruments, which are evaluated using standard diagnostic tests including the Wu-Hausman test for endogeneity, Hansen overidentification test for instrument validity, and Shea's partial R-squared for instrument relevance. Coefficients from the instrumental-variable model are interpreted as local average treatment effects, capturing the impact of exogenous variation in fiscal decentralization on poverty severity (Weingast, 2009).

4. EMPIRICAL INVESTIGATIONS

The empirical investigations are divided into five parts. First, descriptive statistics are presented to summarize the main characteristics of poverty severity and fiscal decentralization variables. Second, baseline pooled OLS estimates are reported. Third, instrumental-variable estimates are used to identify causal effects. Fourth, diagnostic tests are conducted to evaluate the validity of the instruments. Finally, the results are discussed in relation to decentralization design and poverty-reduction policy.

4.1. Descriptive Statistics

Table 1 reports descriptive statistics for poverty severity and key fiscal variables across Indonesian provinces during the 2018-2023 period.

Table 1. Descriptive Statistics (Percentage-Scaled)

Variable	Mean	Std. Dev.	Min	Max	N
Poverty severity (P_2)	0.503	0.489	0.060	2.820	204
Own-source revenue (% of revenue)	37.872	15.715	4.364	74.194	204
Transfers (% of revenue)	58.033	15.772	22.581	93.151	204
Education (% of spending)	15.813	5.523	5.385	30.000	204
Health (% of spending)	10.335	3.813	1.679	19.746	204
Capital (% of spending)	31.644	9.307	5.168	59.584	204
Regional group (dummy)	0.650	0.480	0.000	1.000	204
Political alignment (dummy)	0.590	0.490	0.000	1.000	204

Notes: All continuous variables are expressed in percentage-scaled units. Dummy variables take values of 0 or 1. N denotes the number of province-year observations.

The poverty severity index (P2) exhibits substantial variation across provinces, with values ranging from 0.060 to 2.820. This wide dispersion indicates considerable heterogeneity in the intensity of deprivation experienced by poor households across Indonesia.

Own-source revenue accounts for approximately 38 percent of provincial revenues on average, whereas intergovernmental transfers represent about 58 percent. This pattern indicates that provincial governments continue to rely more heavily on transfers than on locally generated revenues, highlighting the continuing importance of transfer-based fiscal arrangements.

Expenditure composition variables also display meaningful variation across provinces. Education spending averages 15.8 percent of total expenditure, health spending 10.3 percent, and capital expenditure 31.6 percent, suggesting substantial differences in local spending priorities and fiscal allocation strategies.

Taken together, these descriptive patterns suggest that although subnational governments possess some degree of revenue autonomy, fiscal decentralization in Indonesia remains characterized by significant dependence on central government transfers.

4.2. Baseline OLS Results

Table 2 presents baseline pooled OLS estimates.

Table 2. Baseline OLS Estimates (Dependent Variable: Poverty Severity (P_2))

Variable	Coefficient	Robust SE
Own-source revenue (%)	−0.244***	(0.050)
Transfers (%)	0.124***	(0.043)
Education spending (%)	−0.296***	(0.046)
Health spending (%)	−0.002	(0.005)
Capital spending (%)	0.094	(0.145)
Constant	0.449***	(0.079)
Observations	204	
R^2	0.456	
F-statistic	23.640	

Notes: Robust standard errors in parentheses. One, two, and three stars denote significance at the 10%, 5%, and 1% levels, respectively. OLS estimates are potentially biased due to fiscal endogeneity and should not be interpreted causally.

Table 2 indicates a negative and statistically significant association between own-source revenue and poverty severity, while transfers appear positively associated with poverty severity. Education spending also shows a negative and significant coefficient. However, these estimates should not be interpreted causally. Regions with stronger economic bases tend to generate higher own-source revenue and simultaneously experience lower poverty severity. Likewise, poorer provinces often receive larger transfers, introducing reverse causality. From an econometric standpoint, these simultaneity and omitted-variable concerns imply that OLS estimates are likely biased and inconsistent.

Policy conclusions drawn solely from these results would therefore be misleading. The positive OLS association between transfers and poverty severity may simply reflect compensatory allocation mechanisms rather than a genuine causal effect of transfers on poverty outcomes.

4.3. Instrumental Variable (2SLS) Results

Table 3 reports the two-stage least squares estimates that address fiscal endogeneity.

Table 3. IV-2SLS Estimates

Variable	Coefficient	Robust SE
Own-source revenue (%)	−1.531**	(0.734)
Transfers (%)	−0.066	(0.211)
Education spending (%)	−0.090	(0.230)
Health spending (%)	0.018	(0.020)
Capital spending (%)	0.661	(0.614)
Constant	2.423**	(1.176)
Observations	204	
Wald χ^2	38.250	
Prob > χ^2	0.000	

Notes: Dependent Variable: Poverty Severity (P_2), Endogenous variables: own-source revenue (%), transfers (%), Instruments: regional group, political alignment, GRDP. Robust standard errors in parentheses. One, two, and three stars denote significance at the 10%, 5%, and 1% levels, respectively. Estimates are obtained via two-stage least squares. Coefficients are interpreted as local average treatment effects.

Once endogeneity is explicitly controlled for, the results change markedly. Own-source revenue retains a negative and statistically significant coefficient, indicating a robust causal effect in reducing poverty severity. In contrast, intergovernmental transfers and expenditure composition variables lose statistical significance.

Econometrically, this finding implies that only revenue-side decentralization exerts a causal influence on deep poverty reduction. The estimated coefficient can be interpreted as a Local Average Treatment Effect (LATE), capturing the impact of increased own-source revenue for provinces whose fiscal capacity is affected by the chosen instruments. From a policy standpoint, this result is highly consequential: it suggests that decentralization alleviates severe poverty not through higher spending per se, but through stronger local fiscal autonomy that enhances accountability, efficiency, and policy targeting.

4.4. Instrument Validity and Diagnostic Tests

Table 4 reports diagnostic tests supporting the validity of the instrumental-variable strategy.

Table 4. Instrument Diagnostics

Test	Statistic	p-value
Shea's partial R^2 (own-source revenue)	0.025	—
Shea's partial R^2 (transfers)	0.051	—
Hansen overidentification test	1.262	0.261
Wu-Hausman test (F)	7.670	0.001

Notes: The Wu-Hausman test rejects the null hypothesis of exogeneity at the 1% level, confirming the presence of endogeneity and justifying the IV approach. The Hansen test fails to reject instrument validity at conventional significance levels. Shea's partial R^2 indicates instrument relevance for both endogenous regressor

The Wu-Hausman test rejects the null hypothesis of exogeneity, confirming the presence of endogeneity in fiscal variables and justifying the IV approach. The Hansen overidentification test fails to reject instrument validity, indicating that the instruments are plausibly exogenous. Shea's partial R-squared statistics further suggest that the instruments are sufficiently relevant.

Taken together, these diagnostics reinforce the credibility of the causal interpretation. The absence of significant effects for transfers after instrumentation implies that transfer-based decentralization, in its current institutional form, does not systematically reach the poorest segments of the population.

4.5. Discussion and Policy Implications

The empirical findings suggest that fiscal decentralization reduces poverty severity only when it strengthens genuine local revenue capacity. Once endogeneity is taken into account, only own-source revenue exerts a robust poverty-reducing effect. This result supports the second-generation fiscal federalism view that revenue autonomy matters more than transfer dependence for accountability and welfare improvement (Rodden, 2003; Weingast, 2009; Baskaran and Feld, 2022).

The absence of a significant causal effect of transfers implies that transfer-based decentralization, in its current institutional form, does not systematically reach the poorest households. In Indonesia's institutional context, this finding indicates that decentralization may remain largely administrative if local governments continue to rely predominantly on centrally allocated funds. This finding is consistent with earlier evidence showing that transfer dependency weakens the distributive effectiveness of fiscal decentralization when local revenue autonomy remains limited (Goerl and Seiferling, 2014; Lewis, 2023).

The focus on poverty severity also yields insights that would be obscured by conventional headcount measures. The results suggest that decentralization benefits are highly conditional on the presence of genuine fiscal autonomy and strengthened accountability mechanisms (Bardhan and Mookherjee, 2006; Faguet, 2014; Siburian, 2022). Moreover, the moderating role of governance quality underscores the importance of institutional environments in shaping the distributive effects of decentralization (Psycharis et al., 2022).

From a policy perspective, the findings imply that strengthening local revenue capacity should be prioritized over further expansion of intergovernmental transfers. Reforms aimed at broadening local tax bases, improving tax administration, and enhancing fiscal transparency are likely to generate more durable poverty-reducing effects than adjustments in expenditure composition alone. Central government oversight should increasingly emphasize incentives for fiscal effort and performance.

5. CONCLUSION

This paper reassesses the causal impact of fiscal decentralization on poverty severity in Indonesia using province-level panel data and an instrumental-variable approach. By explicitly correcting for fiscal endogeneity and adopting a distribution-sensitive poverty measure, the study contributes new causal evidence to the decentralization-poverty literature.

The results demonstrate that fiscal decentralization reduces poverty severity only when it enhances genuine local revenue autonomy. Own-source revenue exhibits a robust and statistically significant causal effect, whereas intergovernmental transfers and expenditure composition variables do not show consistent poverty-reducing impacts once endogeneity is addressed. These findings suggest that decentralization without revenue autonomy is unlikely to alleviate deep poverty and may function largely as an administrative reform.

Several limitations should be acknowledged. The analysis relies on province-level aggregates and therefore cannot capture household-level behavioral responses or intra-provincial inequality. In addition, the instrumental-variable strategy identifies local average treatment effects that may not generalize uniformly across all regions. Future research could extend this framework by incorporating governance quality indicators, fiscal effort measures, and micro-level household data to further elucidate the mechanisms linking fiscal decentralization to poverty dynamics.

Overall, the evidence underscores that the effectiveness of fiscal decentralization as a poverty-reduction strategy depends critically on the design of revenue institutions and accountability mechanisms rather than on transfer expansion alone.

REFERENCES

Bardhan, P. and D. Mookherjee (2006), "Decentralisation and Accountability in Infrastructure Delivery in Developing Countries," *Economic Journal*, 116(508), 101-127.

Baskaran, T. and L.P. Feld (2022), "Fiscal Decentralization and Economic Growth: Revisiting the Evidence," *Journal of Economic Surveys*, 36(3), 730-768.

Faguet, J.P. (2014), "Decentralization and Governance," *World Development*, 53, 2-13.

Foster, J., J. Greer and E. Thorbecke (1984), "A Class of Decomposable Poverty Measures," *Econometrica*, 52(3), 761-766.

Goerl, C.-A. and M. Seiferling (2014), "Income Inequality, Fiscal Decentralization and Transfer Dependency," IMF Working Paper No. 14/64, International Monetary Fund, Washington, DC.

Lessmann, C. (2012), "Regional Inequality and Decentralization," *Environment and Planning A*, 44(6), 1363-1388.

Lewis, B.D. (2015), "Decentralising to Villages in Indonesia: Money (and Other) Mistakes," *Public Administration and Development*, 35(5), 347-359.

Lewis, B.D. (2023), "Indonesia's New Fiscal Decentralisation Law: A Critical Assessment," *Bulletin of Indonesian Economic Studies*, 59(1): 1-28.

Martinez-Vazquez, J., S. Lago-Penas and A. Sacchi (2017), "The Impact of Fiscal Decentralization: A Survey," *Journal of Economic Surveys*, 31(4), 1095-1129.

Musgrave, R.A. (1959), *The Theory of Public Finance*, McGraw-Hill, New York.

Oates, W.E. (1972), *Fiscal Federalism*, Harcourt Brace Jovanovich, New York.

______ (1999), "An Essay on Fiscal Federalism," *Journal of Economic Literature*, 37(3), 1120-1149.

Prud'homme, R. (1995), "The Dangers of Decentralization," *World Bank Research Observer*, 10(2), 201-220.

Psycharis, Y., D. Kallioras and P. Pantazis (2022), "Fiscal Decentralization, Regional Disparities and the Moderating Role of Governance Quality," *Papers in Regional*

Science, 101(5), 1177-1200.
Rodden, J. (2003), "Reviving Leviathan: Fiscal Federalism and the Growth of Government," *International Organization*, 57(4), 695-729.
Sen, A. (1976), "Poverty: An Ordinal Approach to Measurement," *Econometrica*, 44(2), 219-231.
Sepulveda, C. and J. Martinez-Vazquez (2011), "The Consequences of Fiscal Decentralization on Poverty and Income Inequality," *Environment and Planning C: Government and Policy*, 29(2), 321-343.
Siburian, M.E. (2022), "The Link between Fiscal Decentralization and Poverty: Evidence from Indonesia," *Journal of Asian Economics*, 81, 101493.
Weingast, B.R. (2009), "Second-Generation Fiscal Federalism: The Implications of Fiscal Incentives," *Journal of Urban Economics*, 65(3), 279-293.

Mailing Address: Muhamad Armawaddin Ahmad, Department of Economics and Business, Universitas Halu Oleo, Kampus Hijau Bumi Tridharma Anduonohu, Kendari 93232, Southeast Sulawesi, Indonesia, Email: ahmad@uho.ac.id

Received January 24, 2026, Accepted June 18, 2026.