

The Effectiveness of Government Expenditure on Poverty: Evidence of Urban-Rural Spatial Heterogeneity in Indonesia

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ABSTRACT

This study aims to empirically analyze the effectiveness of local government expenditure across nine functional categories on poverty levels in Indonesia, highlighting spatial heterogeneity between urban and rural areas. The research employs panel data from 33 provinces over the 2015–2024 period (excluding DKI Jakarta as an outlier), sourced from the Directorate General of Fiscal Balance (DJPK) and Statistics Indonesia (BPS), analyzed using Random Effects GLS regression based on the Hausman test. The results reveal a very high rho value (0.956 in urban areas and 0.979 in rural areas), confirming the dominance of structural heterogeneity across provinces. In urban areas, public service and health expenditures proved most effective in reducing poverty, whereas economic and social protection expenditures showed a significant positive relationship with poverty, indicating targeting errors and a social protection trap phenomenon. In rural areas, health expenditure exerted twice the impact compared to urban areas, while tourism and cultural expenditure emerged as an effective inclusive fiscal instrument. The study concludes that the effectiveness of local expenditure is context-dependent and cannot be applied uniformly, requiring differentiated fiscal strategies between urban and rural regions to achieve more targeted poverty alleviation.

Keywords: fiscal decentralization; local government expenditure; poverty; spatial heterogeneity; panel data

INTRODUCTION

Poverty is a fundamental structural problem that is the main focus of the global development agenda, as reflected in the first Sustainable Development Goals (SDGs) target to eliminate extreme poverty by 2030 (no poverty) (Anderson et al., 2018; Asmawati et al.,

2025). Achieving this global target requires a strategy that not only relies on economic growth, but also policy interventions that are able to drive changes in income distribution to protect the lowest groups of people (Anderson et al., 2018; World Bank, 2015). In Indonesia, this development challenge remains crucial with the number of poor people reaching 25.22 million people or equivalent to 9.03% of the total population in March 2024 (BPS, 2024). Although the national poverty rate has shown a significant downward trend from 24% in 1999, the rate of reduction has been assessed to be sluggish in the last decade and is still faced with high levels of vulnerability (Asmawati et al., 2025; World Bank, 2022). Currently, around 30% of Indonesia's population is still classified as a poor or vulnerable poor group, a condition that emphasizes that poverty is not just a static phenomenon, but a dynamic problem that is easily affected by various economic shocks and global uncertainties (Asmawati et al., 2025; World Bank, 2020).

Behind the trend of reducing national poverty, Indonesia is still faced with a major challenge in the form of a sharp spatial disparity between urban and rural areas. Rural poverty rates are consistently above double the urban poverty rate, a condition that reflects inequalities in access to basic public services and inclusive economic opportunities. These differences are not only quantitative, but also structural; Urban poverty is often triggered by the complexity of the informal sector and the high cost of living, while poverty in rural areas is more caused by limited infrastructure and isolation from the local labor market. Data over the past decade (2015–2024) reveals that although both regions have experienced a decline in the percentage of poor populations, the rural-urban gap remains in the range of 5-6 percentage points, indicating that existing interventions are not strong enough to encourage welfare convergence between regions. The persistence of this spatial gap signals that poverty alleviation strategies require a more contextual approach, as the effectiveness of a policy in rural areas does not necessarily have a similar impact in urban areas.

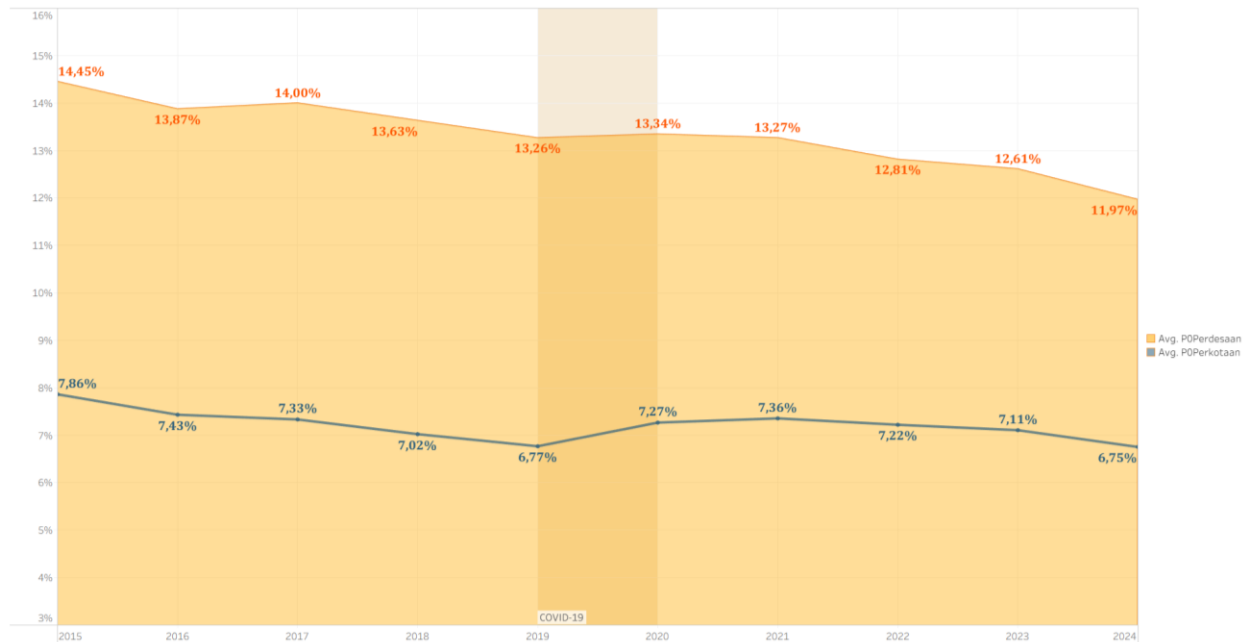


Figure 1. Urban vs Rural Poverty Percentage

Source: Processed from BPS, 2025

In an effort to respond to this spatial inequality, the fiscal decentralization framework in Indonesia gives great authority to local governments to manage their financial resources independently for regional development. Based on the mandate of Law No. 23 of 2014 and Permendagri No. 77 of 2020, local governments are equipped with strategic instruments in the form of budget allocations classified into nine APBD spending functions to intervene in poverty problems in their respective regions. Theoretically, this functional public expenditure plays a crucial role in income redistribution and increased access to basic services that are prerequisites for poverty alleviation. This commitment is further emphasized through the mandatory spending policy, where the government is required to allocate a minimum of 20% of the budget for the education sector and around 10% for the health sector to ensure the creation of quality human capital. The basic assumption of this policy is that increasing the allocation of spending to strategic sectors—especially education, health, social protection, and the economy—will directly increase the productivity and competitiveness of the poor, which will ultimately be able to break the chain of poverty systemically.

Although the conventional public finance theoretical framework assumes that functional spending will automatically be pro-poor (Musgrave & Musgrave, 1989), the global

empirical literature shows much more complex and heterogeneous evidence. Meta-regression analyses of various cross-country studies revealed the absence of consistent evidence that higher government spending significantly reduces income poverty in developing countries (Anderson et al., 2018; Asmawati et al., 2025). In Indonesia, this debate remains open due to the often contradictory results of research; Some spending functions were found to be effective in some studies, but other studies actually identified anomalies in which increased budget allocation did not have a real impact or even positively correlated with poverty rates (Alamanda, 2020; Almausshofi et al., 2025; Rahman et al., 2024). There is a real empirical gap because the majority of previous studies tend to use national aggregate data or only focus on specific mandatory spending functions such as education and health, without comprehensively examining all nine spending functions within the framework of long-term panel data (Alamanda, 2020; Rahman et al., 2024). Furthermore, there is a policy gap due to negligence in considering spatial heterogeneity, where the effectiveness of fiscal policies is often evaluated uniformly without distinguishing between the structural responses of poverty in urban and rural areas that have very different economic characteristics (Bahl & Bird, 2018; Elshahawany & Elazhary, 2024).

This research offers significant novelty through three main contributions that distinguish it from previous fiscal literature in Indonesia. First, in contrast to the majority of previous studies that tend to focus only on mandatory spending functions such as education and health (Rahman et al., 2024), this study conducted a comprehensive analysis of all nine regional expenditure functions to map which fiscal instruments are most crucial for poverty alleviation. Second, this study explicitly investigates spatial heterogeneity by distinguishing poverty responses in urban and rural areas simultaneously over a period of one decade (2015–2024). This approach allows for the identification of asymmetric fiscal effectiveness, where one of the same spending functions has been shown to have opposite impacts depending on the structural characteristics of the region. Third, the most important theoretical contribution of this study is the disclosure of anomalies that challenge the assumption of the universality of public finance theory, in particular through the identification of phenomena that lead to indications of 'social protection traps' as well as divergences in the impact of economic function expenditure between villages and cities. Thus, this study fills the policy gap by providing an empirical basis for the preparation of a more contextual and differentiated regional spending strategy, not just a uniform (one-size-fits-all) policy, to support the poverty reduction target in the 2025–2029 RPJMN.

Based on the background and identification of these problems, this study aims to empirically analyze the effectiveness of local government spending according to nine

functions on poverty levels in Indonesia by highlighting the spatial heterogeneity between urban and rural areas (Asmawati et al., 2025; Bahl & Bird, 2018). The main focus of this study is to map the variation of poverty responses to sectoral budget allocations in 33 provinces during the 2015–2024 period in order to identify spending functions that are pro-poor and that show anomalous indications (DGTK of the Ministry of Finance, 2024; Prasetyo & Zuhdi, 2013). Through this approach, the study is expected to identify the functions of spending that are consistently effective, ineffective, or potentially counterproductive in suppressing poverty in each regional context.

LITERATURE REVIEW AND HYPOTHESIS

THEORETICAL FRAMWORK

Public Finance Theory

The function of government intervention in the economy is fundamentally based on the theory of public finance developed by Musgrave and Musgrave (1989). Within this framework, government spending performs three main functions: allocation, distribution, and stabilization. Regarding the issue of poverty, the distribution function plays the most crucial role, where the government uses fiscal instruments to correct the results of uneven market mechanisms and provide a safety net for vulnerable communities. Theoretically, public spending on strategic sectors such as education, health, and social protection is designed to increase the productive capacity of the poor, which in turn will reduce poverty rates through income redistribution channels.

In line with this view, the Keynesian economic tradition emphasizes that government spending acts as an aggregate demand stimulus that is able to drive economic growth and create jobs (Alamanda, 2020; Elshahawany & Elazhary, 2024). Keynes argued that inequality and poverty could be reduced if the government actively intervened to balance consumption and investment to achieve full employment. Through public works projects and infrastructure investments, government spending creates a multiplier effect that not only increases productivity, but also stimulates economic activity at the local level which directly provides opportunities for low-income households to get out of the poverty trap (Elshahawany & Elazhary, 2024).

Fiscal Decentralization Theory

Oates (1993) gave the view that local governments are considered to have an information advantage regarding the needs and preferences of local communities compared to the central government. With fiscal autonomy, local governments can allocate resources more precisely to improve the welfare of the people in their respective regions. In the context of human development, fiscal decentralization is expected to be able to expand the "fiscal space" for regions to prioritize spending that has a direct impact on reducing disparities between regions. However, the effectiveness of this transfer of authority is highly dependent on the regional context and regional institutional capacity (Bahl & Bird, 2018). This theory underlines that poverty alleviation strategies cannot be standardized because the structural characteristics of urban and rural areas are very different. In rural areas, government spending may be more effective when focused on basic infrastructure and the primary economy, while in complex urban areas, the effectiveness of spending is strongly influenced by the dynamics of the informal sector and the high cost of living. Therefore, the decentralization framework provides a theoretical basis for spatial heterogeneity in poverty responses to regional fiscal policies.

Human Capital Theory

Based on the capability approach of Amartya Sen (1999), this approach focuses on the mechanism of transmission of fiscal policy through human capital development. Poverty should not be understood only as low income, but as a deprivation of basic freedoms and the ability of human beings to live the lives they value. In this view, human development aims to expand people's choices and opportunities through strengthening the dimensions of education and health. The allocation of functional spending in these sectors is an instrument of government to provide access to basic services that are often unaffordable for the poor through market mechanisms.

Empirically, investment in human capital (Becker, 1964) is considered an absolute prerequisite for breaking the chain of structural poverty. Effective health spending can increase labor productivity and protect poor households from economic shocks due to catastrophic medical costs. Similarly, education spending acts as a long-term investment that increases the skills and competitiveness of the workforce, which ultimately increases the chances of obtaining a decent wage job. Therefore, the literature often places education and health as the main "social infrastructure" that is a prerequisite for other public expenditures to have the maximum impact on poverty reduction.

The Concept of The Quality of Spending

The empirical gap arises when the nominal increase in the budget is not automatically followed by a decrease in the poverty rate. This phenomenon shows that the effectiveness of public spending is not only determined by the amount of allocation, but rather by how the budget is managed and implemented. The quality of regional spending is measured through five main constructions: priority, allocation, timeliness, accountability, and effectiveness (Masduki et al., 2022). Large government spending often fails to have a real impact if it does not meet the right development priority criteria or if there are inefficiencies in its distribution. One of the risks that arise in fiscal policy in developing countries is the phenomenon of the "social protection trap" or aid dependence, where social assistance programs that are not accompanied by a clear exit strategy can actually reduce work incentives or create long-term dependency (Rahman et al., 2024). In addition, the problem of targeting problems and budget leakage often makes the benefits of public spending more enjoyed by the middle and upper class than the poor population who are the main targets (Anderson et al., 2018).

HYPOTHESIS FORMULATION

Based on the theoretical foundation that has been described, the hypotheses in this study are as follows:

H1: Regional spending on health and education functions has a negative effect on poverty rates in urban and rural areas.

H2: Regional spending on public service functions has a negative effect on poverty levels in urban and rural areas.

H3: Regional spending on social protection functions has a negative effect on poverty levels in urban and rural areas.

H4: Regional spending on economic functions has a negative effect on poverty levels in urban and rural areas.

H5: Regional spending on tourism and cultural functions has a negative effect on poverty levels in urban and rural areas.

H6: Regional expenditure by function has a negative effect on poverty levels differs significantly between urban and rural areas.

RESEARCH METHODS

This study uses a quantitative approach with a descriptive-analytical method to evaluate the effectiveness of regional fiscal policies on poverty. The data used is secondary data in the form of panel data covering 33 provinces in Indonesia over a ten-year period (2015–2024), resulting in a total of 330 observations. DKI Jakarta Province was excluded from the sample of this study due to fiscal characteristics and the absence of poverty data that distinguishes between village and urban poverty, making it an outlier that has the potential to distort the overall model estimate. Data on budget realization by function was obtained from the Directorate General of Fiscal Balance (DJPK) of the Ministry of Finance of the Republic of Indonesia, while urban and rural poverty level (P0) data was sourced from the Central Statistics Agency (BPS). All data was processed using Microsoft Excel software for data cleansing, Stata 17 for econometric estimation, and Tableau for spatial-temporal visualization.

The main independent variables in this study consisted of nine regional expenditure functions, where all expenditure variables were transformed into the form of natural logarithms (ln) to overcome the problem of data scale differences and minimize heteroscedasticity. Meanwhile, the dependent variable in this study is the Poverty Level (P0), which is separated into two contexts: urban poverty (P0Urban) and rural poverty (P0Rural). This is done to capture the heterogeneity of the poverty response to government spending. Table 1 presents the variables, categories, and notations.

Table 1. Variable, Category, and Notation

Variable	Category of Variables	Rating
Urban Poverty Rate	Dependent	P0Perkotaan
Rural Poverty Rate		P0Perdesaan
Public Service Expenditure	Independent	lnGOV_PELUMUM
Order and Security Expenditure	Independent	lnGOV_KAMTIB

Economic Expenditure	Independent	lnGOV_EKO
Environmental Expenditure	Independent	lnGOV_LINGHID
Housing and Public Facilities Expenditure	Independent	lnGOV_FASUM
Health Expenditure	Independent	lnGOV_KES
Tourism and Culture Expenditure	Independent	lnGOV_PARBUD
Education Expenditure	Independent	lnGOV_PEND
Social Protection Expenditure	Independent	lnGOV_PERLINSOS

This study applied a panel data regression model to measure semi-elasticity, where the coefficient showed a percentage point change in the poverty level due to a 1% change in expenditure on local government functions. The analysis stage begins with a classical assumption test which includes the normality test (Jarque-Bera), multicollinearity (VIF), and autocorrelation test. To determine the best estimation model between Fixed Effects (FE) and Random Effects (RE), the Hausman Test was performed. The results of the Hausman Test confirm the assumption of $\text{corr}(u_i, X) = 0$, so the Random Effects GLS estimator was chosen because it is more efficient for the panel data structure in this study. The feasibility evaluation of the model was carried out through the Wald chi 2 statistical test to test the simultaneous influence, the z-test for the partial effect, and the determination coefficient (R^2) to see the ability of independent variables to explain poverty variations. The use of rho values was also analyzed to see the contribution of structural heterogeneity between provinces to the total variation of errors in the model. The model specifications for urban and rural poverty are formulated as follows:

Model 1 (Rural Poverty):

$$PO_{Perdesaan_{it}} = \beta_0 + \beta_1 \ln GOV_PELUMUM_{it} + \dots + \beta_9 \ln GOV_PERLINSOS_{it} + \epsilon_{it}$$

Model 2 (Urban Poverty):

$$PO_{Perkotaan_{it}} = \beta_0 + \beta_1 \ln GOV_PELUMUM_{it} + \dots + \beta_9 \ln GOV_PERLINSOS_{it} + \epsilon_{it}$$

RESULTS AND DISCUSSION

RESULTS

This study produced two panel data regression estimation models using the Random Effects GLS method, both of which were proven to be statistically significant in explaining the dynamics of poverty in Indonesia. The rural poverty model recorded a Wald χ^2 value of 307.51 ($p = 0.000$), showing a much stronger explanatory power than the urban model with a Wald χ^2 value of 105.22 ($p = 0.000$). The crucial finding underlying this analysis is a very high rho value, which is 0.956 in the urban model and 0.979 in the rural model. This confirms that more than 95% of the variation in poverty data in Indonesia comes from structural heterogeneity between provinces, and not just changes in time within the province itself. The higher R^2_{within} in the rural model (0.5556) compared to the urban model (0.2765) indicates that local government spending interventions have a more direct and deterministic relationship to poverty dynamics in rural areas than in more complex urban areas. The full estimated results for both models are presented in Table 2 below:

Table 2. Panel Data Regression Estimation Results: Comparison of Urban and Rural Models

Independent Variables	Urban (Coefficient)	P-value (Urban)	Rural (Coefficient)	P-value (Rural)
Public Service Expenditure	-1,64108*	0,000	-0,18169	0,663
Order and Security Expenditure	0,29928	0,151	-0,26330	0,270
Economic Expenditure	0,31877*	0,002	-0,08587	0,457
Environmental Expenditure	-0,07157	0,437	0,00162	0,988
Housing and Public Facilities Expenditure	-0,04376	0,616	0,00256	0,980
Health Expenditure	-1,24507*	0,002	-2,59537*	0,000
Tourism and Culture Expenditure	0,11665	0,183	-0,26718*	0,008
Education Expenditure	0,78623	0,112	0,54882	0,340

Social Protection Expenditure	0,48063*	0,037	0,36525	0,167
Constant	39,3351*	0,000	84,0464*	0,000

Source: Stata data processing results (2025). Significance at the level of 5% (alpha = 0.05).

DISCUSSION

Public Service as the Foundation for Urban Transformation

The results of the regression analysis provide very strong findings that in urban areas, Public Service Expenditure is the most dominant and significant fiscal instrument in reducing poverty ($\beta = -1.641$; $p = 0.000$). Any 1% increase in the allocation of these functions correlates with a 1.641% decrease in the urban poverty rate. This coefficient value is the largest among all variables in the urban model, which confirms that strengthening the institutional capacity of local governments is an absolute prerequisite for the success of all other poverty alleviation programs.

Theoretically, these findings are in line with the public finance framework of Musgrave & Musgrave (1989), who argue that the bureaucratic efficiency and basic administration of government are the foundation for the effectiveness of the budget distribution function. In urban environments with high structural complexity—characterized by the dominance of informal sector unemployment and the high cost of living—clean governance and efficient administrative services are key determinants of whether government intervention programs can be delivered to target groups without bureaucratic barriers.

The importance of the significance of this function in urban areas is also closely related to the concept of quality of spending. The quality of government spending is not only determined by its nominal amount, but is supported by the construction of accountability, timeliness, and effectiveness of financial management (Masduki et al., 2022). In urban areas, where the risk of budget leakage and misalignment issues are frequent, quality public service spending ensures control systems, transparency through budgeting information media, and better audit accountability. This creates a policy ecosystem that is more responsive to the needs of the urban poor.

These findings explicitly show a contrasting spatial heterogeneity, because in rural areas, public service spending was found to have no significant influence on poverty rates ($p = 0.663$). This difference in pattern indicates that the dynamics of poverty in cities are more

influenced by systemic-institutional factors, while poverty in villages is more sensitive to direct sectoral interventions. The dominance of public service expenditure which reaches 19–50% of the total APBD in almost all provinces proves that this variable has a large variation in allocation and is a source of real structural heterogeneity in the model. Therefore, local governments in urban areas must prioritize governance reform and administrative efficiency as the main poverty alleviation strategy. Without a strong public service foundation, increased allocations to other sectoral spending functions risk being trapped in fiscal inefficiencies that ultimately slow the pace of poverty reduction in Indonesia.

The Impact of Human Capital Investment in the Health Sector

The findings of this study provide very strong and consistent empirical evidence that health function spending is a very effective fiscal instrument in reducing poverty in Indonesia. The estimated results showed that health spending had a negative and significant influence in both regions, where any 1% increase in health budget allocation correlated with a decrease in poverty rates of 1.245% in urban ($p = 0.002$) and 2.595% in rural areas ($p = 0.000$). Spatially, the leverage of health spending in rural areas was found to be almost twice as large as in urban areas, indicating a significant heterogeneity of poverty responses to human capital investment.

Theoretically, the success of this health function confirms the Human Capital Theory (Becker, 1964) and the Capability Approach (Amartya Sen, 1999), which place health not just a burden of expenditure, but a strategic investment to increase the productive capacity of individuals. Government spending in this sector works through two main transmission lines. First, directly, the provision of health facilities and national health insurance (JKN) is able to protect poor households from catastrophic expenditure (Asmawati et al., 2025). With reduced out-of-pocket payments, poor households can allocate their income to the consumption of other basic necessities that help them get out of poverty. Second, indirectly, improving public health status increases labor productivity and opportunities to obtain better-wage jobs in the labor market (Elshahawany & Elazhary, 2024). Healthy workers have a higher resilience to economic shocks than those who are prone to falling into poverty again due to disease. These findings reinforce the research of Prasetyo & Zuhdi (2013) which places health as the most efficient component of public spending in promoting human development in Indonesia.

The magnitude of the coefficient in rural areas ($\beta = -2.595$) reflects a structural condition in which access to health services is still very limited compared to urban areas. In

rural and remote areas, every rupiah allocated for the construction of health centers, the provision of medicines, and the placement of medical personnel has a much more impactful impact on welfare because it touches basic needs that were previously unmet. This is in line with the view that public spending on social infrastructure is more effective in areas with high levels of access deprivation. However, these findings also provide important corrections to some of the most recent literature. For comparison, the research of Asmawati et al. (2025) and Almausshofi et al. (2025) using national aggregate data actually found anomalies where health spending is sometimes positively or insignificantly related to poverty due to inefficiency and ineffectiveness of budget management. Using a provincial-level panel data model that separates urban-rural contexts, this study proves that when differences in structure between regions (rho value > 0.95) are considered, health spending consistently remains the main weapon for local governments in poverty alleviation strategies.

Therefore, strengthening the quality of health spending, especially through equitable distribution of facilities in rural areas and strengthening preventive-promotional systems, must be a top priority in regional planning documents. Without healthy human capital, government investment in other economic sectors will not reach its maximum potential in breaking the chain of structural poverty in Indonesia.

Structural Failures of Urban Economic Spending

One of the most critical findings in this study is the existence of fiscal anomalies in the economic spending function in urban areas. Contrary to the initial hypothesis and assumptions of conventional public finance theory, the regression results show that economic spending has a significant positive relationship with urban poverty rates ($\beta = +0.318$; $p = 0.002$). This means that every 1% increase in the allocation of economic expenditure in urban areas is actually accompanied by an increase in the poverty rate of 0.318%. This phenomenon reveals a structural failure in the transmission of regional economic policies in the urban environment.

There are three main arguments that explain why the increase in the economic budget fails to reduce poverty in the city. First, the problem of targeting error. Economic programs financed by the State Budget—such as trade subsidies or capital assistance—are often more enjoyed by upper-middle-class groups or the formal sector with better access to information. As found in the literature, most of the benefits of subsidies in Indonesia often do not reach the poor; An extreme example is fuel subsidies where a large percentage of the benefits are absorbed by more affluent households (Alamanda, 2020; Anderson et al., 2018).

Second, the complexity of the urban poverty structure. The urban poor are dominated by informal sector actors with high mobility barriers and a very high cost of living. Uniformly designed economic policies (one-size-fits-all) often fail to address the specific needs of the urban poor who need programs to lower the cost of informal transactions, rather than just macro stimuli that benefit only the main growth centers. Increasing economic spending allocated to capital-intensive projects in urban centers without a real trickle-down effect can actually widen inequality and increase poverty rates in suburban areas (Masduki et al., 2022).

Third, the emergence of indications of reverse causality in regional fiscal dynamics. This positive relationship can be interpreted as that local governments that face the pressure of high urban poverty rates tend to respond reactively by increasing the allocation of economic spending. However, if the increase in the budget is not accompanied by an improvement in the quality of spending—namely the accuracy of priorities, accountability, and effectiveness of implementation—then the nominal increase in the budget will only become a fiscal burden without having a real impact on welfare (Masduki et al., 2022).

These findings unequivocally confirm the existence of extreme spatial heterogeneity, as significant adverse economic spending variables in these cities were found to have no significant influence in rural areas ($p = 0.457$). This has urgent policy implications: local governments in urban areas should not simply pursue the quantity of economic budget allocation, but should reorient programs more specifically on strengthening the competitiveness of the informal sector and protecting vulnerable urban workers in order to break this chain of fiscal anomalies.

Examining the 'Social Protection Trap'

Another crucial finding that challenges the initial hypothesis in this study is the existence of a significant positive correlation between Social Protection Spending and poverty rates in urban areas ($\beta = +0.481$; $p = 0.037$). These results show that every 1% increase in the allocation of social protection spending in urban areas is followed by an increase in the poverty rate of 0.481%. The findings are in contrast to the theoretical assumption that increased social protection spending should contribute to poverty reduction. Therefore, these results indicate that the effectiveness of social protection in urban areas is determined not only by the size of the budget, but also by the quality of program design, the accuracy of the targets, and the socioeconomic characteristics of the beneficiary communities.

One of the explanations that can be used is the phenomenon of social protection traps. Social assistance programs that are oriented towards meeting short-term consumption needs, but are not followed by a clear empowerment strategy or exit strategy, have the potential to maintain poor households in a state of dependence on aid. In the context of urban areas that have a highly competitive labor market and are dominated by the informal sector, this condition can reduce the incentive to switch to more productive work if the benefits of assistance are perceived more definitively than uncertain income (Rahman et al., 2024). Thus, social protection that is not integrated with economic capacity building risks failing to drive mobility out of poverty.

In addition, the effectiveness of social protection spending is also greatly influenced by the accuracy of targeting beneficiaries. The high mobility of the population in urban areas causes changes in socio-economic conditions to take place faster than the process of updating the poverty database. As a result, there is still a risk of inclusion error and exclusion error, so that some poor households have not received assistance, while relatively more affluent groups continue to benefit. This problem causes an increase in budget allocation not necessarily to be followed by a real reduction in poverty because the benefits of the program are not fully received by the most needy groups (Alamanda, 2020).

On the other hand, the positive relationships found can also be explained through the perspective of reverse causality. Areas that experience an increase in poverty tend to respond by increasing the allocation of social protection spending as a form of local government intervention. Thus, the positive relationship that emerges in the estimation results does not necessarily indicate that social protection spending causes poverty to increase, but may reflect the fiscal response to the worsening of poverty conditions itself.

This phenomenon shows the existence of spatial heterogeneity in the effectiveness of government spending. In contrast to urban areas, social protection spending in rural areas did not show a statistically significant effect ($p = 0.167$). These findings indicate that the more dynamic characteristics of urban poverty require a more adaptive approach to social protection, not only oriented towards the provision of consumptive assistance, but also integrated with upskilling programs, expanding employment opportunities, and economic empowerment in order to be able to push poor households out of aid dependency in a sustainable manner.

Community-Based Tourism: Rural Inclusive Weapons

The findings that exceeded the initial expectations in this study were the effectiveness of Tourism and Cultural Spending in reducing poverty in rural areas. The results of the

estimation showed a significant negative influence, where every 1% increase in budget allocation in this function correlated with a decrease in the rural poverty rate of 0.267% ($p = 0.008$). This makes the tourism and cultural sectors one of the most reliable fiscal instruments in rural areas, amid the insignificance of the general economic spending function in the region.

Theoretically, this success confirms the massive multiplier effect of community-based tourism development. In contrast to large, capital-intensive industrial investments, tourism and cultural spending in rural areas—such as the development of tourist villages, the preservation of cultural sites, and the facilitation of local festivals—has a very strong correlation with the grassroots economic base. The transmission line works through the creation of local jobs for village youth and stimulation of culinary, handicraft, and homestay MSME units managed directly by the local poor. Therefore, the policy implication for local governments is the need to strengthen the quality of tourism spending that focuses on the community empowerment model. Poverty alleviation strategies in rural areas should not only rely on the primary agricultural sector, but must begin to integrate cultural preservation and tourist attractions as pillars of village economic independence.

These findings are in line with the concept put forward by Scheyvens (2007), who emphasizes that tourism can be an inclusive economic driver if it is able to empower local communities economically and socially. The effectiveness of this sector in rural areas reflects that natural and cultural assets are the main capital owned by rural areas to compensate for the limitations of industrial infrastructure. Through proper budget interventions, local governments have succeeded in converting this passive potential into a sustainable source of income that directly touches poor rural households.

Spatially, this phenomenon again shows a sharp heterogeneity, as tourism spending in urban areas was found to have no significant influence on poverty ($p = 0.183$). The insignificance in the city indicates that in urban environments already saturated with modern service industries, local government tourism programs are often out-of-competition or not designed to absorb workers from the bottom group. In contrast, in villages, tourism acts as a "weapon" of the new economy that is more responsive and contextual than conventional economic programs.

CONCLUSION

This study has succeeded in proving the existence of extreme spatial heterogeneity in the effectiveness of local government spending on poverty alleviation in Indonesia during the period 2015–2024. Key findings suggest that effective fiscal instruments in one region do not necessarily deliver the same results in another, which is underscored by very high rho values (above 95%), where poverty variations are determined more by interprovincial structural characteristics than by time changes.

In urban areas, strengthening bureaucratic capacity through public service spending has proven to be the main weapon in reducing poverty, followed by health spending. On the other hand, significant fiscal anomalies were found in economic spending and social protection in urban areas, where budget increases correlated with increases in poverty. This indicates the existence of targeting errors, implementation inefficiencies, and the potential phenomenon of social protection traps in complex urban environments.

In rural areas, health spending has twice as much leverage as in urban areas in reducing poverty, reflecting the crucial access to basic services in remote areas. In addition, tourism and cultural spending emerged as an effective driver of an inclusive economy in villages, while spending on economic functions and social protection was found to have no statistically significant influence.

IMPLICATIONS

Based on these findings, this study formulates several strategic recommendations for central and local governments:

1. **Fiscal Strategy Differentiation (Not One-Size-Fits-All):** Local governments must prepare contextual APBD allocations. In urban areas, the main focus should be directed towards governance reforms (public services) to ensure bureaucratic efficiency, while in rural areas, priority should be given to equitable distribution of health facilities and infrastructure supporting community tourism.
2. **Evaluation and Reorientation of Urban Economy Programs:** Given the anomalies in urban areas, the government needs to conduct a thorough audit of the quality of expenditure on economic functions. The program must be reoriented from capital-intensive projects to strengthening the competitiveness of the informal sector and reducing economic transaction costs for the urban poor.
3. **Strengthening Social Protection Exit Strategies:** To break the chain of dependence on aid in urban areas, social protection programs must be integrated with economic

empowerment schemes and job skills enhancement so that beneficiaries have an independent exit from the poverty line.

4. Optimizing Village Tourism as a Multiplier Effect: The provincial government needs to expand investment in the culture-based tourism sector in rural areas as an instrument of local job creation that has proven to be more effective than conventional economic spending in rural areas.

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