

The Impact of Priority Sector Spending on Inclusive Economic Growth in East Java

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ABSTRACT

Inclusive economic growth serves as a strategic regional agenda to accelerate equitable prosperity and mitigate inequality. Despite East Java Province being the second-largest contributor to Indonesia's GDP in 2024 (14.39%), this achievement is not yet commensurate with its inclusive growth performance, which remains ranked 11th nationally with an IPEI score of 6.66. This disparity highlights a paradox of growth, where high economic expansion has yet to guarantee optimal welfare distribution. Consequently, this study evaluates the effectiveness of fiscal policy—specifically sectoral budget allocations for education, health, and infrastructure—across 38 regencies and municipalities in East Java from 2014 to 2024. Utilizing secondary data from the DJPK and Bappenas, the analysis employs a dynamic panel data regression model via STATA 17. The findings confirm that education and health expenditures exert a positive and significant impact on inclusive economic growth in both the short and long run. Conversely, infrastructure spending only yields a significant positive effect in the long run, suggesting a notable gestation period before physical capital investments fully materialize into inclusive outcomes.

Keywords: *inclusive economic growth; education expenditure; health expenditure; infrastructure expenditure; dynamic panel data*

Pengaruh Belanja Sektor Prioritas terhadap Pertumbuhan Ekonomi Inklusif di Jawa Timur

ABSTRAK

Pertumbuhan ekonomi inklusif merupakan agenda strategis daerah untuk mengakselerasi pemerataan kesejahteraan dan menekan angka ketimpangan. Meskipun Provinsi Jawa Timur tercatat sebagai penyumbang PDRB terbesar kedua di Indonesia pada tahun 2024 (14,39%), pencapaian tersebut belum berbanding lurus dengan indeks inklusivitas ekonominya, yang masih menempati peringkat ke-11 nasional dengan skor IPEI 6,66. Disparitas ini merepresentasikan fenomena *paradox of growth*, di mana pertumbuhan ekonomi yang tinggi belum sepenuhnya menjamin pemerataan kesejahteraan yang optimal bagi masyarakat. Menanggapi permasalahan tersebut, penelitian ini mengevaluasi efektivitas kebijakan fiskal melalui alokasi belanja pada sektor pendidikan, kesehatan, dan infrastruktur di 38 kabupaten/kota di Provinsi Jawa Timur selama periode 2014–2024. Dengan menggunakan data sekunder dari DJPK dan Bappenas, analisis dilakukan melalui regresi data panel dinamis dengan perangkat lunak STATA 17. Hasil riset mengonfirmasi bahwa belanja pendidikan dan kesehatan berpengaruh positif dan signifikan terhadap pertumbuhan ekonomi inklusif, baik dalam jangka pendek maupun panjang. Berbeda halnya dengan belanja infrastruktur, yang

memerlukan waktu lebih lama (*gestation period*) untuk memberikan dampak signifikan, yakni hanya pada periode jangka panjang.

Kata Kunci: pertumbuhan ekonomi inklusif; belanja pendidikan; belanja kesehatan; belanja infrastruktur; data panel dinamis

INTRODUCTION

Inclusive economic growth has become an important development objective because economic expansion alone does not necessarily lead to equitable welfare improvements (Safitri, 2021). Although East Java contributed 14.39% to Indonesia's Gross Regional Domestic Product (GRDP) in 2024, ranking as the second-largest contributor to the national economy, disparities in development outcomes remain evident across districts and municipalities (BPS, 2025). According to the Inclusive Economic Development Index (IEDI), East Java ranked 11th nationally with a score of 6.66, while substantial variations were observed among local governments (Bapennas, 2025). These conditions indicate that strong economic performance has not been fully accompanied by inclusive development.

Government expenditure is widely recognized as an important policy instrument for promoting inclusive economic growth. In particular, spending on education, health, and infrastructure is expected to enhance the quality of human capital, expand access to public services, and reduce regional disparities. Consequently, the effectiveness of public expenditure allocation is instrumental in guaranteeing that economic growth benefits a broader segment of society. Existing literature presents divergent conclusions regarding the impact of government spending on inclusive economic growth. Several studies found that education, health, and infrastructure expenditures positively contribute to inclusive development (Afriyana et al., 2023), while others reported insignificant or inconsistent effects (Ilyas & Prasetya, 2023). These divergent findings suggest that the effectiveness of government spending may vary depending on regional characteristics, institutional capacity, and the analytical approach employed.

Despite extensive research on public expenditure and inclusive economic growth, several limitations remain. Most existing studies rely on static panel data models and relatively short observation periods, which may not adequately capture the dynamic effects of fiscal policy (Faizin & Prabowo, 2022). Empirical evidence at the district and municipal levels in East Java also remains limited despite the province's strategic economic role and persistent regional disparities. To bridge these gaps in the existing literature, this study examines the impact of education, health, and infrastructure expenditures on inclusive economic growth across 38 districts and municipalities in East Java during 2014–2024. In contrast to earlier research, the present study utilizes a dynamic panel data model estimated through the Generalized Method of Moments (GMM), allowing both short-run and long-run effects of public expenditure to be

identified. The findings are expected to contribute to the literature on inclusive economic growth and provide policy recommendations for regional fiscal management.

METHODS

Research Design and Data Sources

This study adopts a quantitative research design, utilizing a secondary panel dataset covering 38 regencies and municipalities in East Java Province spanning the 2014–2024 period. Data on the Inclusive Economic Development Index (IEDI) were obtained from the Ministry of National Development Planning (Bappenas), while data on education, health, and infrastructure expenditures were collected from the Directorate General of Fiscal Balance (DJPK). All analyses were conducted using Stata 17 software.

Research Variables and Model Specification

The dependent variable is inclusive economic growth, proxied by the Inclusive Economic Development Index (IEDI). The independent variables consist of education expenditure, health expenditure, and infrastructure expenditure. To improve data comparability and reduce heteroscedasticity, all expenditure variables were transformed into natural logarithms (Ln).

The dynamic panel regression model is specified as follows:

$$ipei_{it} = \delta ipei_{i,t-1} + \beta_1 \ln bpend_{it} + \beta_2 \ln bkkes_{it} + \beta_3 \ln binfra_{it} + \varepsilon_{it}$$

where (IPEI) denotes the Inclusive Economic Development Index, ($\ln bpend$) represents education expenditure, ($\ln bkkes$) represents health expenditure, and ($\ln binfra$) represents infrastructure expenditure.

Estimation Technique

This study applies the First-Difference Generalized Method of Moments (FD-GMM) developed by Arellano and Bond (1991) to address potential endogeneity and dynamic panel bias. Model validity was evaluated using the Arellano-Bond autocorrelation test, the Sargan-Hansen overidentification test, and an unbiasedness test, which verifies that the GMM lag coefficient falls between the Fixed Effect and Pooled Least Squares estimates. Hypothesis testing is conducted using the Wald test to assess joint significance and the Z-test to evaluate individual parameter significance.

RESULTS AND DISCUSSION

Model Specification and Estimation

To identify the most reliable dynamic panel estimator, this study compares the estimation outcomes of the First-Difference Generalized Method of Moments (FD-GMM) and the System GMM (SYS-GMM) approaches. The estimation outcomes of both models, along with their corresponding diagnostic tests, are presented in [Table 1](#).

Table 1. Comparative Results of Dynamic Panel Estimations

Diagnostic Tests	FD-GMM	SYS-GMM
Arellano-Bond Test		
m(1) Statistic	-3,88	-4,82
m(1) p-value	0,000	0,000
m(2) Statistic	-0,50	0,84
m(2) p-value	0,615	0,399
Sargan-Hansen Test		
Statistic	4,89	19,21
p-value	0,299	0,014
Unbiasedness Check		
FEM	0,7713	0,7713
Lag Coefficient (L1.ipei)	0,9428	0,8734
PLS	0,9556	0,9556

Both estimation techniques effectively address the issue of second-order serial autocorrelation, as indicated by the Arellano–Bond m(2) test, with p-values exceeding the 0.05 significance level. Nevertheless, a notable difference emerges in the results of the Sargan–Hansen overidentification test. The FD-GMM model produces a p-value of 0.299, suggesting that the instruments used are valid and exogenous in nature (Arellano & Bond, 1991). In contrast, the SYS-GMM specification fails this diagnostic test, as reflected by a p-value of 0.014, implying that its overidentifying restrictions are not valid.

In addition, the lagged coefficient from the FD-GMM model (0.9428) meets the expected consistency condition, as it lies between the Fixed Effects lower bound estimate (0.7713) and the upper bound provided by the Pooled OLS estimator (0.9556). Based on these diagnostic results, the FD-GMM specification is considered more robust and is therefore selected as the preferred model for economic interpretation. Finally, the FD-GMM model is selected and used as the basis for the model interpretation.

Before interpreting the estimated coefficients, several diagnostic tests were conducted to assess the validity and reliability of the dynamic panel model. The estimation results obtained using the First-Difference Generalized Method of Moments (FD-GMM), along with the corresponding specification tests, are presented in Table 2.

Table 2. FD-GMM Estimation Results

Ipei	Short Run			Long Run		
	Coefficient	Z	p-value	Coefficient	Z	p-value
L1.ipei	0,9427978	12,83	0,000			
lnbpend	0,5962097	4,51	0,000	0,5388138	3,01	0,003
lnbkes	0,1432061	3,81	0,000	0,1536697	2,32	0,020
lnbinfra	0,0459848	1,69	0,091	0,1564393	2,43	0,015
Wald Test			Chi2(4)	249,58		
			p-value	0,000		

The FD-GMM estimation results provide a robust empirical basis for hypothesis testing at the 5% significance level ($\alpha = 0.05$). The Wald test yields a p-value of 0.000 (< 0.05), leading to the rejection of the null hypothesis (H_0) and confirming that all independent variables jointly affect inclusive economic growth. In the short-run analysis, H_0 for education and health expenditures is rejected (p-values = 0.000 < 0.05), indicating significant positive impacts. Conversely, H_0 for short-run infrastructure spending is accepted, as its p-value (0.091) exceeds 0.05. However, in the long-run estimation, the p-values for all three priority sectors, education (0.003), health (0.020), and infrastructure (0.015) are well below the 0.05 threshold. Consequently, H_0 is firmly rejected for all sectors in the long run, confirming their significant and positive contributions over time. Based on the estimation results, the short-run and long-run relationships among the variables are derived from the estimated model.

Short Run:

$$ipei_{it} = 0,9428ipei_{i,t-1} + 0,5962lnbpend_{it} + 0,1432lnbkes_{it} + 0,046lnbinfra_{it}$$

Long Run:

$$ipei_{it} = 0,5388lnbpend_{it} + 0,1537lnbkes_{it} + 0,1564lnbinfra_{it}$$

The Effect of Education Expenditure on Inclusive Economic Growth

The estimation results presented in Table 1 indicate that education expenditure has a positive and statistically significant effect on inclusive economic growth in both the short run (p-value = 0.000) and the long run (p-value = 0.003). These results imply that expanding fiscal allocations for the education sector promotes inclusive economic growth through wider service accessibility and human capital development. In the short term, programs such as educational assistance and scholarship schemes help reduce the financial burden faced by households, particularly those in lower-income groups. Over time, education expenditure functions as an investment in human capital that strengthens labor productivity and expands economic opportunities. These findings are consistent with the human capital theory proposed by [Schultz \(1961\)](#), which emphasizes the role of education in promoting long-term economic development and improving social welfare.

The Effect of Health Expenditure on Inclusive Economic Growth

The results further reveal that health expenditure positively and significantly influences inclusive economic growth. The effect is statistically significant in both the short run (p-value = 0.000) and the long run (p-value = 0.020). This finding indicates that increased spending on health services contributes to better health outcomes, higher labor productivity, and improved welfare among the population. Public investment in healthcare also helps reduce the financial risks associated with medical expenses,

particularly for vulnerable groups. As a result, individuals are able to participate more effectively in economic activities, thereby supporting a more inclusive pattern of growth. This finding supports the endogenous growth framework proposed by Barro (1990), which highlights the importance of health as a key component of productive human capital.

The Effect of Infrastructure Expenditure on Inclusive Economic Growth

A notable finding of this study relates to the role of infrastructure expenditure. The estimation results show that infrastructure spending does not have a statistically significant effect on inclusive economic growth in the short run (p -value = 0.091). However, the variable becomes positive and significant in the long run (p -value = 0.015), with a long-run coefficient of 0.1564. This result suggests that the benefits of infrastructure investment require time to materialize, reflecting the gestation period commonly associated with physical capital development (Afriyana et al., 2023, Nurmainah 2013). During the initial stages, a substantial portion of infrastructure expenditure is allocated to planning, procurement, land acquisition, and construction activities, limiting its immediate economic impact. The benefits become more evident after project completion, when improved connectivity and accessibility facilitate economic activities, reduce transportation and logistics costs, and support more balanced regional development. Consequently, infrastructure investment contributes to inclusive economic growth primarily through its long-term effects.

The Simultaneous Effect of Priority Sector Expenditures

The Wald test produced a statistic of 249.58 with a probability value of 0.000, indicating that education, health, and infrastructure expenditures jointly exert a significant influence on inclusive economic growth in East Java. This finding demonstrates that public expenditure across priority sectors plays a complementary role in promoting inclusive development. Investments in infrastructure improve accessibility and economic connectivity, while expenditures on education and health strengthen human capital quality. Therefore, the success of regional development policies hinges not merely on the allocation of resources to individual sectors but also on the coordination of investments across multiple sectors. A balanced allocation of expenditure among education, health, and infrastructure is essential for achieving sustainable and inclusive economic growth.

CONCLUSION

This study investigates the impact of education, health, and infrastructure expenditures on inclusive economic growth across 38 regencies and municipalities in East Java during the period 2014–2024 using the First-Difference Generalized Method of

Moments (FD-GMM) approach. The results suggest that education and health expenditures exert a positive and statistically significant effect on inclusive economic growth in both the short and long run, emphasizing the importance of human capital development in promoting more equitable economic outcomes. On the other hand, infrastructure spending exhibits no significant short-term influence on inclusive economic growth; however, it exerts a positive and significant effect over the long term, indicating that the benefits of physical capital development take time to be fully realized. Furthermore, the Wald test confirms that education, health, and infrastructure expenditures jointly influence inclusive economic growth in East Java. These findings contribute to the literature on inclusive economic growth by providing empirical evidence from a dynamic panel data framework and demonstrating the different temporal effects of public expenditure on regional development outcomes.

The findings imply that regional governments should maintain a balanced allocation of expenditure across priority sectors while improving the effectiveness and quality of public spending. Investments in education and health should continue to be strengthened to enhance human capital, while infrastructure development should be implemented consistently to support long-term economic inclusion. For a more comprehensive grasp of inclusive economic growth, future investigations should integrate additional determinants into the model, specifically foreign and domestic investments, alongside labor market indicators. Further studies may also distinguish between categories of government expenditure and consider external shocks, such as the Covid-19 pandemic, to obtain deeper insights into regional development dynamics.

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