

FISCAL CAPACITY AND INCLUSIVE ECONOMIC GROWTH: EVIDENCE FROM EAST KALIMANTAN

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Abstract

This study examines the relationship between fiscal capacity and inclusive economic growth in East Kalimantan, a resource-rich province in Indonesia undergoing a gradual transition away from dependence on non-renewable natural resource revenue. Using an annual panel dataset covering 10 regencies/cities over a 10-year period (100 observations), the study employs a fixed-effects panel regression model to control for unobserved, time-invariant regional heterogeneity, while cluster-robust standard errors are used to address heteroskedasticity and serial correlation within regions. Three dimensions of regional fiscal capacity are examined: fiscal independence, fiscal dependence, and capital expenditure. The empirical results show that neither fiscal independence (coefficient = 13.05; $p > 0.10$) nor fiscal dependence (coefficient = 4.90; $p > 0.10$) has a statistically significant association with economic growth. In contrast, capital expenditure exhibits a positive and statistically significant effect on growth (coefficient = 2.94; $p < 0.05$). These findings indicate that the composition of regional revenue alone is insufficient to explain differences in regional economic performance. Rather, it is the productive allocation and effective execution of public expenditure, particularly capital spending on infrastructure and productive assets, that plays the more decisive role in fostering sustainable and inclusive economic development in resource-dependent regions such as East Kalimantan. The study offers policy implications for strengthening capital budget planning and execution as fiscal decentralization matures.

Keywords: fiscal capacity, fiscal independence, fiscal dependence, capital expenditure, inclusive economic growth

Introduction

Fiscal decentralization has been one of the most far-reaching policy reforms in Indonesia since 2001, transferring substantial revenue and expenditure authority from the central government to regional governments. The underlying premise of decentralization is that local governments, being closer to their constituents, are better positioned to allocate public resources efficiently and to design fiscal policy that responds to local needs, thereby accelerating regional economic growth and reducing regional disparities (Bahl & Bird, 2018). More than two decades after its implementation, however, the empirical evidence on whether greater regional fiscal capacity actually translates into faster and more inclusive economic growth remains mixed.

East Kalimantan presents a particularly relevant setting in which to examine this question. As one of Indonesia's principal coal- and energy-producing provinces, the region has historically enjoyed relatively high per-capita fiscal transfers derived from natural resource revenue sharing. Yet this resource-based fiscal capacity has not been uniformly translated into broad-based, inclusive growth, several regencies within the province continue to exhibit uneven infrastructure development and persistent disparities in human development outcomes. The planned relocation of Indonesia's national capital (Ibu Kota Nusantara) to East Kalimantan further raises the stakes for understanding how regional fiscal capacity should be structured and deployed going forward.

This study distinguishes between three components of regional fiscal capacity that are conceptually and practically distinct: fiscal independence (the extent to which a region generates revenue from its own local sources), fiscal dependence (the extent to which a region relies on central government transfers), and capital expenditure (the portion of the regional budget devoted to infrastructure and productive public assets). While fiscal independence and fiscal dependence describe the composition of a region's revenue base, capital expenditure describes how resources regardless of their source are actually deployed. Disentangling these dimensions is important because policy discussions on decentralization often

conflate revenue autonomy with development outcomes, without adequately accounting for the quality and productivity of spending itself.

Accordingly, this study aims to: (1) examine the effect of fiscal independence on economic growth across regencies/cities in East Kalimantan; (2) examine the effect of fiscal dependence on economic growth; and (3) examine the effect of capital expenditure on economic growth. The findings are intended to contribute to the broader literature on fiscal decentralization in resource-rich developing regions and to inform regional budget planning as East Kalimantan enters a new phase of development.

Literature Review and Hypothesis Development

The theoretical link between fiscal decentralization and economic growth is generally traced to the fiscal federalism literature, which argues that assigning revenue and expenditure functions to the level of government best informed about local preferences improves allocative efficiency (Oates, 1972). Empirically, however, cross-country and sub-national studies have produced inconsistent results: some find that greater local revenue autonomy is associated with higher growth (Rodríguez-Pose & Krøijer, 2009), while others find no significant relationship, or even a negative one, particularly where local administrative capacity is weak or where transfers are not well targeted (Baskaran, Feld, & Schnellenbach, 2016).

Fiscal dependence, commonly measured as the share of central government transfers in total regional revenue, is often treated as a proxy for limited local revenue capacity. A high degree of dependence is sometimes associated with softer budget constraints and weaker incentives for efficient spending (Rodden, 2002), which could dampen the growth-enhancing effect of public expenditure. At the same time, in developing regions with a narrow local tax base, transfers may be the primary and sometimes the only source of financing for essential public investment, in which case fiscal dependence need not be growth-retarding.

A separate strand of the literature emphasizes the composition of expenditure rather than the composition of revenue. Capital expenditure, which finances infrastructure, equipment, and other productive public assets, is widely regarded in the public finance literature as more growth-enhancing than routine or administrative spending, because it directly expands the region's productive capacity and can crowd in private investment (Bom & Ligthart, 2014). Based on this reasoning, the study proposes the following hypotheses:

H1: Fiscal independence has no significant effect on economic growth in East Kalimantan.

H2: Fiscal dependence has no significant effect on economic growth in East Kalimantan.

H3: Capital expenditure has a positive and significant effect on economic growth in East Kalimantan.

Research Methods

This study uses a strongly balanced panel covering all 10 regencies/cities in East Kalimantan Province Samarinda, Balikpapan, Bontang, Berau, Kutai Barat, Kutai Kartanegara, Kutai Timur, Mahakam Ulu, Paser, and Penajam Paser Utara observed annually from 2015 to 2024, yielding 100 region-year observations. Data on regional revenue, transfers, and capital expenditure are drawn from regional government budget realization reports (Laporan Realisasi Anggaran), while data on regional economic growth are drawn from the real Gross Regional Domestic Product (GRDP) growth rate published by the regional statistics agency (BPS).

The dependent variable is annual real GRDP growth (*econ_growth*, in percent). The independent variables are: (1) fiscal independence (*fisc_indep*), measured as the ratio of locally-generated revenue (Pendapatan Asli Daerah) to total regional revenue; (2) fiscal dependence (*fisc_dep*), measured as the ratio of central government transfers to total regional revenue; and (3) capital expenditure (*ln_capex*), measured as the natural logarithm of real capital expenditure (*cap_exp*, in billion Rupiah). The capital expenditure variable is log-transformed prior to estimation to reduce right-skewness in its distribution.

The empirical model is specified as follows (Eq. 1):

$$econ_growth_{it} = \beta_0 + \beta_1 fisc_indep_{it} + \beta_2 fisc_dep_{it} + \beta_3 ln_capex_{it} + \mu_i + \varepsilon_{it}$$

where *econ_growth* denotes real GRDP growth for region *i* in year *t*; *fisc_indep* is the fiscal independence ratio; *fisc_dep* is the fiscal dependency ratio; *ln_capex* is log capital expenditure; μ_i captures unobserved,

time-invariant regional heterogeneity, removed via the within (fixed-effects) transformation and ϵ_{it} is the idiosyncratic error term.

A Hausman specification test was conducted to choose between the fixed-effects and random-effects estimators. The test statistic was $\chi^2(3) = 3.26$ ($p = 0.3534$), which fails to reject the null hypothesis of no systematic difference between the fixed- and random-effects coefficients, nominally favoring the random-effects specification. However, given the small number of cross-sectional units (10 regions), the well-documented low power of the Hausman test in such small-N panels, and strong theoretical grounds for expecting time-invariant, region-specific heterogeneity correlated with the regressors such as differences in natural resource endowment, geographic remoteness, and administrative capacity across regencies/cities in East Kalimantan this study retains the fixed-effects specification as its main model. This choice is further supported by a significant F test that all fixed effects are jointly equal to zero ($F(9,87) = 2.42$; $p = 0.0169$), indicating that unobserved regional heterogeneity is empirically relevant and should not be assumed away. In addition, a modified Wald test indicated the presence of groupwise heteroskedasticity ($\chi^2(10) = 394.07$; $p = 0.000$), and a Wooldridge test indicated first-order autocorrelation within regions ($F(1,9) = 5.255$; $p = 0.0476$). To address both issues simultaneously, all standard errors in the final model are clustered at the regency/city level.

Results and Discussion

Descriptive Statistics

Table 1 presents the descriptive statistics for the variables used in the analysis, computed directly from Stata's summarize output. On average, the sampled regencies/cities recorded real GRDP growth of approximately 3.07 percent per year over 2015-2024, but with a large standard deviation (5.28) and a wide range (from -7.17 percent in Kutai Kartanegara in 2015 to 30.68 percent in Penajam Paser Utara in 2024), reflecting East Kalimantan's continued exposure to commodity price cycles and, in the case of the extreme positive outliers, the onset of infrastructure spending associated with the relocation of Indonesia's national capital (IKN) to the province.

Variable	Mean	Std. Dev.	Min	Max	N
Economic growth (%)	3.0716	5.2803	-7.17	30.68	100
Fiscal independence ratio	0.1098	0.0768	0.0095	0.3314	100
Fiscal dependency ratio	0.7262	0.1192	0.2691	1.0621	100
Capital expenditure (Rp billion)	930.37	910.04	217.83	5,315.45	100
Log capital expenditure (ln_capex)	6.5495	0.7089	5.3837	8.5784	100

Note: Fiscal dependency ratio exceeding 1.0 for a small number of region-years reflects cases where transfer revenue realization exceeded total realized regional revenue reported for that year. Log capital expenditure statistics computed by the author from the underlying cap_exp series. Source: Stata output (summarize), processed from fiscal_capacity.dta, 2026.

Regression Results

Table 2 presents the final fixed-effects panel regression results with standard errors clustered at the regency/city level (10 clusters), estimated via xtreg with the fe and vce(cluster region_id) options. The model as a whole is jointly significant at the 10 percent level ($F(3,9) = 3.78$; $p = 0.0527$), and the within R-squared of 0.1185 indicates that the three fiscal variables explain approximately 11.9 percent of within-region variation in economic growth over time.

Variable	Coefficient	Cluster-robust S.E.	t	p-value
Fiscal independence ratio	13.0514	16.7638	0.78	0.456
Fiscal dependency ratio	4.9046	5.7454	0.85	0.415
Log capital expenditure (ln_capex)	2.9396**	0.9842	2.99	0.015
Constant	-21.1755**	9.0867	-2.33	0.045
Observations	100			
Number of regions (groups)	10			
Within R-squared	0.1185			
F(3,9)	3.78*			Prob > F = 0.0527

Note: * $p < 0.10$, ** $p < 0.05$. Standard errors clustered at the regency/city level (10 clusters). Estimated using xtreg econ_growth fisc_indep fisc_dep ln_capex, fe vce(cluster region_id) in Stata. Source: Author's Stata output, processed from fiscal_capacity.dta, 2026.

Discussion

The coefficient on the fiscal independence ratio is positive but not statistically significant at conventional levels (coefficient = 13.05; cluster-robust S.E. = 16.76; $t = 0.78$; $p = 0.456$), providing support for H1. The coefficient is also imprecisely estimated, with a wide 95 percent confidence interval spanning from -24.87 to 50.97, reflecting substantial variability in how strongly own-source revenue relates to growth across the ten regions. This suggests that simply increasing the share of locally-generated revenue in the regional budget does not, by itself, produce a reliably detectable effect on economic growth. One plausible explanation is that in resource-dependent regencies, own-source revenue is often derived from local levies, licensing, and service fees rather than from a broad-based productive tax structure, so that increases in fiscal independence do not necessarily reflect a stronger or more diversified local economy.

Similarly, the coefficient on the fiscal dependency ratio is positive but statistically insignificant (coefficient = 4.90; cluster-robust S.E. = 5.75; $t = 0.85$; $p = 0.415$), supporting H2. This result indicates that reliance on central government transfers is not, by itself, systematically associated with either higher or lower regional growth in this sample; what appears to matter more is how those transferred funds together with locally-generated revenue are ultimately spent.

In contrast, log capital expenditure shows a positive and statistically significant effect on growth (coefficient = 2.94; cluster-robust S.E. = 0.98; $t = 2.99$; $p = 0.015$), consistent with H3. Holding fiscal independence and dependence constant, a one percent increase in real capital expenditure is associated with an increase of approximately 0.0294 percentage points in the regional GRDP growth rate, and this effect remains significant even after correcting for heteroskedasticity and within-region autocorrelation via clustering. This finding is consistent with the broader public investment literature, which emphasizes that spending directed toward infrastructure and productive public assets tends to have a more direct and measurable impact on regional output than the composition of revenue used to finance it (Bom & Ligthart, 2014). For East Kalimantan specifically, capital expenditure on transport infrastructure, irrigation, and basic public services likely supports private-sector productivity and helps diversify economic activity away from the extractive sector a factor especially relevant given the sharp rise in capital spending observed in several regencies from 2022 onward, coinciding with the onset of infrastructure development for the relocation of Indonesia's national capital (IKN) to East Kalimantan.

Taken together, the results suggest that the structure of regional fiscal capacity whether financed through own-source revenue or transfers is, on its own, insufficient to drive regional growth. What matters more for inclusive and sustainable regional development is the volume, quality, and productive orientation of public spending, particularly capital expenditure. This reframes the policy conversation from one centered narrowly on revenue autonomy toward one centered on budget execution and spending effectiveness.

Conclusion

Using a fixed-effects panel model with cluster-robust standard errors applied to a 10-region, 10-year panel of East Kalimantan regencies/cities, this study finds that neither fiscal independence nor fiscal dependence has a statistically significant effect on regional economic growth, whereas capital expenditure has a positive and significant effect. These findings suggest that policymakers in resource-dependent regions should place greater emphasis on the effectiveness and productivity of public expenditure particularly capital spending on infrastructure and productive assets rather than focusing solely on increasing the share of locally-generated revenue or reducing reliance on central transfers. Future research could extend this analysis by incorporating measures of budget execution efficiency, disaggregating capital expenditure by sector, and examining non-linearities or threshold effects in the fiscal capacity-growth relationship.

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