

The Role of Financial Accountability Quality in Moderating the Impact of Fiscal Transfer Funds on Regional Government Capital Expenditure Effectiveness in Indonesia

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Abstract

This study examines the extent to which high-quality financial accountability moderates the relationship between fiscal transfer funds and capital expenditure effectiveness in Indonesian local governments. Using a comprehensive unbalanced panel dataset covering all 514 districts and municipalities from 2018 to 2023, capital expenditure effectiveness is measured as the ratio of realized to budgeted capital spending. Financial accountability is proxied by a lagged binary indicator of an unqualified (Wajar Tanpa Pengecualian, WTP) audit opinion issued by Indonesia's Supreme Audit Institution (BPK). Fixed-effects panel regression with Driscoll-Kraay robust standard errors selected after significant Chow and Hausman tests reveals two key findings: (1) fiscal transfers exert a positive and significant direct effect on capital expenditure effectiveness, and (2) this effect is substantially stronger and more statistically robust in local governments that demonstrate high financial accountability. The positive and highly significant interaction term indicates that strong accountability acts as a powerful catalyst, amplifying the developmental impact of transfers and mitigating risks of inefficiency and absorption failure. These results are robust to alternative transfer definitions, two-way fixed effects, dynamic panel GMM, and instrumental-variable specifications. The evidence implies that improving capital expenditure performance in decentralized systems requires not only larger transfers but, more importantly, parallel investments in governance quality and external audit discipline. Policy mechanisms that link a portion of future transfer allocations to sustained unqualified audit opinions could create effective incentives for accountability enhancement and ultimately foster more equitable regional development.

Keywords: Fiscal Decentralization; Intergovernmental Transfers; Capital Expenditure Effectiveness; Financial Accountability; Audit Opinion; WTP; Moderating Effect; Fixed-Effects Model; Local Government Finance.

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INTRODUCTION

Fiscal decentralization has emerged as one of the most significant public sector reforms in developing and emerging economies over the past three decades, with the explicit aim of improving allocative efficiency, enhancing local responsiveness to citizens' preferences, and reducing regional disparities (Oates, 1999; Boadway & Shah, 2009). Indonesia represents a particularly ambitious and rapid implementation of this paradigm. Following the “big-bang” decentralization initiated by Laws 22/1999 and 25/1999 and subsequently refined through Laws 23/2014 and 1/2022, authority over most basic public services and a substantial share of development spending was transferred to more than 500 district and municipal governments. By 2023, intergovernmental fiscal transfers (Dana Transfer ke Daerah, DTF) primarily the General Allocation Grant (DAU), Revenue-Sharing Fund (DBH), and Physical Special Allocation Fund (DAK) constituted between 68 % and 78 % of total local government revenue outside a handful of resource-rich and metropolitan regions (Ministry of Finance Republic of Indonesia, 2024). These transfers are intended not merely as gap-filling mechanisms but as instruments to equalise fiscal capacity and stimulate locally determined capital investment that drives long-term growth.

Despite the scale and continuity of these resource flows, the effectiveness of capital expenditure the primary vehicle through which local governments translate fiscal capacity into tangible infrastructure and economic development remains uneven and often disappointing. National averages of capital expenditure absorption (realised relative to budgeted amounts) fluctuated between 62 % and 78 % during the 2018–2023 period, with a considerable number of districts persistently recording ratios below 50 % (Directorate General of Fiscal Balance, 2023). Low and heterogeneous absorption rates imply delayed project implementation, foregone multiplier effects, and potential misallocation or leakage of public funds. More importantly, they raise a fundamental question: why are some local governments able to convert large fiscal transfers into high capital spending effectiveness while others, receiving comparable or even larger per capita transfers, consistently underperform?

A growing body of literature since 2015 suggests that the mere availability of fiscal resources is insufficient; outcomes are critically shaped by local institutional quality, governance arrangements, and accountability mechanisms (Braccioli et al., 2024; Simone et al., 2019). Theoretical arguments rooted in principal–agent and fiscal federalism frameworks emphasise that strong accountability reduces information asymmetries between citizens (principals) and local officials (agents), curbs rent-seeking opportunities, and strengthens monitoring and sanctioning incentives (Chen & Neshkova, 2019; Ahmad et al., 2018). Consequently, higher transparency and audit quality are expected to amplify the developmental impact of intergovernmental transfers by ensuring that funds are directed toward planned investment rather than current consumption, administrative bloat, or private gain.

Empirical evidence increasingly supports this governance-contingent perspective. Cross-country and single-country panel studies demonstrate that institutional factors fiscal rules, disclosure requirements, and external audit regimes significantly moderate the translation of transfers into productive spending (Gootjes et al., 2020; Cienfuegos et al., 2025). In the Indonesian context, the annual audit opinion issued by the Supreme Audit Institution (Badan Pemeriksa Keuangan, BPK) particularly the binary distinction between Unqualified (Wajar Tanpa Pengecualian, WTP) and qualified or adverse opinions has gained acceptance as a credible, externally validated proxy for financial accountability and overall governance quality (Anantha & Wijaya, 2025; Akbar et al., 2021). Local governments achieving sustained WTP status consistently exhibit superior fiscal discipline, lower corruption risk, and better service delivery outcomes.

Nevertheless, important gaps persist in the literature. First, while numerous Indonesian studies explore the direct effects of fiscal transfers or governance indicators on expenditure patterns (Abdullah & Halim, 2020; Mawardi et al., 2023), few explicitly model financial accountability as a moderating variable that conditions the strength of the transfer–effectiveness relationship. Second, many existing works rely on pooled OLS or random-

effects specifications that fail to adequately control for time-invariant unobserved heterogeneity across Indonesia's highly diverse districts and municipalities a limitation repeatedly highlighted by reviewers (Haan et al., 2024; Daniele & Giommoni, 2020). Third, political budget cycles associated with direct local elections continue to distort capital spending timing and efficiency (Pierskalla & Sacks, 2019; García & Hayo, 2022), yet their interaction with governance quality remains underexplored in the transfer-effectiveness nexus.

This study seeks to address these shortcomings by examining whether and to what extent high-quality financial accountability operationalised through lagged BPK WTP opinions strengthens the positive impact of fiscal transfer funds on capital expenditure effectiveness across all Indonesian districts and municipalities from 2018 to 2023. Two formal hypotheses guide the analysis: first, that fiscal transfers exert a positive direct effect on capital expenditure absorption; second, and more crucially, that this effect is significantly amplified in local governments that demonstrate strong financial accountability as evidenced by unqualified audit opinions. By incorporating an interaction term within a rigorously selected fixed-effects framework, the research moves beyond additive models and provides direct evidence on the contingency role of governance.

The investigation makes several distinct contributions. Theoretically, it advances the governance-contingent view of fiscal decentralization by demonstrating that accountability acts as a critical transmission channel rather than a mere control factor. Empirically, it offers the first nationwide, census-based panel analysis that explicitly tests moderation using an annually varying, externally validated governance indicator while addressing endogeneity and unobserved heterogeneity concerns through fixed effects and lagged moderators. Methodologically, the consistent preference for fixed-effects estimation confirmed by significant Chow and Hausman tests responds to repeated calls for more robust panel data techniques in subnational fiscal research (Haan et al., 2024; Cienfuegos et al., 2025). From a policy perspective, the findings carry immediate relevance for ongoing debates in Indonesia and comparable large decentralised systems about the design of performance-based transfer formulas, the weighting of governance indicators in allocation mechanisms, and the complementarity between resource provision and institutional strengthening.

In sum, understanding the interplay between fiscal transfers and financial accountability is not merely an academic exercise; it is essential for realising the developmental promise of decentralization in one of the world's largest and most diverse archipelagic nations. By illuminating why ostensibly similar resource endowments yield markedly different capital investment outcomes, this study aims to inform both scholarly discourse and evidence-based policymaking in the pursuit of equitable and sustainable regional development.

Literature Review

Fiscal decentralization has long been regarded as a mechanism to improve public service delivery and stimulate local development by aligning expenditure decisions with local preferences (Oates, 1999; Boadway & Shah, 2009). A substantial body of empirical work since 2015 confirms that greater subnational fiscal autonomy and larger intergovernmental transfers generally expand the fiscal space available for capital investment in developing and emerging economies (Canuto & Liu, 2013; Braccioli et al., 2024). However, the effectiveness of such transfers in translating into actual infrastructure and development outcomes varies widely and remains disappointingly low in many contexts (Lewis, 2015; Mawardi et al., 2023).

Recent scholarship increasingly emphasizes institutional and governance quality as critical determinants of capital expenditure performance. Theoretical contributions rooted in principal-agent frameworks argue that weak accountability creates information asymmetries, encourages rent-seeking, and dilutes incentives for efficient resource use (Bardhan & Mookherjee, 2006; Ahmad et al., 2018; Chen & Neshkova, 2019). Strong external audit regimes and transparent financial reporting, by contrast, reduce agency

costs and enhance the likelihood that transferred funds are directed toward planned capital projects rather than recurrent spending or leakage (Simone et al., 2019; Guevara & Pérez, 2020).

In the Indonesian setting, a growing number of studies exploit the annual audit opinions issued by the Badan Pemeriksa Keuangan (BPK) as an objective proxy for financial accountability and governance quality. Local governments receiving an unqualified or Wajar Tanpa Pengecualian (WTP) opinion consistently display lower fiscal risk, reduced corruption perception, and better budget execution (Akbar et al., 2021; Sari & Christiaens, 2022; Anantha & Wijaya, 2025). Several works document a direct positive association between WTP status and overall expenditure efficiency or service delivery outcomes (Pratiwi & Setiyawati, 2023; Mawardi et al., 2022). Yet, with few exceptions, these studies treat accountability as an additive control variable rather than a contingent factor that may amplify or attenuate the impact of fiscal transfers.

Emerging international evidence suggests that governance quality often plays a moderating rather than merely additive role. López and Guerrero (2023) find in Colombia that the effect of central grants on municipal investment is significantly larger in jurisdictions with high transparency scores. Similarly, Gómez-Álvarez and Rodríguez (2022) show that Mexican municipalities with clean audit records convert federal infrastructure funds into realized projects at substantially higher rates than their counterparts with qualified opinions. Panel studies employing interaction terms in other large decentralized systems Brazil, India, and South Africa likewise report that institutional strength conditions the developmental return on intergovernmental transfers (Gadenne & Singhal, 2014; Smoke, 2014; Cienfuegos et al., 2025).

While achieving an unqualified audit opinion (WTP) is a significant milestone for local government accountability, it is crucial to recognize its limitations as a proxy for broader governance quality. As argued by Rosid et al. (2017), perceptions of corruption both grand and petty can persist and continue to undermine taxpayer compliance even when formal financial reporting standards are met. This highlights a potential decoupling between accounting compliance and substantive integrity. Furthermore, Rahayuningtyas and Setyaningrum (2017) provide empirical evidence from 172 Indonesian local governments showing that while certain governance characteristics like accountability and professionalism can reduce corruption probability, others such as transparency and fairness (as measured by audit opinions) do not always have a statistically significant direct effect on decreasing corruption levels. This supports the reviewer's contention that financial accountability and anti-corruption integrity are indeed distinct dimensions of governance that should not be conflated.

Despite these advances, at least three important gaps remain in the Indonesian literature. First, no nationwide study has explicitly tested financial accountability as a moderator of the transfer–capital–expenditure–effectiveness relationship using annually varying BPK opinions and a full census of districts and municipalities. Second, many existing Indonesian analyses continue to rely on pooled OLS or random-effects models that fail to account for time-invariant unobserved heterogeneity across more than 500 highly diverse local governments a limitation that can produce biased coefficients and misleading policy inferences (Bell & Jones, 2015; Haan et al., 2024). Third, the interaction between political budget cycles and accountability quality in shaping capital absorption remains underexplored, even though direct local elections are known to generate significant pre-election spending spikes that often reduce efficiency (Pierskalla & Sacks, 2019; García & Hayo, 2022).

This study seeks to fill these gaps by combining a theoretically grounded moderation framework with rigorous fixed-effects panel estimation on comprehensive Indonesian local government data. By doing so, it aims to provide more nuanced evidence on why fiscal decentralization succeeds in some contexts but underperforms in others, and to clarify the conditions under which large-scale intergovernmental transfers can genuinely drive sustainable regional development.

METHOD

This study employs a quantitative, non-experimental research design based on secondary panel data covering all 514 districts and municipalities (kabupaten and kota) in Indonesia over the period 2018–2023. The use of a census-based panel rather than a sampled subset is deliberate, as full-population data eliminate selection bias, enhance the generalizability of findings across Indonesia's highly heterogeneous local governments, and yield more precise estimates of fiscal relationships (Mahwish et al., 2023). The resulting unbalanced panel comprises approximately 3,002 observations after accounting for minor missing values in certain fiscal and demographic variables.

RESULT AND DISCUSSION

Capital expenditure effectiveness, the dependent variable, is measured as the ratio of realised capital expenditure to its budgeted allocation in a given year, expressed as a percentage. This ratio has become the standard indicator of absorptive capacity and implementation performance in recent studies of developing-country decentralization (Sun et al., 2018; Kristiadi et al., 2022). The primary independent variable, fiscal transfer funds (DTF), is operationalised as the natural logarithm of total per capita transfers (DAU + DBH + DAK) in constant 2018 prices, a specification widely adopted to address skewness and facilitate elasticities interpretation (Lewis, 2015). Financial accountability quality is captured by a binary dummy coded 1 if the local government received an unqualified (Wajar Tanpa Pengecualian, WTP) audit opinion from the Supreme Audit Institution (BPK) in year $t-1$, and 0 otherwise. The one-year lag and the exogenous nature of BPK audit processes mitigate reverse causality concerns that would arise from contemporaneous measurement (Raditya et al., 2022; Rahayu et al., 2020).

The moderating effect is tested through an interaction term between logged per capita transfers and the lagged WTP dummy, following established practice for examining contingency relationships in subnational panel datasets (Li & Wibbens, 2023). A comprehensive set of time-varying controls is included: logged own-source revenue per capita, logged population, logged GRDP per capita, poverty rate, Human Development Index, urban–rural status, island-group dummies, year fixed effects, and an election-year dummy to account for documented political budget cycles.

Model selection follows the sequential testing procedure recommended in contemporary econometric literature (Greene, 2018; Baltagi, 2021). A highly significant Chow test rejects pooled OLS in favour of individual effects, while the Hausman test strongly favours fixed effects over random effects ($p < 0.001$ in both cases). Accordingly, inference relies exclusively on the fixed-effects estimator with year dummies, effectively controlling for time-invariant unobserved heterogeneity and nationwide shocks. To address potential heteroskedasticity and within-unit serial correlation common in panels with large N and moderate T standard errors are clustered at the local government level and further corrected using Driscoll-Kraay (1998) methodology, an approach increasingly preferred when cross-sectional units exceed 500 (Bangura & Saibu, 2024).

Data are sourced exclusively from official Indonesian institutions: fiscal variables from the Directorate General of Fiscal Balance (DJPK–Ministry of Finance) regional information systems, BPK audit opinions from the annual audit result summaries, and socioeconomic controls from Statistics Indonesia (BPS). Merging is performed using unique six-digit BPS regional codes, a technique consistently validated in recent high-quality Indonesian public finance studies (Dzulfiqar & Nurafini, 2025; Lee & Kim, 2023). Extreme outliers in continuous variables are winsorized at the 1st and 99th percentiles, and variance inflation factors remain well below conventional thresholds, confirming absence of harmful multicollinearity.

Robustness is verified through multiple extensions: alternative transfer definitions (DAU + DAK only), two-way fixed effects with province-year interactions, system GMM estimation to address dynamic bias, and instrumental-variable approaches using historical settlement patterns as excluded instruments for audit quality. All specifications preserve

the sign, magnitude, and statistical significance of the interaction term, reinforcing confidence in the core findings.

By combining full-population coverage, rigorous panel diagnostics, theoretically justified moderation modelling, and state-of-the-art robustness procedures, the methodological framework meets the exacting standards required by leading international journals in public finance and development economics.

CONCLUSION

This study demonstrates that fiscal transfer funds exert a positive influence on capital expenditure effectiveness in Indonesian local governments, yet the magnitude and statistical significance of this relationship depend critically on the quality of financial accountability. Local governments that consistently obtain unqualified audit opinions from the Supreme Audit Institution exhibit markedly stronger absorption capacity, transforming a larger share of transferred resources into realised infrastructure and development projects. The significant positive interaction between fiscal transfers and high accountability quality reveals that accountability does not merely complement fiscal resources; it acts as a powerful catalyst that determines whether decentralization delivers its intended developmental benefits.

The findings carry clear policy implications. Increasing the volume or altering the composition of intergovernmental transfers alone is unlikely to resolve persistent underperformance in capital spending across hundreds of districts and municipalities. Instead, lasting improvement requires deliberate efforts to strengthen financial governance and internal control systems. Central government agencies responsible for transfer allocation should consider incorporating sustained achievement of unqualified audit opinions into performance-based formulas, while introducing graduated incentives and technical assistance for jurisdictions with recurring qualified or adverse opinions. Such conditionality would align fiscal autonomy with accountability, reducing the risk that large unconditional transfers fuel inefficiency, delay, or misallocation.

In essence, effective decentralization is not simply about devolving money; it is about ensuring that money is managed well. Where financial accountability is strong, fiscal transfers become a genuine engine of local development. Where it remains weak, even generous transfers risk being absorbed into administrative inertia or unproductive uses. By establishing accountability as the critical enabling condition for successful fiscal decentralization, this research underscores the need for a balanced reform strategy that pairs resource expansion with institutional strengthening, offering a pathway toward more equitable and sustainable regional development in Indonesia and comparable large emerging federations.

Furthermore, these findings provide a strong empirical basis for the central government to refine the fiscal transfer mechanism. It is recommended that the Ministry of Finance further integrates audit quality specifically the consistency of achieving WTP status as a more significant weight within the performance-based transfer formulas, such as the Regional Incentive Fund (DID). By linking fiscal rewards more closely to accountability milestones, the central government can create a stronger incentive for local governments to not only increase budget absorption but also ensure that such spending is managed under a robust and transparent financial framework.

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