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Financial sustainability of Indonesian local governments: The role of financial independence, efficiency, and solvency

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Abstract

This study aims to analyze the determinants of financial sustainability among Indonesian local governments. A fixed-effects estimation model is employed to analyze an unbalanced panel dataset covering regencies and cities from 2021 to 2023, with a total of 940 observations, The model incorporates robust standard errors and year fixed effects, complemented by a subsample analysis comparing geographical groups in Western and Eastern Indonesia. The primary findings indicate that financial efficiency and budget solvency have positive effects on local financial sustainability, whereas financial independence and service solvency do not show statistically significant effects. Furthermore, the subsample analysis reveals a structural anomaly in Eastern Indonesia, where financial independence indicates a significant negative influence. One possible explanation is that this result might possibly be a consequence of a fragile local economic base burdened by high bureaucratic costs. The study concludes that local fiscal resilience is primarily determined by internal expenditure discipline and budget solvency, rather than by revenue expansion alone. These findings highlight the need for the central government to adopt an asymmetric fiscal decentralization policy rather than a one-size-fits-all approach and highlight the imperative for local governments to strengthen budget governance based on performance and value for money principles.

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1. Introduction

Financial sustainability is the primary foundation for the implementing effective and equitable fiscal decentralization of local governments (Bisogno et al., 2017; Pandoyo, 2024). The Indonesian Constitution mandates that the management of state and local finances be conducted in a transparent and accountable manner, grounded in the principles of self-reliance and sustainability, with the ultimate goal of achieving prosperity for the people (Harun et al., 2019). Financial sustainability encompasses a local government's ability to meet short-term financial obligations, sustain long-term fiscal commitments, and maintain the quality of public services without placing an excessive burden on future generations (Bisogno et al., 2017; IFAC, 2013; Rodríguez Bolívar et al., 2018).

Strengthening the fiscal resilience and sustainability of local governments in Indonesia has become increasingly critical following the enactment of Law Number 1 of 2022 concerning Financial Relations between the Central Government and Local Governments (UU HKPD) (Lewis, 2023). This regulatory reform is designed to address structural

issues within fiscal decentralization, such as limited local fiscal capacity (Akita et al., 2021), significant disparities among regions (Siburian, 2020), and the dominance of inefficient routine expenditures (Rohmadani et al., 2024). While decentralization has been in place for over two decades, data from the Ministry of Finance for the 2021–2023 period indicate that the average contribution of locally-generated revenue (Pendapatan Asli Daerah/PAD) for regency and city governments in Indonesia remains below 15 percent.

This situation points to a low level of financial self-reliance and a heavy reliance on transfer funds from the central government (Maggara et al., 2024). Beyond the limitations in local-own revenue generation, issues regarding efficiency (Prasetyo et al., 2018) and budgetary solvency (Desdiani et al., 2022) pose serious challenges for local financial management. Local government budget allocations are frequently dominated by personnel expenditures, which are constant and rigid in nature (Lewis, 2023), thereby narrowing the fiscal space available for capital expenditure and public infrastructure development (Hutauruk, 2024). Inefficiencies in expenditure management also manifest as fluctuations in budgetary and service solvency, with some local governments experiencing operational deficits and an inability to maintain the continuity of essential public services (Caruana et al., 2019; Syahriyal et al., 2024).

Although the performance and financial condition of local governments have been extensively studied, existing literature still reveals both theoretical and empirical gaps. First, most prior studies have focused primarily on socio-demographic factors and external macroeconomic conditions, which are largely beyond the control of local governments (Brusca et al., 2015; Rodríguez Bolívar et al., 2016; Subires et al., 2019). Studies evaluating internal factors, specifically how operational efficiency and budgetary solvency influence accrual-based financial sustainability, remain limited and showed inconsistent findings (Lhutfi & Sugiharti, 2022; Wardhani & Payamta, 2020).

Second, academic debate persists regarding the extent to which financial independence can promote fiscal sustainability in developing countries, where routine expenditures often dominate local budgets and the flypaper effect remains prevalent (Lekettey et al., 2026a; Lekettey et al., 2026b; Shahzeb & Riaz, 2026). To address this gap, this study aims to analyze the determinants of financial sustainability for regency and city governments in Indonesia, focusing on a combination of internal managerial factors, specifically financial independence, financial efficiency, and budget solvency, as well as service capacity, measured through service solvency.

Previous studies have also generally been limited in geographical scope and have not fully captured structural disparities between regions, particularly the differences between Western and Eastern Indonesia following the enactment of Law No. 1 of 2022 (UU HKPD). To address this gap, this study employs a nationwide scope covering all regencies and cities in Indonesia between 2021-2023. In addition, a geographical subsample analysis is also utilized to examine whether there are structural anomalies that remained unaddressed in prior findings. By applying an accrual-based operational surplus/deficit measure adapted from Rodríguez Bolívar et al. (2016) to Indonesian regency and city governments, this study offers both theoretical and

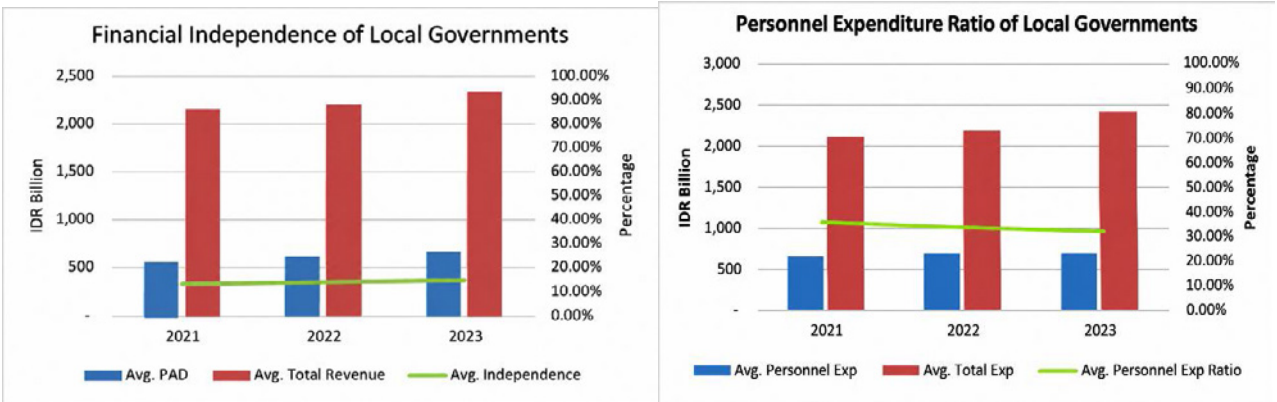


Figure 1. Financial independence and personnel expenditure ratio of local governments in Indonesia
Source: Ministry of Finance of the Republic of Indonesia (processed, 2026)

practical contributions. Theoretically, it extends the application of agency theory within the context of public finance by demonstrating the significance of managerial efficiency as a form of accountability from agents to the public. Practically, the findings are intended to serve as a strategic reference for local governments and policymakers in optimizing fiscal space following the implementation of the Law on Financial Relations between the Central Government and Local Governments.

2. Theoretical Framework and Hypotheses Development

Agency Theory

Agency theory, introduced by Jensen & Meckling (1976), can be applied to the public sector to explain the agency relationship between the public, as the principal, and local governments, as agents, following the delegation of authority to manage public finances (Winarna et al., 2021). This relationship involves conflicts of interest and information asymmetry (Panda & Leepsa, 2017), which may create opportunities for local governments to engage in opportunistic behavior, such as inefficient budget allocation or excessive reliance on operational expenditures, potentially undermining public interests. Each explanatory variable in this study reflects a specific aspect of the agent's behavioral compliance or fiduciary duty. Financial independence examines whether the agent actively optimizes local revenue sources or relies more heavily on central government transfers. Financial efficiency measures the agent's ability to control operational and personnel expenditures to expand fiscal space. Budget solvency reflects short-term fiscal discipline in preventing prolonged deficits, while service solvency serves as an important indicator of the agent's ability to maintain public service delivery and, alongside financial sustainability, provides a vital signaling mechanism.

Therefore, examining these variables is essential for assessing the extent to which the agent fulfills its fiduciary duty and maintains budgetary discipline in a transparent and accountable manner. Through accrual-based reporting of operating surpluses and the continued provision of public services, local governments demonstrate that fiscal resources are managed properly and efficiently. This approach helps ensure that current public needs are met without compromising fiscal capacity or exposing future generations to financial risks, thereby upholding intergenerational equity.

Financial Sustainability

Financial sustainability has become a central concept in public financial management, shifting the focus from traditional measures such as financial condition and fiscal distress toward a long-term perspective (López Subires & Rodríguez Bolívar, 2017). Its distinction from backward-looking indicators lies in the focus on government's ability to anticipate risks, fulfill obligations, and maintain service delivery for future generations. Financial sustainability can also be understood from multiple perspectives, for example Slembeck et al. (2014) define it as a long-term objective requiring governments to maintain sufficient surpluses to meet debt obligations. Bröthaler et al. (2015) associate it with the capacity to access financing for investment, while Brusca et al. (2015) highlight the ability to meet present and future obligations through adequate revenue sources. More comprehensively, Rodríguez Bolívar et al. (2018) define financial sustainability as the government's ability to provide current services without compromising future service capacity, encompassing the dimensions of revenue, expenditure, and debt.

This study adopts the measurement approach of Rodríguez Bolívar et al. (2016), which uses adjusted accrual-based income statements by excluding extraordinary income, as such income is non-recurring and does not reflect long-term fiscal capacity. Unlike traditional retrospective cash indicators or limited-scope debt metrics, the adjusted accrual operating surplus reflects the net result of operational activities after accounting for capital consumption, future financial obligations, and non-recurring extraordinary items. Hence, this indicator effectively reflects a local government's structural capacity to generate adequate resources, control operational costs, and meet ongoing obligations without compromising future service capacity or relying on temporary financing. This makes it a robust and forward-looking benchmark for assessing long-term financial sustainability.

Hypothesis Development

Financial independence and local government financial sustainability

Financial independence reflects a local government's ability to generate revenue from its own sources, more specifically locally-generated revenue, such as taxes and tariffs. Hence, it helps reduce excessive reliance on funds from the central

government (Abdillah & Mursinto, 2016; Ritonga, 2015). Within the framework of fiscal decentralization, greater fiscal independence strengthens a region's fiscal resilience and provides the fiscal space needed to formulate long-term public policies without being easily disrupted by external shocks (Cuadrado-Ballesteros et al., 2019; Navarro-Galera et al., 2016). This situation is consistent with empirical findings by Rohmadani et al. (2024), Syahriyal et al. (2024), and Wardhani & Payamta (2020), which indicate that fiscal independence contributes positively to long-term financial stability. Optimizing locally-generated revenue enables local governments to ensure a sustainable supply of funding for development. When a local government is capable of generating considerable revenue on its own, fiscal risks stemming from fluctuations in intergovernmental transfer funds can be minimized. Consequently, a higher level of financial independence is believed to strengthen the overall foundation for a region's long-term financial sustainability. Based on these arguments, the following hypothesis is proposed:

H_1: Financial independence positively affects financial sustainability of local governments.

Financial efficiency and local government financial sustainability

Financial efficiency refers to a local government's ability to manage resources effectively in order to reduce operational costs, particularly routine expenditures such as personnel costs, while maximizing service outputs (Ritonga et al., 2019). Inefficient budget management, characterized by a dominance of rigid routine expenditures, often constricts fiscal space and limits capital investment, which is vital for regional economic growth (Hutauruk, 2024; Ryan & Irvine, 2012). As emphasized by Wällstedt et al. (2014) and Gardini & Grossi (2018), managerial efficiency within the expenditure structure is a crucial determinant for maintaining fiscal health; effective control of operational costs expands fiscal space, thereby supporting a long-term operational surplus. Trimming less productive expenditure items allows for the reallocation of financial resources toward sectors that generate added value for the regional economy. Consequently, expenditure efficiency serves as a strategic instrument for governments to achieve a sustainable fiscal balance. Therefore, the following hypothesis is proposed:

H_2: Financial efficiency positively affects financial sustainability of local governments.

Budget solvency and local government financial sustainability

Budgetary solvency refers to a local government's short-term financial capacity to balance its revenues and expenditures within a single fiscal year, reflecting both fiscal discipline and risk management (Cuadrado-Ballesteros et al., 2019; Honadle et al., 2003). Persistent budget deficits indicate weak fiscal governance and create long-term vulnerabilities that can threaten the sustainability of local financial management (Ritonga, 2015). Empirical studies by Lhutfi & Sugiharti (2022) and Wardhani & Payamta (2020) confirm that local governments capable of maintaining budgetary solvency through mitigating prolonged deficits, possess greater fiscal resilience against future economic pressures. Maintaining a balance between realized revenues and expenditures prevents local governments from becoming dependent on detrimental short-term debt. Consequently, well-maintained budgetary solvency is believed to have a significant positive impact on financial sustainability. Based on these arguments, the following hypothesis is proposed:

H_3: Budget solvency positively affects financial sustainability of local governments.

Service solvency and local government financial sustainability

Service solvency reflects the institutional capacity of a local government to consistently provide adequate public services and maintain infrastructure investments over time (Caruana et al., 2019). Financial sustainability is fundamentally linked to the continuity of public service provision, as sound financial performance must ultimately contribute to the creation of tangible public value for society (Cuadrado-Ballesteros et al., 2019; Rodríguez Bolívar et al., 2018). As supported by Navarro-Galera et al. (2016) and Subires et al. (2019), the service dimension indicates that a local government's ability to allocate resources toward public facilities on a per capita basis reflects the effectiveness of fiscal governance in promoting intergenerational equity. The equitable and sustainable provision of public services demonstrates responsible budget management without compromising the rights of future generations. Therefore, improvements in service solvency are expected to strengthen local financial sustainability. Based on this explanation, the following hypothesis is proposed:

H_4: Service solvency positively affects financial sustainability of local governments.

3. Methodology

Design

This study is a causality study aimed at investigating the determinants of local government financial sustainability in Indonesia. The population in this study covers all regency and city governments in Indonesia from 2021 to 2023, consisting of 514 regency and city governments. Samples are selected using a purposive sampling technique with the following criteria: (1) Local governments in Indonesia that were officially registered with the Ministry of Home Affairs as of January 1, 2021; (2) Local governments in Indonesia that published financial reports for the 2021-2023 fiscal year that have been audited by Indonesian Supreme Audit Board (Badan Pengawas Keuangan: BPK); (3) Local governments that provide complete data related to dependent variables, independent variables, and control variables.

The sample selection process is reported in Table 1. Since there are local governments with incomplete information in Operational Statement and Balance Sheet, panel dataset is therefore structured as an unbalanced panel. To mitigate potential selection bias, regressions were conducted using a complete case analysis on available matched observations, resulting in a final estimation sample of 940 observations. Although the reduction in sample size is quite significant, the remaining sample still reflects an adequate geographical distribution for robust panel data estimation.

Variables

The dependent variable in this study is financial sustainability (FS), measured using the natural logarithm of the operational surplus, calculated by subtracting extraordinary income and adding extraordinary expenses, as reported in the statement of operations (Rodríguez Bolívar et al., 2016). For local governments reporting an operational surplus, the natural logarithm of the observed surplus value is used directly. For local governments reporting an operational deficit, the absolute value of the deficit is first calculated, and the natural logarithm of that value is then multiplied by −1.

The independent variables including four primary indicators: financial independence, financial efficiency, budget solvency, and service solvency. Financial independence is measured by the ratio of Locally-Generated Revenue to total revenue. Financial efficiency is measured by the ratio of total expenditures to personnel expenditures. This ratio is based on Baumol (1967), Beck & Zorn (1982), and Ritonga et al. (2019), who argue that local governments cannot offset wage growth with productivity gains, making high personnel costs a primary source of fiscal strain. A higher ratio indicates that a smaller proportion of the budget is consumed by rigid personnel expenditures, thereby reducing bureaucratic inefficiency while also creating fiscal space. Budget solvency is measured by the ratio of total revenue, excluding Special Allocation Funds (DAK), to total expenditure, excluding capital expenditure. Service solvency is measured using the natural logarithm of capital expenditure per capita. Additionally, two control variables are included: local government size, measured by the natural logarithm of total assets, and regional economic performance, measured by the natural logarithm of Gross Regional Domestic Product (GRDP). The summary of the variables is presented in Table 2.

Table 1. Sample selection process

Sample Selection Criteria	Total Potential Observations
Total regency and city governments observations (514 local governments, 3 years)	1,542
Local governments with administrative city status of which financial reports are not audited by BPK (6 administrative cities, 3 years)	-18
Available Observations	**1,524**
Local governments with incomplete/missing Operational Statement (LO) data required for Financial Sustainability calculation	-577
Final Observations for Financial Sustainability Variable	**947**
Missing observations dropped during panel regression estimation (due to missing control variable)	-7
Final Observations Used in Panel Regression Model	**940**

Table 2. Summary of variables

Variables	Acronym	Measurement	Source
Dependent:			
Local government financial sustainability	LN_FS_{it}	Natural logarithm of: FS = (SO)-(ER)+(EE) (SO): Surplus for Operational activity (ER): Extraordinary Revenues (EE): Extraordinary Expenses **When a local government has deficit, use the natural logarithm of the absolute value of deficit and then multiply it by -1*	Local government financial statement
Independent:			
Local government financial independence	FI_{it}	$FI = \frac{\text{Locally Generated Revenue}}{\text{Total Revenue}}$	Local government financial statement
Local government financial efficiency	FE_{it}	$FE = \frac{\text{Total Expenditure}}{\text{Employee Spending}}$	Local government financial statement
Local government budget solvency	BS_{it}	$BS = \frac{\text{Total Revenue} - \text{Total DAK Transfer}}{\text{Total Expenditure} - \text{Capital Expenditure}}$	Local government financial statement
Local government services solvency	LN_SS_{it}	Natural logarithm of capital expenditure per capita	Local government financial statement and Central Statistics Agency
Control:			
Local government wealth	LN_SIZE_{it}	Natural logarithm of local government total assets	Local government financial statement
Local economy	LN_REP_{it}	Natural logarithm of Gross Domestic Regional Product	Central Statistics Agency

Data Analysis

Data analysis began with a comprehensive descriptive statistical analysis of the variables, followed by correlation analysis to identify potential multicollinearity among the variables. Hypothesis testing was conducted using panel data regression with robust standard errors and year fixed effects. Additional subsample analyses were performed based on geographical classification, dividing the regions into Western Indonesia (Sumatra, Java and Bali, and Kalimantan) and Eastern Indonesia (Sulawesi and Nusa Tenggara, and Maluku and Papua). The regression model for hypothesis testing is presented as Equation 1 (Eq. 1).

$$LN_FS = a + ß_1 FI_{it} + ß_2 FE_{it} + ß_3 BS_{it} + ß_4 LN_SS_{it} + ß_5 LN_SIZE_{it} + ß_6 LN_REP_{it} \quad \text{(Eq. 1)}$$

4. Results

Descriptive Statistics

The descriptive statistics show that the average financial sustainability value is 14.19, indicating an overall operational surplus on an accrual basis. However, the wide range of values reflects substantial disparities in fiscal performance across Indonesian regions, highlighting the need for a more equitable approach to financial management. Financial independence among local governments is relatively low, with a mean value of 0.124 (12.4 percent), reflecting considerable dependence on central government transfers and the need to optimize locally generated revenue. Meanwhile, the mean financial efficiency value is 3.021, indicating that total expenditures are approximately three times the number of personnel expenditures. Budget solvency, with a mean value of 1.006, reflects a structural balance in which total revenue excluding DAK closely approximates total expenditure excluding capital expenditure. Finally, the mean service solvency value of 13.532 represents an average per capita capital expenditure of approximately IDR 753,155. This finding highlights the importance of improving the quality of capital expenditure to optimize the provision of basic public services. The descriptive statistics are presented in Table 3.

Wider mapping of financial sustainability reveals varying characteristics across regions. The mapping uses province-level aggregations data as calculated by the averages of observations from the regency and city levels within each province. In Sumatra, the situation is generally stable, though marked by notably low scores in Lampung and Riau. The Java & Bali region is characterized by a consistently high level of sustainability (led by the Special Region of Yogyakarta), with East Java performing relatively lower. The Kalimantan region demonstrates strong and uniform performance, with no provinces recording low scores. In the Sulawesi & Nusa Tenggara region, sustainability levels are mostly moderate to high, though Gorontalo and North Sulawesi show very low scores. Lastly, the Maluku & Papua region demonstrates significant variation, ranging from high levels in Southwest Papua to notably low scores in West Papua and Highland Papua.

Correlation and Variance Inflation Factor (VIF) Test for Multicollinearity

Correlation analysis and VIF test have been employed among the explanatory variables to detect potential multicollinearity issues prior to regression testing. The results indicate that the correlation coefficients between the independent variables are

Table 4. Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LN_FS_{it}	1.000						
FI_{it}	0.065	1.000					
FE_{it}	0.028	0.007	1.000				
BS_{it}	0.250	0.123	-0.054	1.000			
LN_SS_{it}	0.119	-0.129	0.415	0.462	1.000		
LN_SIZE_{it}	0.104	0.470	0.136	0.251	-0.172	1.000	
LN_REP_{it}	0.043	0.223	0.145	0.432	0.334	0.390	1.000

Table 3. Descriptive statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
LN_FS_{it}	947	14.19	20.662	-27.272	29.387
FI_{it}	1524	0.124	0.102	0.003	0.874
FE_{it}	1524	3.021	1.096	1.86	16.603
BS_{it}	1524	1.006	0.15	0.163	1.994
LN_SS_{it}	1524	13.532	0.854	11.296	16.954
LN_SIZE_{it}	1491	28.799	0.695	25.019	31.61
LN_REP_{it}	1524	17.646	0.681	15.638	20.648



Figure 2. Financial sustainability of local governments in Indonesia

relatively low, which below the critical threshold of 0.80, and all VIF value is below 10, suggesting that there are no potential for multicollinearity within the model. Consequently, all independent variables met the independence requirement, and the proposed regression model is considered robust and suitable for use in further hypothesis testing. The result is presented in Table 4.

Panel Data Regression Analysis

To examine the determinants of financial sustainability in Indonesian regency and city governments, this study employs panel data regression with a fixed-effects estimator, robust standard errors, and year fixed effects to account for potential data disturbances. Based on the regression results, the first hypothesis regarding financial independence is rejected, as it shows no significant effect on financial sustainability. The second hypothesis concerning financial efficiency is confirmed, as it indicates a positive and significant effect. The third hypothesis, which pertains to budgetary solvency, is also confirmed, as it also indicates a positive and significant effect. Lastly, the fourth hypothesis regarding service solvency is rejected, as it does not show any significant effect at the established level of significance (5 percent). The result of panel data regression analysis is presented in Table 6.

Table 5. VIF test result

Variables	All Observations		Western Indonesia Region		Eastern Indonesia Region	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
FI_{it}	1.919	0.521	1.769	0.565	2.206	0.453
FE_{it}	1.599	0.626	1.608	0.622	1.74	0.575
BS_{it}	2.004	0.499	2.1	0.476	1.961	0.51
LN_SS_{it}	2.573	0.389	2.7	0.37	2.753	0.363
LN_SIZE_{it}	2.309	0.433	2.325	0.43	1.787	0.56
LN_REP_{it}	1.589	0.629	1.639	0.61	1.792	0.558
Year Fixed Effect 2022	1.468	0.681	1.445	0.692	1.557	0.642
Year Fixed Effect 2023	1.532	0.653	1.513	0.661	1.605	0.623
Mean VIF	1.874		1.887		1.925	

Table 6. Hypothesis testing using panel data regression

Variables	(1)	(2)	(3)
	All Observations	Western Indonesia Region	Eastern Indonesia Region
FI_{it}	1.646	1.765	-243.4***
	(2.325)	(1.895)	(70.10)
FE_{it}	3.894***	4.295**	2.196**
	(1.462)	(2.052)	(1.096)
BS_{it}	55.52***	57.26***	36.69**
	(12.13)	(15.05)	(17.92)
LN_SS_{it}	4.922*	3.559	5.995
	(2.937)	(3.487)	(5.997)
LN_SIZE_{it}	4.761	4.287	10.61
	(4.400)	(4.950)	(8.584)
LN_REP_{it}	37.43**	63.01***	-28.35
	(17.12)	(21.82)	(22.04)
Year Fixed Effect 2022	-5.844**	-9.274***	1.773
	(2.682)	(3.424)	(4.176)
Year Fixed Effect 2023	-10.07**	-15.08***	3.950
	(3.922)	(4.975)	(6.090)
Constant	-913.6***	-1,340***	109.6
	(338.2)	(438.0)	(444.0)
Observations	940	702	238
R-squared	0.128	0.160	0.118
Number of Local Governments	363	262	101

Note: Robust standard error in parentheses: *** significant at 0.01; ** significant at 0.05; * significant at 0.1

As an additional test, this study also conducts a subsample analysis based on geographical location, distinguishing between Western Indonesia and Eastern Indonesia, to detect differences in the structural characteristics of regional fiscal systems. The results of the subsample analysis indicate that in Western Indonesia, all explanatory variables show effects consistent with the main model, with efficiency and solvency serving as the primary drivers of fiscal resilience. Meanwhile, in Eastern Indonesia, all variables' effect remains consistent except for the financial independence variable that shows a negative effect.

5. Discussion

The results of a panel regression analysis provide comprehensive empirical findings regarding the determinants of financial sustainability. First, the findings show that financial independence does not have a significant effect on financial sustainability within the national sample. Since the finding does not support H_1, it does not align with the results of Lhutfi & Sugiharti (2022), Maggara et al. (2024), and Ritonga (2015). The finding suggests that increasing locally-generated revenue is not necessarily guarantee fiscal sustainability if it is not accompanied by accountable expenditure governance. From the perspective of agency theory, this phenomenon reflects information asymmetry and budget allocation bias at the local level, whereby additional locally generated revenue is often absorbed by routine bureaucratic and personnel expenditures rather than directed toward productive investments that could strengthen future fiscal capacity.

Furthermore, a historical, heavy reliance on central government transfers has hindered local governments from developing the managerial autonomy necessary to leverage locally-generated revenue as a pillar of fiscal resilience (Abdillah & Mursinto, 2016). These findings suggest that regional autonomy policies should prioritize reforms in local expenditure allocation structures alongside efforts to increase locally generated revenue. The central government needs to tighten oversight of the use of locally-generated revenue to ensure its consumption are proportional for both bureaucratic operational expenditures and outcome-oriented programs, which ultimately could expand regional fiscal space.

Financial efficiency has a positive impact on financial sustainability, supporting H_2 and reinforcing the results of Gardini & Grossi (2018), Ritonga et al. (2019), and Wällstedt et al. (2014). These studies suggest that a local government's ability to control operational costs and curb inefficiencies in personnel expenditure serves as a highly effective managerial instrument for creating fiscal space to foster development (Hutauruk, 2024). Efficient local governments can minimize agency costs associated with bureaucratic inefficiency, enabling the optimal reallocation of financial resources to generate accrual-based operational surpluses. This result strengthens the argument made by Ryan & Irvine (2012) that internal expenditure discipline is the primary key to maintaining long-term fiscal health, without relying solely on revenue expansion.

For local government management, the practical implication is the need for consistent implementation of performance-based budget efficiency, such as rationalizing personnel expenditures and streamlining unproductive work programs. For policymakers, these findings provide an empirical basis for strengthening the upper-limit capping indicators for personnel expenditure, as mandated by the Law on Financial Relations between the Central Government and Local Governments (UU HKPD), to ensure sustainable efficiency in regional spending (Rohmadani et al., 2024).

Budgetary solvency demonstrate a strongly positive effect on financial sustainability. This finding supports H_3 and confirms the results of Cuadrado-Ballesteros et al. (2019), Honadle et al. (2003), Lhutfi & Sugiharti (2022), and Wardhani & Payamta (2020). These studies demonstrates that short-term fiscal discipline, whereby local governments are able to balance revenue and expenditure within a single fiscal year without incurring a prolonged deficit, is an absolute prerequisite for achieving long-term fiscal stability. From the perspective of agency theory, maintaining budgetary solvency reflects the government's (agent) success in fulfilling its fiduciary duty and upholding accountability to the public (principal).

Local jurisdictions capable of avoiding operational deficits possess significantly greater resilience against external economic shocks and future liquidity risks (Ritonga, 2015). Consequently, local governments must prioritize prudential principles and a Medium-Term Expenditure Framework (MTEF) to prevent persistent budget deficits. Furthermore, strengthening oversight by the Supreme Audit Board of the Republic of Indonesia (BPK) and the Ministry of Home Affairs in evaluating local budgetary frameworks is crucial for safeguarding this solvency.

Regarding service solvency, the national sample regression exhibits a statistically insignificant at the conventional 5 percent level ($p > 0.05$), leading to the rejection of H_4, while a marginal weak significance appears at the 10 percent level. Furthermore, across both regional subsamples of Western and Eastern Indonesia, the coefficient for service solvency remains statistically insignificant. This finding distinguishes the results of this study from those of Caruana et al. (2019) and Rodríguez Bolívar et al. (2018), who previously mention the supporting role of service capacity towards fiscal resilience. Conceptually and empirically, the lack of a significant influence of per capita capital expenditure allocation on accrual-based operating surpluses in Indonesia stems from the suboptimal quality and efficiency of local capital expenditure allocations. The level of per capita capital expenditure, whether high or low, often fails to reflect the creation of productive public value. Instead, such expenditure remains concentrated on short-term physical projects that entail high maintenance costs or produce benefits with a delayed impact. From an agency theory perspective, this suggests a gap in capital expenditure planning, whereby development spending has yet to generate long-term operational cost efficiencies or directly stimulate growth in locally generated revenue (Subires et al., 2019). The managerial and policy implications suggest that local governments should look beyond the amount of per capita capital expenditure and conduct rigorous investment feasibility analyses through capital budgeting. The Ministry of Finance and the Ministry of Home Affairs should promote standardized value-for-money assessments for local capital expenditure projects to ensure that physical investments effectively strengthen fiscal resilience and uphold long-term intergenerational equity.

A subsample analysis based on geographical location was also conducted, revealing fundamental structural dynamics. In Western Indonesia, all variables show results consistent with the main model, where efficiency and solvency serve as the primary drivers of fiscal sustainability, supported by relatively mature economic infrastructure. Conversely, in the eastern region of Indonesia, all variables remain consistent, with the exception of the financial independence, which exhibits a significant negative effect. Both conceptually and empirically, this negative outcome can be explained by the structural fiscal characteristics of Eastern Indonesia. Local governments with relatively higher ratios of locally generated revenue often face substantial bureaucratic and administrative costs, while their local economic bases remain highly fragile (Ginanjar et al., 2025).

Consequently, forcing an increase in locally-generated revenue amidst limited local economic capacity tends to trigger distortions in taxes and tariffs, imposes additional efficiency burdens, and erodes regional operational surpluses (Syahriyal et al., 2024). These subsample findings have important policy implications: the Ministry of Finance and the Ministry of Home Affairs should avoid adopting a one-size-fits-all approach to fiscal decentralization. Policies aimed at strengthening fiscal independence and reforming the Transfers to Regions (TKD) scheme should be designed asymmetrically, taking into account differences in economic capacity and geographical conditions between western and eastern Indonesia.

6. Conclusion

This study concludes that the financial sustainability of regency and city governments in Indonesia is predominantly influenced by financial efficiency and budgetary solvency, while financial independence and service solvency do not show a statistically significant impact at the national level. The subsample analysis reveals stark differences in fiscal dynamics. In Eastern Indonesia, financial independence has a negative association with financial sustainability, suggesting potential structural challenges, such as a limited local economic base and high bureaucratic costs, which were not directly examined in the empirical model. Consequently, this interpretation serves as a plausible structural context rather than a direct empirical finding, opening avenues for future research to explicitly examine these mediating factors. This carries significant policy implications for the Ministry of Finance and the Ministry of Home Affairs, suggesting a transformation from a one-size-fits-all fiscal decentralization scheme toward a transfer-to-regions formula based on the asymmetric needs of different territories. In practical terms, local governments are advised to focus financial governance on the efficiency of routine expenditures by curbing personnel costs, implementing value for money evaluations for capital expenditures, and adopting a Medium-Term Expenditure Framework (MTEF) to prevent budget deficits.

This study observes several methodological limitations. First, the use of adjusted operating surplus proxy for financial sustainability does not

really capture long-term unfunded obligations. Second, the financial efficiency measurement focuses on spending flexibility rather than direct input-output efficiency. Third, service solvency measurement reflects infrastructure allocation capacity rather than actual service quality. Fourth, the 3-year observation window (2021–2023) limits long-term trend analysis. Fifth, potential endogeneity may persist despite fixed-effects controls. Finally, data unavailability in several local governments leads to significant sample reduction. Future studies are encouraged to address these limitations by employing longer examination periods, dynamic models, and qualitative measures.

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