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The Impact of Local Government Capacity on Public Service Delivery: Lessons Learned from Decentralized Indonesia

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Abstract: The issue of poor local government capacity has been considered one of the problems impeding the implementation of decentralization, especially in developing countries. This study addresses this issue in the case of Indonesia, a country that has implemented massive decentralization (administrative, fiscal, and political) over the last two decades. The study aims to provide empirical evidence for the impact of local government capacity on public service delivery in the decentralization regime. Local government capacity is measured based on a policy capacity framework at the organizational level that includes three types of capacities: analytical, operational, and political. The regression of the panel data model, estimated with the Hausman–Taylor method, reveals that government capacity in terms of interactions of three types of capacities has a positive impact on public service delivery. This finding indicates the three types of capacities are complementary and effectively improve local government's achievement in delivering public services. While operational capacity (including fiscal capacity) has long been reckoned in designing decentralization, this result gives empirical evidence that other critical capacities should be well considered, political and analytical capacities. It underpins the efforts to internalize local government capacity in designing and implementing decentralization programs.

Keywords: decentralization; government capacity; policy capacity; public service delivery

1. Introduction

Decentralization has been a feature of government reforms over the last three decades. Such reforms aim to increase governmental effectiveness in overcoming development problems by transferring central-government authority to local governments. Local governments are expected to provide more effective and efficient public services based on the theorem of decentralization (Oates 1972).

Decentralization also has other advantages than over-centralization. It triggers competition between local governments, improving accountability and overcoming social conflicts and separatist movements (Bardhan 2002). Several empirical studies have noted the positive impact of decentralization in developing countries, such as improvements in local governments' responses to physical and health infrastructure issues (Kis-Katos and Sjahrir 2017), health development outcomes (Apriliani and Khoirunurrofik 2020), distribution of educational equity (Wirandana and Khoirunurrofik 2022), and an increase in the voting enrollment rate in Colombia (Faguet and Sánchez 2008). China's experience implementing decentralization has also confirmed its positive impact on the economy (Jin et al. 2005).

Nevertheless, many empirical studies also show that implementing decentralization may not achieve desired outcomes. One of the main problems is the poor capacity of local governments to carry out governmental functions (Bardhan 2002). In the African region, South Africa's complex decentralization design is claimed to overburden local governments. It has become one of the main factors in the failure to improve essential local services (Koelble and Siddle 2014). The Zimbabwean experience also shows a lack of expertise in

planning and management, accompanied by political problems, hindered decentralization (Conyers 2003). A similar story comes from Tanzania, where poor capabilities among local government staff to create a comprehensive development plan has hindered the effectiveness of decentralization (Frumence et al. 2013).

Developing countries that have implemented decentralization in other regions, such as Eastern Europe, Asia, and Latin America, also face problems of low capacity in their local governments (Alexandru and Guziejewska 2020; Malesky and Hutchinson 2016; Pribble 2015). Hence, it can be concluded the issue of poor government capacity is a significant factor hampering the implementation of decentralization. Bird (1994) captured this problem in a simple remark, "If the centralized government does not know what to do, then in a decentralized regime, the problem is that local governments do not know how to do it."

Meanwhile, studies evaluating the impact of government capacity in the context of decentralized regimes are mixed in determining the conclusion. One finds no evidence that government capacity has a significant impact. Consequently, there is no need to consider local government capacity in the decentralization design (Faguet and Sánchez 2008; Tan 2019). On the other hand, some other studies find the opposite and suggest the urgency to account for local government's capacity in an effort to improve its performance (Silva-Ochoa 2009; Steiner 2010; Choi 2021; Vidyattama et al. 2022). These mixed findings need to be addressed to reach consensus on the issue and deepen the discussion. Hence, studies on this topic with different approaches and data from other countries' experiences are very considerable.

The discussion of government capacity has involved many disciplines of social sciences. Some related terminology has emerged, including state capacity, political capacity, governance capacity, and policy capacity. The last is a public policy framework developed to measure government capacity in setting and implementing policies (Wu et al. 2015). This framework has some advantages for measuring government capacity due to its broad perspective and systematic structure that includes three types of capacities (analytical, operational, and political) at three levels of resources (individual, organizational, and systemic). Those three types of capacities are interconnected, and each is irreplaceable in the policy process (Wu et al. 2018).

This study aims to estimate the impact of local government capacity on public service delivery using a panel data model. The main contribution is providing empirical evidence of the impact of local government capacity on public service delivery in decentralized regimes. Further, it explores the interaction between types of government capacity to find the critical capacity. Those contributions are valuable to determine the necessity to consider local government capacity in designing and implementing decentralization. This study also has some significant contributions to the development of the framework of policy capacity by giving evidence of the impact of policy capacity on government performance and elaborating on the interconnection between types of policy capacities. The quantitative method employed in this study allows this study to have the opportunity to achieve those contributions.

This study exploits data of a single country, Indonesia, which has implemented decentralization with an extreme transition from a centralized to a decentralized regime (Hill and Vidyattama 2016). The process has left the central government retaining only certain functions: defense, security, foreign affairs, fiscal affairs, religious affairs, and forestry. Consequently, large amounts of funding and personnel have been and continue to be transferred from central government to districts that are now responsible for carrying out many government functions, including most public services. Direct regional head elections, starting in 2004, marks the implementation of political decentralization. Thus, the country's experience provides this research with a very relevant sample of a decentralized regime.

The estimation results with the Hausman–Taylor show the interaction of the three capacities has a significant positive impact on public service delivery, while the effect of each capacity individually is insignificant; even political capacity may have a negative effect.

These findings confirm all three capacities are critical, and they are complementary in the process of planning and executing of the local government's program. While operational capacity, including fiscal capacity, has long been considered in designing decentralization, this result gives empirical evidence other critical capacities should be well considered, political and analytical capacities. To engage political capacity, the design of decentralization should take some measures to ensure the local government would have sufficient support from the local parliament, while simultaneously increasing the accountability and legitimacy of policy making. The design of decentralization is also suggested to internalize each local government's operational and analytical capacities. It may propose various levels of autonomy based on assessing local government capacity.

This paper is organized into five sections. The introduction describes the background, objectives, and research contribution. The literature review explores existing research related to decentralization and government capacity. The third section discusses the method used for measuring government capacity and estimating the impact of public service delivery capacity, while the fourth section presents the estimation results and discussions. Finally, conclusions are presented in the fifth section.

2. Literature Review

2.1. Decentralization and Government Capacity

The decentralization theorem states the level of welfare will always be at least as high (typically higher) as centralization (Oates 1972). The provision of local public goods will be more efficient if provided in each jurisdiction without cost savings from centralized provision and externalities. The difference between local preferences and production costs results in the optimum output level in each jurisdiction. Hence, decentralizing local public goods provision to local jurisdiction is better for maximizing welfare. Simply put, decentralization brings the government closer to the people and eventually makes it more responsive (Oates 1999).

Some other perspectives also affirm the advantages of decentralization (Bardhan 2002). Decentralization is claimed to have triggered competition between local governments that would provide incentives to improve local public services. Government accountability is also improving due to clear responsibility and the need for local government to gain political support from the people. Decentralization can also overcome social conflicts and separatist movements by giving more power to regions.

Empirically, the practice of decentralization in developing countries may result in unfulfilled expectations and unanticipated problems (Grindle 2007). Investigating the case of Mexico, Grindle finds there are at least four factors that explain why the local government responds unexpectedly to the opportunities that arise from decentralization. Those are political competition, public sector entrepreneurship, public sector modernization, and civil society. The explanation of those factors is as follows respectively. The lack of political competition gives less incentive for the incumbent to find a better way to address local problems and vice versa. The ability of public officials to develop ideas, mobilize coalitions, and make strategic choices (public sector entrepreneurship), plays a central role in achieving an expected result of decentralization. Modernization in the public sector includes management issues, such as incentives for public officials, right-sizing organizations, privatization policy, and capacity building. Civil society activism puts pressure on local governments to provide better service and contribute to designing models of how improvements can be made.

The discourse among scholars is also on whether local government capacity is part of the conditions in implementing decentralization or will improve local government capacity as a consequence. Olowu and Wunsch (2004) support the first and elaborate four requirements to be met for implementing decentralization. These are effective local authority and autonomy; sufficient resources for localities; effective institutions of collective action; and open and accountable local political processes. Those requirements are related mostly to the local government's capacity to execute the mandates given and the condition

of local social politics. Empirically, Rodríguez-Pose and Vidal-Bover (2022) find insufficient fiscal resources due to a mismatch between the powers transferred to subnational tiers of government and the resources allocated to them (unfunded mandates) have a significant negative effect on economic growth. Saito (2008) also finds that instead of pursuing agendas of decentralization, improving the capacities of both the central and local governments is the urgent agenda to be addressed. On the other side, some scholars argue the capacity of local government will improve as a consequence of greater responsibility for development planning and management (Rondinelli et al. 1983).

A recent study emphasizes the need to internalize each local's condition and proposes an asymmetrical decentralization design to deal with various local capacities (Tan 2019). There are three principles in designing asymmetrical decentralization. First, objective criteria must be set to determine the decentralization of powers and related responsibilities. Second, the decentralization of fiscal and administrative provisions should be free from discretions, and third, the design should be flexible to accommodate any changes in the future. On the first principle, criteria can be built based on local capacities. Later local governments are clustered based on the level of their local capacities. The higher local capacities, the more power and responsibilities are given to the local government and vice versa.

2.2. Government Capacity Definition

The term "government capacity" is closely related to the idea of state capacity, which has long been discussed in political economics. Grindle and Hilderbrand (1995) define state capacity as the ability of a state to perform appropriate tasks/functions efficiently, effectively, and sustainably. According to Grindle (1996), there are four types of state capacity: institutional capacity, technical capacity, administrative capacity, and political capacity. Institutional capacity is the state's ability to establish and enforce a broad set of rules governing economic and political interactions. Institutional capacity is the most popular term and is often used as a proxy for the country's capacity (Acemoglu 2005). Technical capacity refers to managing macroeconomic policies and analyzing economic policy options. Administration capacity is the ability to provide public goods and extract revenue to finance all expenditures, which is the core of government business functions. Political capacity, meanwhile, is related to how the state responds to public demands, including public participation in decision-making and conflict resolution.

The term "political capacity" has also been long discussed in the literature on political economy with a broader scope that covers all government functions from political perspectives. Political capacity is defined as the ability of a government to reach its population, extract economic resources from that population, and allocate those resources to secure the long-term survival of the political structure (Arbetman-Rabinowitz et al. 2012). The underlying concept is based on the view that a government receives inputs from society as it extracts revenues and mobilizes the population to support its goals. The inputs are then reallocated for producing public goods: transportation, environment, infrastructure, national defense, police, welfare programs, and others. Based on the concept, political capacity is measured through three measurements: relative political extraction (RPE), relative political reach (RPR), and relative political allocation (RPA). RPE is measured by the ratio of actual extraction to its potential extraction that is predicted with regression modeling. RPR is measured by the estimation of the ability of a government to mobilize the human resources of a population that can be proxied with the size of the shadow economy. The relatively small size of the shadow economy the government cannot control represents high RPR. RPA is measured by the gap between actual and best expenditures that maximize economic growth.

The concept of "governance capacity", which is widely popular in public administration, also relates closely to government capacity. The concept is based on the perspective of governance, which is defined as steering actors in localities to cover public service where local government plays a key role. Hence, governance capacity incorporates both

local government capacity and the capacity of surrounding conditions. It consists of four components: mobilization capacity, decision-making capacity, implementation capacity, and local capacity (Tan 2019).

Mobilization refers to the local government's capacity to mobilize resources (financial and materials) for services and functions. It includes generating adequate resources and channeling them into planned output. Decision-making capacity is the ability of the local government to allocate resources; it includes the capability of planning and communications. Implementation capacity indicates the managerial capacity and quality of human resources. Managerial capacity covers both administrative skills and best practices of management. The quality of human resources encompasses the quality of personnel and human resource management. The last, local capacity, is related to local resources that correspond to socioeconomic development.

In the literature on public policy, the recently emerging framework of "policy capacity" addresses the issue of government capacity in the policy process. Wu et al. (2018) define policy capacity as a set of skills, resources, competencies, and abilities needed to perform a policy function. There are three types of skills: analytical, operational, and political. Policy capacity is a combination of these three skills (Wu et al. 2018).

Analytical capacity contributes to the policy process of creating technically sound policies. At an organizational level, analytical capacity has three components: the availability of individuals with analytical skills, tools, and processes for collecting and analyzing data and organizational commitment to evidence-based policy. Operational capacity considers all efforts to make all necessary resources available and align the successful implementation of policies. At the organizational level, it has five components: organizational commitment to achieving goals, availability of financial resources and personnel, internal process coordination, performance management, and administrative accountability. Political capacity is needed to achieve the support of the public and all stakeholders. At the organizational level, there are three components of political capacity: legitimate political process, stakeholder engagement process, and access to key policymakers.

3. Methodology

This study favors the definition of policy capacity to represent local government capacity, given its broader scope to include political capacity as part of government capacity. Researchers have also widely used the policy capacity framework measuring government capacity in some case studies (Bajpai and Chong 2019; Hughes et al. 2015; Saguin et al. 2018). The context of policy capacity referred to here is at the organizational level. This study uses a proxy approach to the components considered dominant in each type of policy capacity at the organizational level due to data availability.

The empirical model for public service delivery generally covers variables that measure outputs/outcomes related to the main sectors of public services (education, health, and infrastructure) to represent public service delivery, the dependent variable in the model. For explanatory variables, it includes related measures for government financial capacity, politics, and social-economic conditions that are considered to influence public service delivery (Ghuman and Singh 2017; Faguet and Sánchez 2008; Habibi et al. 2003; Lewis 2017a). Local government capacity also has been used as an independent variable in some studies (Steiner 2010; Silva-Ochoa 2009).

To estimate the impact of government-policy capacity on public service delivery, this study employs an empirical model with districts/municipalities as the unit of observation (*i*) with two-year periods of observation (*t*). Hence, the empirical model is a panel data model with specifications as follows:

$$y_{it} = \alpha + \beta_1 \, \mathrm{AN}_{it} + \beta_2 \mathrm{OP}_{it} + \beta_3 \mathrm{POL}_{it} + \beta_4 \mathrm{INT}_{it} + \sum_1^k \gamma_k \mathrm{Control}_{kit} + \varepsilon_{it}$$

where y is the dependent variable; AN is analytical capacity; OP is political capacity; INT is the interaction of capacities; control is control variables; α, β, γ are parameters to be estimated; ε is the error term.

For the dependent variable, sanitation is chosen to represent the public service delivery of local public government. Sanitation denotes the ratio of households with protected sanitation to the total households in a district. It measures the access of people to protected sanitation. The proxy variable is chosen for two major reasons. First, sanitation is at the core of sustainable development due to its significant impact on health, poverty reduction, economic growth, and environmental sustainability. Indonesia, along with other developing countries, has struggled to improve people's access to protected sanitation, with approximately 20 percent of total households having no access in 2021, according to Biro Pusat Statistik (Indonesian Statistic Agency). Second, sanitation is within the local government's authority in the context of decentralization in Indonesia. Local governments have full responsibility for handling the issues with minor interventions from the central government. Unfortunately, sanitation issues might receive less attention from local governments as they generally use their resources to produce more popular public goods, such as public roads. A study by Lewis (2017a) also uses access to protected sanitation to measure public service delivery along with access to protected water. Here in this study, access to protected water is excluded from anticipating different geographical conditions between regions that may lead to a different challenge for each local government in providing protected water supplies. It may require additional control variables beyond this study's available data.

The independent variables are local government capacity: analytical capacity (AN), operational activity (OP), and political capacity (POL). The proxy for analytical capacity (AN) is the ratio of government personnel with postgraduate education to total personnel. The educational level of government personnel to measure government capacity has been widely used (Faguet and Sánchez 2008; Silva-Ochoa 2009). The proxy variable shows the availability of personnel with analytical skills in local government. This proxy is chosen with two assumptions: first, the analytical skills of personnel with postgraduate education are better than those with undergraduate and lower education levels. Second, personnel is also assumed to have an important position that is directly involved in the decision-making process.

Operational capacity (OP) is measured by local government spending per capita. This proxy variable is chosen to capture each local government's financial capacity relative to its total population. The variable is widely used in major research to measure the financial capacity of local governments (Faguet and Sánchez 2008; Lewis 2017b; Kis-Katos and Sjahrir 2017; Ghozali and Khoirunurrofik 2020).

Political capacity (POL) is measured by the ratio of local parliament members from parties supporting the local government head during an election (coalition) to the total number of parliamentary members. The assumption is that the coalition during local head elections affects governing after elections. Despite the fact this proxy might have a narrower scope of political capacity, empirical research has found the coalition during the election significantly affects the local government's policy after the election (Aspinall 2013; Lewis and Hendrawan 2019; Wiguna and Khoirunurrofik 2021). In the discussion on policy capacity, Wu et al. (2018) also include support from a politician as one of the indicators of political capacity. On the other side, the political capacity, which is measured in three types of capacities: political extraction, political reach, and political allocation, is not chosen as a proxy variable due to its scope that may overlap other types of capacities, operational and analytical capacities.

All possible interactions (INT) between the three types of capacities are also used as independent variables to estimate their impacts on the dependent variable. These are ANxOP (interaction between analytical and operational capacity), ANxPOL (interaction between analytical and political capacity), OPxPOL (interaction between operational and

political capacity), and the last, AN*x*OP*x*POL, denotes the interaction of the three types of capacities.

Control variables consist of other variables that may affect the dependent variable. They can be divided into two parts; the first part is local and central government expenditures directly disbursed to address housing problems, including sanitation. Their impact on dependent variables is expected to be positive. The second part is localities, which consist of socio-economics variables that may positively or negatively impact the dependent variable. Some related studies use these socio-economics variables (Ghuman and Singh 2017; Faguet and Sánchez 2008; Habibi et al. 2003; Lewis 2017a). The definitions of each control variable are as follows: spend for housing: local government spending per capita for housing and public facilities (in million Indonesian rupiah); *SAF*: special allocation fund from central government for financing sanitation project; *LPop:* log of the number of population (in million); electrification*:* the ratio of households with electricity to total households; poor: the percentage of poor people; and Gini: Gini coefficient calculated from households' consumption expenditure; consumption*:* the average of consumption expenditure (in million rupiah) per capita.

Data on local government spending is collected from the Ministry of Finance (Kementerian Keuangan), whereas personnel education for districts is obtained from the National Civil Service Agency (Badan Kepegawaian Negara). The remaining data is processed by SUSENAS/Central Bureau of Statistics (Biro Pusat Statistik).

The hypothesis is that political capacity, analysis capacity, and operational capacity and their interaction have a positive impact on public service delivery. The parameters of the model are estimated with the fixed effect method and the Hausman–Taylor method. The Hausman–Taylor method deals with a time-invariant variable (political capacity/POL), while the fixed effect method cannot recover the estimated coefficient of the dummy variable as the time-invariant variable. Both methods can overcome the notion that unobserved individual effects are correlated with repressors in a panel data model (Greene 2012; Rodríguez-Pose and Vidal-Bover 2022).

4. Results and Discussion

The statistical summary of the variables is shown in Table 1. The observations include 455 districts/municipalities from a total of 515 districts/municipalities in two consecutive years, 2017–2018 (910 observations). Municipalities in the special capital region of Jakarta, which have different characteristics regarding their local parliaments that exist only at the provincial level, are excluded. Other districts/municipalities are also excluded randomly due to incomplete/missing data. Nevertheless, the sample size is still very large (almost 90 percent of districts/municipalities) and is still considered a random sample.

Table 1. Descriptive statistics.

Variable	Mean	Std. Dev.	Min	Max
Sanitation	0.87068	0.12127	0.13074	1
AN	0.04799	0.02474	0.00752	0.16542
OP	5.25859	4.32203	0.7244	33.42096
POL	0.36589	0.17347	0.04444	0.96
SpendforHousing	0.87219	0.95797	0.00015	10.67157
SAF	3.16921	3.86335	0	27.72563
LPop	−1.16882	0.98234	−3.70188	1.75945
Electrification	0.957	0.10568	0.04085	1
Poor	12.01991	7.08817	1.68	42.71
Gini	0.44453	0.04632	0.29819	0.63109
Consumption	0.67215	0.69794	0.03027	16.55765

The overall performance of local service delivery, as measured by the ratio of households with access to protected sanitation (sanitation), has a mean value of 0.87, meaning 87% of households in all districts have access to protected sanitation on average. However,

the statistics also show the ratio ranges widely from 0.13 to 1. The standard deviation also shows the dispersion from the mean value is quite significant at 0.12 (14% from the mean value). These numbers exhibit the disparity in access to basic health infrastructure among districts.

The local government capacity—the main independent variable—also varies widely among districts. The ratio of local personnel with postgraduate education to total personnel, representing analytical capacity (AN), ranges from 0.00752 to 0.166, with a standard deviation of 40% from the mean value. Operational capacity (OP), as measured by local government expenditure per capita (in million rupiah), ranges from 0.72 to 33, with a standard deviation of 82% from the mean value. Political capacity (POL), measured by the ratio of local parliament members from parties supporting the local government head during the election (coalition) to the total number of parliamentary members, ranges from 0.044 to 0.96, with a standard deviation of 46% from the mean. These numbers exhibit the high variations of government capacity among Indonesian local governments.

The estimation results with the fixed effect method are presented in Table 2 below. The statistics shows all models significantly predict the dependent variable. Model 2 has the highest r^2 value and can be nominated as the best model. All types of government capacities, including their interactions, has no significant parameters. Political capacity (POL) is excluded from the models due to the limitation of the fixed effect method to estimate a parameter of time-invariant variables.

Table 2. Estimation result with fixed effect method.

	Model 1	Model 2	Model 3	Model 4	Model 5
OP		−0.043	−0.11	0.404	−0.034
	[0.263]	[0.047]	[0.250]	[0.673]	[0.041]
AN	0.436	−0.43	0.094	0.144	−0.281
	[0.819]	[0.575]	[0.598]	[0.461]	[0.308]
AN×OP		0.21			
		[0.222]			
AN×POL			0.909		
			[1.277]		
OP×POL				−0.753	
				[1.224]	
AN×OP×POL					0.424
					[0.333]
SpendforHousing	0.111	0.042	0.107	−0.082	0.034
	[0.234]	[0.040]	[0.222]	[0.149]	[0.036]
SAF	0	0	0	0.001	0
	[0.001]	[0.001]	[0.001]	[0.002]	[0.000]
LPop	−0.171	0.053	−0.156	−0.335	0.084
	[0.971]	[0.355]	[0.925]	[1.126]	[0.322]
Electrification	0.157	0.181	0.159	0.152	0.182
	[0.298]	[0.205]	[0.291]	[0.285]	[0.203]
Poor	−0.001	−0.007 **	−0.001	−0.01	−0.006 **
	[0.015]	[0.003]	[0.014]	[0.008]	[0.003]
Gini	−0.088	−0.06	−0.085	0.24	−0.057
	[0.139]	[0.066]	[0.133]	[0.499]	[0.064]
Consumption	0.011	−0.001	0.011	−0.004	0
	[0.028]	[0.004]	[0.027]	[0.007]	[0.004]
_cons	1.044	1.032 **	1.039	−0.248	1.019 ***
	[0.732]	[0.403]	[0.709]	[2.329]	[0.371]
r^2	0.025	0.126	0.026	0.007	0.119

Robust standard errors in brackets. ** $p < 0.05$, *** $p < 0.01$.

The Hausman–Taylor method is also employed for a more comprehensive analysis that covers all types of capacities (including time-invariant variable, *POL*). The estimation results with the Hausman–Taylor method are presented in Table 3 below. Analytical

capacity has positive and significant parameters in Model 1 and Model 4, while operational capacity has no significant parameter in all models. Political capacity unexpectedly has significant negative parameters in all models. For the interactions between the types of capacity, only the interaction term $AN{\times}OP{\times}POL$ has a significant positive parameter. Model 5 has the highest chi^2 value and can be nominated as the best model.

Table 3. Estimation Result with Hausman–Taylor Method.

	Model_1	Model_2	Model_3	Model_4	Model_5
AN	0.225 *	0.072	−0.113	0.219 *	−0.005
	[0.121]	[0.171]	[0.246]	[0.123]	[0.154]
OP	0	−0.001	0	0.001	−0.002
	[0.005]	[0.005]	[0.005]	[0.008]	[0.004]
POL	−0.086 ***	−0.086 ***	−0.133 ***	−0.069	−0.137 ***
	[0.032]	[0.031]	[0.049]	[0.106]	[0.041]
AN×OP		0.053			
		[0.047]			
AN×POL			0.925		
			[0.581]		
OP×POL				−0.003	
				[0.017]	
AN×OP×POL					0.220 **
					[0.090]
SpendForHousing	0.003	0.004	0.003	0.003	0.005
	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]
SAF	0.001 *	0.001	0.001 *	0.001 *	0.001
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
LPop	0.012	0.014	0.012	0.012	0.016
	[0.016]	[0.014]	[0.015]	[0.016]	[0.013]
Electrification	0.234	0.226	0.234	0.232	0.217
	[0.173]	[0.172]	[0.172]	[0.175]	[0.169]
Poor	−0.006 ***	−0.006 ***	−0.006 ***	−0.006 ***	−0.006 ***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Gini	−0.007	−0.011	−0.006	−0.007	−0.017
	[0.052]	[0.051]	[0.052]	[0.052]	[0.050]
Consumption	0.001	0	0.001	0.001	0
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
_cons	0.748 ***	0.763 ***	0.763 ***	0.745 ***	0.795 ***
	[0.187]	[0.187]	[0.187]	[0.189]	[0.187]
chi^2	45.843	46.624	46.225	45.635	47.564

Robust standard errors in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Due to the different conclusions that may arise from the estimation results of both methods, a test to find the best model is needed. Using the Hausman test on the best model of each estimation method (Model 5), it concludes the model estimated with the Hausman–Taylor method is more efficient. Hence, the discussion will be further based on Hausman–Taylor's estimation results.

All the models estimated with the Hausman–Taylor method have significant goodness of fit to predict the dependent variable according to its chi^2 value. Model 5 has the highest chi^2 value and is chosen as the best model. From Model 5, the analytical and operational capacities have no significant parameters, while political capacity has significant negative parameters. This finding indicates those three types of capacities individually have little impact to positively affect the outcome (public service delivery), the dependent variable. Further, political capacity may have the opposite impact. The explanation will be elaborated later after considering interactions among three types of capacities.

Based on the best model (Model 5), the interaction term of three types of capacities ($AN{\times}OP{\times}POL$) has a positive and significant parameter. This finding indicates the three types of capacities are complementary, and together, they effectively improve the achieve-

ment of the local government in delivering public service. It confirms the interplay of three types of capacities in the policy process (Wu et al. 2018).

On the other hand, political capacity individually tends to impact the outcomes negatively. All models show the parameter of political capacity has a significant negative impact. This finding is against the hypothesis that each capacity will positively affect the dependent variable. It indicates the government's political power may negatively impact public service achievement. The possible explanation for this issue is strong political party support may weaken legislative control (Katz and Mair 2018). In the case of Indonesia, an empirical study finds coalitions positively affect improving the quality of government spending only one or two years after elections; afterward, parties focus on preparing for funding for the next election (Lewis and Hendrawan 2019; Wiguna and Khoirunurrofik 2021). However, political support is still necessary for the policy process, and the positive parameter of interaction among the three types of capacities has proven it. A more comprehensive conclusion regarding this is a strong political capacity must be combined with high analytical and operational capacities to make it positively affect the outcomes. Otherwise, the effect may be in the negative direction.

The best model in estimation with the Hauman–Taylor (Model 5) has proven government capacity in terms of the interaction among three types of capacities ($AN \times OP \times POL$) has a significant positive impact on public service delivery within a 95% confidence level and thus confirms the hypothesis of this study. The conclusions underscore each type of capacity's critical role in achieving the desired outcomes of government programs. They are complementary in the process of planning and execution of local government programs. The technical process carried out by each unit in the government in its planning processes is crucial to obtaining high-quality designed programs. In detail, the process is executed bottom up, starting from each local government unit and is finally consolidated as a local government budget program. This process requires analytical skills to design effective and efficient programs to achieve mandated goals (Curristine et al. 2007). In the following stages, the approval and execution of government budgets are carried out primarily based on technical processes. Low-quality program design will lead to suboptimal results, even if supported by excellent political and operational capacities and vice versa. It is also noted the impact of the program may require a longer time to take effect; thus, the well monitoring and evaluation of budgeting and expenditure are desired in the highest level of transparency and accountability for achieving the intended goals (Apriliani and Khoirunurrofik 2020).

A case study on three districts in Indonesia has more details to explain how local government capacity affects their performance (Vidyattama et al. 2022). It finds local government personnel cannot adequately plan, design, and implement development projects on time. The problem is worsened by the rigidity and complexity of the budgeting process administration, which is very detailed in budgeting expenditure classification. Furthermore, in terms of spending, it was evident that during 2011–2015, districts and cities in Indonesia decreased the share of investment in human capital infrastructure and were more focused on increasing the percentage of investment in traditional infrastructure (Ghozali and Khoirunurrofik 2020). Thus, the increased allocation of government investment in the provision of public goods has not been optimal. This may be due to the high portion of regional expenditure for routine areas, especially personnel, which leads to a lack of budget availability for investments in public goods.

An additional finding may also be taken from the estimated parameter of control variables. In both estimation methods, the poor variables have significant parameter values. The poor variable has a negative parameter value, which means the increasing percentage of poor will affect lower public service delivery. This finding shows socioeconomic variables can significantly affect the outcomes.

The findings support and extend the idea of internalizing conditions of localities (Tan 2019) to include local government capacity in designing and implementing decentralization programs. While fiscal capacity has long been considered in designing decentral-

ization, this result gives empirical evidence that other critical capacities should be well considered, political and analytical capacities.

Regarding political capacity, the design of political decentralization should ensure local government will have sufficient support from local parliament. For instance, the coalition of parties in the local government head election must have a certain minimum percentage of representatives in local parliament. This measure promises local government to have sufficient political support from parliament to realize the planned programs.

To internalize the difference in fiscal and analytical capacities, the asymmetric design of decentralization, as proposed by Tan (2019), can be implemented. It may come up with some forms of fiscal and administrative decentralization based on the assessment of the local government's analytical capacity. The power and respected responsibility of local governments may differ regarding the level of each capacity. The design must also be flexible to accommodate the change in the future as progress is made. This gives incentives to the local government to improve its capacity and performance.

The diagnostic tests for possible problems in estimating the data panel have been taken, and they show that variable OP (local government spending per capita) is possibly endogenous in the model. Test of multicollinearity with VIF (variable inflation factors) results in the variable OP being high at 7.74, while other variables are below 5 (mean VIF 2.72). The problem has been treated in the Hausman–Taylor method, which can accommodate endogenous variables. While in the fixed effect method, this problem in estimation is solved by adding an instrument variable (lag of variable OP). The lag of endogenous variables can serve as instrument variables, such as in a study by Lewis (2017b). The problem of heteroscedasticity has also been anticipated with the use of robust standard error terms in both methods.

5. Conclusions

This study estimates the impact of local government capacity, measured in terms of analytical, operational, and political capacities, on public service delivery in the health infrastructure sector (ratio of households with access to protected sanitation). The estimation results with the Hausman–Taylor method show analytical and operational capacities are insignificant, while political capacity has significant negative parameters. This finding indicates those three types of capacities individually have little impact to positively affect the outcome (public service delivery), the dependent variable. Further, political capacity may have the opposite impact. It indicates the government's political power may negatively impact public service achievement due to weakening legislative control and alleged misconduct. However, political support is still necessary for the policy process, and the positive parameter of interaction between the three types of capacities has proven it. The conclusion is a strong political capacity must be combined with high analytical and operational capacities to affect the outcomes positively.

The main finding of this study is the interaction of the three capacities has a significant positive impact, as predicted. This indicates the three types of capacities are complementary and effectively improve local government's achievement in delivering public service. It confirms the interplay of three types of capacities in the policy process. An additional finding may also be taken from the estimated parameter of control variables. The socioeconomic variable (poor) in both estimation methods has a significant parameter value. It shows the socioeconomic variable matters in influencing the outcomes.

The findings support and extend the idea of internalizing conditions of localities (Tan 2019) to include local government capacity in designing and implementing decentralization programs. While operational capacity (including fiscal capacity) has long been reckoned in designing decentralization, this result gives empirical evidence that other critical capacities should be well considered, political and analytical capacities.

Regarding political capacity, the design of political decentralization should ensure local government will have sufficient support from the local parliament. To internalize differences in operational and analytical capacities, the asymmetric design of decentralization,

as proposed by Tan (2019), can be implemented. It may come up with some forms of fiscal and administrative decentralization based on local government operational and analytical capacity assessment. The design must be flexible to accommodate a change in the future.

This study has limitations related to the panel data covering only two consecutive years. The limited observation period of the data is due to the availability of information on the primary research variable (analytical capacity) that only commenced in 2017. For more robust estimation results, a longer period of observation is valuable.

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