

The Effect of Local Government Spending Behavior on Local Economic Growth in Indonesia

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Abstract

This study employs a dynamic panel data approach to assess the impact of year-end spending spikes on real GDP growth. By addressing econometric issues, it explores how these spending patterns influence economic performance. The analysis includes island-by-year effects to capture regional variations. The estimation results indicate that year-end spending spikes significantly reduce real GDP growth, particularly in districts where reliance on government expenditure for infrastructure development is more pronounced. Even in cities with higher fiscal independence, the impact remains, highlighting the importance of efficient spending management. Additionally, districts/cities outside Java Island experience considerable economic consequences due to delayed local government spending, especially in capital expenditure. This research underscores the need for timely and effective government spending to foster sustained economic productivity.

Keywords: spending behavior, year-end spending spikes, decentralization, economic growth, public welfare

JEL Classification: E6, H3, O1

INTRODUCTION

Indonesia's practice of decentralization is seen as a "big bang" because of the extreme transition from a centralized to decentralized regime (Hill and Vidyattama, 2016). These conditions are derived by exchanging regimes, which range from authoritarian to democratic. President Soeharto's centralist authoritarianism met its end in 1998, which led to new prosperity in the electoral system in Indonesia.

Alesina and Wacziarg (1998) state that the larger a country's population, the more diverse public services must be provided. The high diversity of public services that must be provided will encourage more private sector involvement and will reduce the size. Instead of shrinking the size, the Indonesian government shifted its economic development paradigm by making it more decentralized. Additionally, fiscal decentralization is viewed as a method of supporting long-run economic growth. It is centered on a point of view that leads to a better resource allocation and a more productive, conceivably smaller public sector (Oates, 1993).

With fiscal decentralization, local governments that have a better understanding of their fiscal resources and the needs of their people are given the authority to regulate and manage various government affairs independently. It is expected that the public services provided will be closer to the needs and preferences of diverse communities at a relatively more efficient cost (Tiebout, 1956; Rondinelli, 1981; Hope & Chikulo, 2000). Furthermore, fiscal decentralization can encourage market growth and increase economic growth and social welfare (Weingast, 1995; Oates, 1993) through the effectiveness of efforts to meet people's needs, spending efficiency, and macroeconomic stability (Musgrave, 1959). In the post-decentralization system, subnational jurisdictions relied heavily on central grants that account for more than 80% of total local budget resources (Lewis & Smoke 2017; Gonschorek & Schulze 2018). Intergovernmental Fiscal Transfers (Transfer ke Daerah dan Dana Desa/TKDD) funds kept growing, from IDR 81.05 trillion in 2001 to IDR 812.97 trillion in 2019. In addition, the proportion of local spending has increased significantly, from 26.37% in 2001 to 44.26% in 2019. However, the local economy did not necessarily perform better.

Table 1. Provinces with Declining Economic Growth Compared to the Pre-decentralized System

Province	1994-1997	1998	2001-2004	2016	2017	2018	2019
1. Sumatera Utara	8,23	-10,9	4,77	5,18	5,12	5,18	5,22
2. Sumatera Barat	7,34	-6,73	4,77	5,27	5,3	5,14	5,01
3. Riau	4,36	-3,86	1,98	2,18	2,66	2,35	2,81
4. Jambi	7,34	-5,41	5,72	4,37	4,6	4,69	4,37
5. Sumatera Selatan	7,26	-6,71	3,47	5,04	5,51	6,01	5,69
6. Bengkulu	5,76	-6,27	4,91	5,28	4,98	4,97	4,94
7. Lampung	7,43	-6,95	5,01	5,14	5,16	5,23	5,26
8. DKI Jakarta	8,02	-17,49	5,15	5,87	6,2	6,11	5,82
9. Jawa Barat	7,34	-17,77	4,09	5,66	5,33	5,65	5,07
10. Jawa Tengah	6,16	-11,74	4,31	5,25	5,26	5,3	5,4
11. Jawa Timur	7,17	-16,12	4,54	5,57	5,46	5,47	5,52
12. Bali	7,35	-4,01	3,69	6,33	5,56	6,31	5,60
13. NTB	7,17	-3,07	5,20	5,81	0,09	4,5	3,90
14. NTT	7,81	-2,73	4,91	5,12	5,11	5,11	5,24
15. Kalimantan Barat	8,83	-4,71	3,79	5,2	5,17	5,07	5,09
16. Kalimantan Tengah	8,77	-6,92	4,68	6,35	6,73	5,61	6,12
17. Kalimantan Selatan	8,11	-5,53	4,34	4,40	5,28	5,08	4,08
18. Kalimantan Timur	7,14	-0,76	2,52	-0,38	3,13	2,64	4,74
19. Sulawesi Utara	7,64	-2,37	3,23	6,16	6,31	6,00	5,65
20. Sulawesi Selatan	7,14	-5,33	5,00	7,42	7,21	7,04	6,91
21. Sulawesi Tenggara	6,27	-5,78	6,69	6,51	6,76	6,4	6,5

Source: Own calculation based on Andriani (2016) and BPS data (2022)

This is not consistent with the theory that fiscal decentralization can promote local economic growth and improve public welfare (Oates, 1993; Martinez-Vazquez and McNab, 2003). Poor quality and efficiency of local spending, lack of capacity and slow outsourcing of spending (Masduki et al., 2022; Lewis, 2017; Setiawan et al., 2022) are thought to be obstacles to economic growth in a post-decentralized system. According to Hyndman et al. (2006), slow spending delays can affect spending efficiency, effectiveness, and quality. Delays in the use

of quality public services can reduce the impact of spending incentives on aggregate demand. According to BPKP (2017), out of 501 districts/cities monitored in 2016, 321 districts/cities accumulated more than 30% of their spending in the last quarter. Also, in 2019, no better conditions could be determined. 282 of the 462 districts/cities observed had to accelerate more than 40% of their spending in the last quarter. This confirms the slow and lagging spending behavior in Indonesia, where the accumulation of budgetary withdrawals tends to be low at the beginning of the year and rises sharply at the end of the year.

Empirically, the year-end spending spikes are suspected of reducing the quality of US federal agencies' expenditure (Liebman and Mahoney, 2017). The increase in the volume of contracting activity at the end of the year might result in less management attention to the project. The buildup of workload causes delays in completing projects and the possibility of missing spending objectives (Liebman & Mahoney, 2017). As a result, the marginal return to the agency is below the social cost of funds. Postponing spending will reduce its impact on the economy, especially for types of capital expenditure that can provide a large multiplier effect (World Bank, 2012). Hence, year-end spending spikes directly and indirectly affect local economic growth.

Similar challenges were observed in other economies. In the United States and European countries, year-end spending spikes correlated with lower-quality expenditures and suppressed economic growth (Liebman & Mahoney, 2017; McCue, et al., 2021). This research not only highlights the negative consequences of inefficient spending and fiscal decentralization on economic growth but also underscores the intricate interplay between government expenditure patterns and macroeconomic performance.

Based on the relevant theory and empirical literature, the effect of government spending on local economic growth depends not only on the size of the state but also on its timeliness and efficiency. A limited study has empirically measured the impact of slow back spending on the quality and efficiency of government spending (Liebman & Mahoney, 2017), but the impact on economic growth was not examined in the study. Meanwhile, several other studies have examined the impact of local spending efficiency on economic growth (Tirtosuharto, 2010; Kataoka, 2012; Morozumi & Veiga, 2016). However, they did not consider local variables of spending behavior, such as year-end spending spikes. To fill the research gap, this study comprehensively measures the impact of local spending patterns, in the form of year-end spending spikes, on local economic growth, as measured by real gross domestic product (GDP).

The study aims to explore a crucial economic phenomenon - the impact of year-end spending spikes on real GDP growth - using a dynamic panel data approach. Focusing on Indonesia, particularly within the context of fiscal decentralization, the study delves into the dynamics of local government autonomy and its impact on economic growth. Contrary to expectations, fiscal decentralization led to a pattern of slow and back-loaded spending that hindered local economic growth, challenging the presumed benefits of fiscal autonomy. Despite greater fiscal independence, subnational jurisdictions remained heavily dependent on central grants, coupled with suboptimal spending practices. The research also delves into the concept of year-end spending spikes, which have been observed globally in different economies, by providing evidence from a developing

country. This phenomenon, characterized by a surge in government spending towards the end of the fiscal year, is shown to have adverse effects on spending quality and overall economic growth.

Ultimately, the research contributes to a more nuanced understanding of the intricacies involved in government expenditure and its impact on economic growth. By highlighting the pitfalls of year-end spending spikes and inefficient expenditure practices, the study offers valuable insights for policymakers. It underscores the imperative for governments to adopt strategic and efficient spending practices that align with economic needs, rather than adhering to suboptimal end-of-year expenditure behaviours. This study can be an additional reference in formulating and implementing efforts to accelerate the absorption of regional budgets under Law No.1 of 2022 concerning the Financial Relation between Central and Local Governments (*Undang-undang Nomor 1 Tahun 2022 tentang Hubungan Keuangan Pusat dan Daerah/HKPD*).

This paper is structured as follows. In the second section, the research methodology is presented. The third section presents the study results and discussion, while the fourth section concludes this study.

METHOD

Through the fiscal decentralization system, local spending is encouraged to be more effective and efficient in providing public services under the preferences and needs of an increasingly diverse community. The provision of quality public services is expected to encourage the achievement of the goals of fiscal decentralization, i.e., raising economic growth and enhancing public welfare (Oates, 1993; Martinez-Vazquez and McNab, 2003). Concerning a model developed by Balisacan et al. (2003) and modified by Miranti & Resosudarmo (2005), the relationship pattern between local economic growth and several explanatory variables is illustrated in Figure 1.

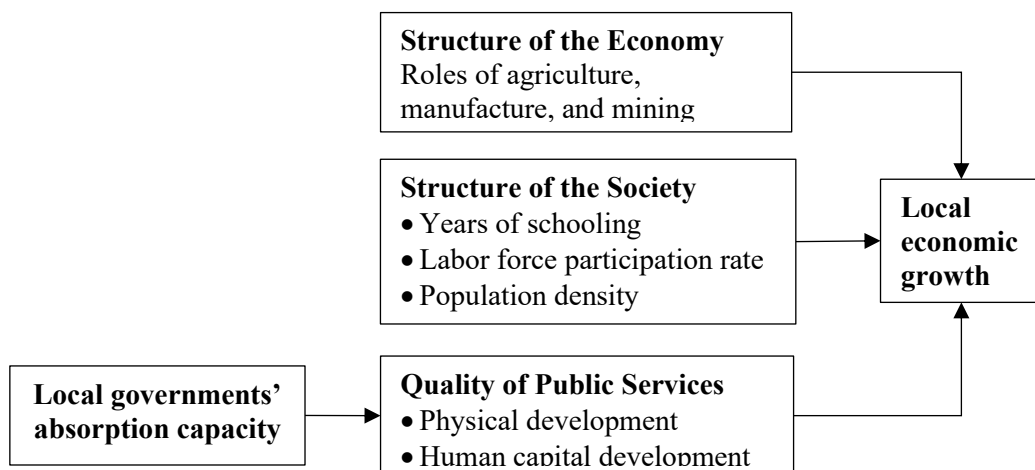


Figure 1. Research framework

Local spending on high-quality public services will stimulate an increase in aggregate demand and promote economic growth. Government spending is needed to stimulate an increase in aggregate demand, so that delaying spending will reduce

the benefits and impact of spending stimulus on the economy. The increase in the volume of contracting activity at the end of the year might result in less management attention per project. The buildup of workload causes delays in completing projects and the possibility of missing spending objectives (Liebman & Mahoney, 2017). As a result, the benefits of government spending are smaller than the social costs incurred. Postponing spending will reduce its impact on the economy, especially for types of capital expenditure that can provide a large multiplier effect (World Bank, 2012).

The structure of the economy in this study is seen from the contribution of the agricultural, manufacture, and mining sectors to the real GRDP. The structure of society is seen from years of schooling, labor force participation rate, total population, and population density. This study also includes several covariates such as total expenditure, government size, the average ratio of own-source revenues (*Pendapatan Asli Daerah/PAD*) to total revenue, investment, and two variables that represent local government accountability, namely Laporan Keuangan Pemerintah Daerah (LKPD) opinion & Sistem Akuntabilitas Kinerja Instansi Pemerintah (SAKIP) predicate. The following econometric equations are built based on relevant theories and empirical studies.

$$g_{it} = \beta_0 + \beta_1 spike_{it} + \beta_2 \log(RealTotal_{it}) + \beta_3 \log(govtsize_{it}) + \beta_4 \log(sharePAD_{it}) + \beta_5 \log(investment_{it}) + \beta_6 \log(laborforce_{it}) + \beta_7 educ_{it} + \beta_8 \log(population_{it}) + \beta_9 \log(PD_{it}) + \beta_{10} agri_{it} + \beta_{11} manu_{it} + \beta_{12} min_{it} + \beta_{13} indeksopini_{it} + \beta_{14} indekssakip_{it} + \alpha_i + \gamma_t + \mu_{it} \quad (1)$$

where

g_{it}	= real GRDP growth (%)
$spike_{it}$	= year-end spending spikes (%)
$RealTotal_{it}$	= total expenditure (%)
$govtsize_{it}$	= government size (%)
$sharePAD_{it}$	= the average ratio of PAD to total revenue (%)
$laborforce_{it}$	= labor force participation rate (%)
$investment_{it}$	= investment
$educ_{it}$	= years of schooling
$population_{it}$	= total population
PD_{it}	= population density
$agri_{it}$	= the role of agriculture (%)
$manu_{it}$	= the role of manufacture (%)
min_{it}	= the role of mining (%)
$indeksopini_{it}$	= audit opinions on Local Government Financial Statements
$indekssakip_{it}$	= SAKIP predicate

while β_0 is constant or intercept; α_i is a unit-specific error term, unobserved heterogeneity, and individual effect; γ_t is a *time-specific error*; μ_{it} is the error term.

The dependent variable of economic growth (g_{it}) was measured using the real GRDP growth rate in the 2010 series. Real GRDP growth can be used to determine regional economic growth from year to year (BPS). Furthermore, the variable of interest in this study was year-end spending spikes ($spike_{it}$), defined as the excess difference between the percentage of actual spending in the fourth quarter and the average quarterly percentage of actual spending in one fiscal year.

Data on real GRDP growth were obtained from BPS, and the quarterly regional spending realization data were obtained from the Directorate General of Fiscal Balance of the Ministry of Finance (MoF) and Badan Pengawasan Keuangan dan Pembangunan (BPKP).

Several independent variables used as covariates were the contribution of the agriculture, manufacture, and mining sectors in the formation of GRDP, which represented the structure of the economy and years of schooling, labor force participation rate, and population density, which reflected the structure of the society. The research also included several other independent variables, such as government size, the average ratio of PAD to total revenue, the average ratio of investment to total real GRDP, and two variables that reflected local government accountability: LKPD opinions and SAKIP predicates.

After panel data regression was performed using the FE method, an assumption test was performed to determine whether any problems with heteroscedasticity and autocorrelation may cause the estimation result to no longer be BLUE (Best Linear Unbiased Estimator) and efficient. Autocorrelation problems arise because the real GRDP growth tends to be constant when there are no economic shocks, which is reflected in the basic APBD assumptions. The next methodological problem that may arise is reverse causality. Even with a low level of possibility, this issue could lead to bias in the estimation result. An increase in real GDP will encourage an increase in income, which will certainly impact an increasingly large expenditure budget. With financial governance and human resources that are not much different, the increase in the amount of the spending budget will have an impact on increasing the number of year-end spending spikes. On the other hand, an increase in economic performance is thought to improve the quality of government institutions (Glaeser et al., 2004; Siddiqui and Ahmed, 2012). Whereas improving the quality of these institutions can ultimately encourage an increase in spending quality, including in the timeliness aspect.

This study uses a dynamic panel data approach so that econometric models can recover from problems of serial correlation, reverse causality, and other endogeneity problems. In addition, the FE estimates will suffer from Nickell bias, which may be severe given the short time series available. Due to the small T and large N in this study, some issues might bias the estimations (Nickell, 1981). A more practical solution for this problem is to use the generalized method of moments (GMM), chosen since it is one of the most feasible ways to overcome reverse causality and the issue of endogeneity. Arellano & Bond (1991) introduced the GMM approach, and Bond et al. (2001) discussed its various advantages. First, estimates are no longer biased by omitted variables that remain constant over time. Second, instrumental variables allow the parameters to be estimated consistently, including endogenous variables. Third, instruments can potentially allow for consistent estimates, even in measurement errors, thus ensuring more stable and efficient estimation results.

The econometric model is considered to satisfy sequential moment restriction if the idiosyncratic error (u) is uncorrelated with the current or past value of the exogenous variable. There is no obligation to comply with the assumption that the idiosyncratic error is uncorrelated with the future value of the independent variable, since what is required is that the independent variable does not affect the error, not vice versa. Arellano-Bond GMM (1991), which is an extension of a GMM

estimator, is recognized to be able to overcome strict exogeneity assumption (SEA) violations in panel data. Basically, Arellano-Bond GMM (1991) is a difference GMM because the regression is done through the first difference between the independent variable and the lagged dependent variable. The first two observations are excluded from the equation, so the regression will start on the third.

$$\begin{pmatrix} Y_{11} \\ Y_{12} \\ Y_{13} \\ Y_{14} \end{pmatrix} = \begin{pmatrix} X_{11} & \cdot \\ X_{12} & Y_{11} \\ X_{13} & Y_{12} \\ X_{14} & Y_{13} \end{pmatrix} \beta \implies \begin{pmatrix} \cdot \\ \Delta Y_{12} \\ \Delta Y_{13} \\ \Delta Y_{14} \end{pmatrix} = \begin{pmatrix} \cdot & \cdot \\ \Delta X_{12} & \cdot \\ \Delta X_{13} & \Delta Y_{12} \\ \Delta X_{14} & \Delta Y_{13} \end{pmatrix} \beta \quad (2)$$

There is a development of the Arellano-Bond GMM estimator, which is based on the possibility that the estimator is inconsistent, that is, when the autoregressive parameter is close to unity (α_j is close to 1) and the ratio of variance between the unobserved effect to the variance of idiosyncratic error is too large. The solution found by Blundell-Bond (1998) is the system GMM. This method is distinguished from the difference GMM because there are two equations: the difference in equation (3) and the lagged level as in equation (4).

$$Y_{it} = \sum_{j=1}^p \alpha_j Y_{i,t-j} + X_{it}\beta + c_i + u_{it} \quad (3)$$

$$\Delta Y_{it} = \sum_{j=1}^p \alpha_j \Delta Y_{i,t-j} + \Delta X_{it}\beta + \Delta u_{it} \quad (4)$$

Arellano-Bover (1995) and Blundell-Bond (1998) then put equation (4) on the first stack and equation (3) on the second stack in the System GMM.

$$\begin{bmatrix} \Delta Y_{i2} \\ Y_{i2} \end{bmatrix} = \alpha \begin{bmatrix} \Delta Y_{i1} \\ Y_{i1} \end{bmatrix} + \begin{bmatrix} \Delta X_{i2} \\ X_{i2} \end{bmatrix} \beta + \begin{bmatrix} \Delta u_{i2} \\ u_{i2} \end{bmatrix}$$

The instrument in the difference equation is the lagged level value and vice versa.

$$Z = \begin{bmatrix} Y_{i0} & 0 \\ 0 & \Delta Y_{i1} \end{bmatrix}$$

The estimating equation can be written as follows:

$$g_{it} = \sum_{j=1}^2 \beta_{1j} g_{i,t-j} + \beta_2 spike_{it} + \beta_3 Z_{it} + \alpha_i + \gamma_t + \mu_{it}$$

Z is a vector of covariates, comprising total spending (%), government size, share PAD, investment, years of schooling, labor force participation rate, total population, population density, the roles of agriculture, manufacture, and mining, opinion of LKPD, and SAKIP predicate; β are the coefficients to be estimated.

Due to initial economic growth and economic activity that might be regionally clustered, we also include island-by-year effects in the estimation to capture this spatial trend and to mitigate the possibility of the results being influenced by regional time-varying economic shocks on individual islands. The addition of Island by year effects is even more crucial, considering that, as the largest archipelagic country, Indonesia has districts with very diverse geographical

characteristics. The grouping in this study focused on 6 (six) of Indonesia's main islands: Sumatera, Java, Kalimantan, Sulawesi, Bali and Nusa Tenggara, as well as Maluku and Papua.

The system GMM method is more advantageous than the difference GMM since the number of observations is greater, so it tends to be more accurate. However, it still has to follow the established rule of thumb, that is, the system GMM is more efficient to use when the parameter coefficients of the lagged dependent variable on the difference GMM are not between the coefficient values of the lagged dependent variable parameter resulting from the OLS (upper bound) and the coefficient value of the lagged dependent variable parameter resulting from the Fixed Effect (lower bound) estimation. Otherwise, the benefits of using the system GMM are not too significant.

In recent years, the use of the difference GMM and system GMM has increased dramatically. This approach is popular for several reasons. First, this estimator can overcome a critical problem in the model, namely, the endogeneity of the regressors, while simultaneously avoiding dynamic panel bias. Second, the flexibility of the GMM framework can accommodate data with an unbalanced panel and use many endogenous variables (Roodman, 2009). The difference between the difference GMM and the system GMM has been extensively explained. The basic idea is to estimate an equation at the first difference and other levels. The instruments used at the equation level lagged from the dataset's first difference. Both estimators are designed for short data types and wide panels. They can adjust the linear model with one dynamic dependent variable, additional control variables, and the fixed effects method (Roodman, 2009).

RESULTS AND DISCUSSION

The analysis was conducted using a balanced panel data set for 462 districts in Indonesia. 27 out of 508 districts were excluded from observation due to the unavailability of quarterly expenditure realization data. At the same time, 19 other districts were excluded from observation due to the unavailability of the SAKIP predicate, which described the local government's performance accountability. Therefore, this study observed a sample of 462 districts and used secondary data. Based on data availability, this study covers 4 years, from 2016 to 2019. The observation period must be shortened to 2019 due to the COVID-19 epidemic, which caused an economic shock to Indonesia in early 2020. If data from that year were included in the study, the results could be drastically different. Table 2 provides the summary statistics of the data in this study.

Table 2. Summary Statistics

Variabel	Obs	Mean	Std. Dev.	Min	Max
Real GRDP growth (in %)	1,848	5.41	3.33	-34.57	112.20
Year-end spending spikes (in %)	1,848	16.65	7.07	-16.71	45.30
Total expenditure (in %)	1,848	92.26	6.10	56.60	122.03
Government Size (in %)	1,848	16.30	29.07	0.94	635.73
The average ratio of PAD to total revenue (%)	1,848	11.81	9.66	0.14	84.47
Investment (in IDR trillion)	1,848	5.41	9.88	0.033	113.17
Years of schooling	1,848	8.13	1.53	2.19	12.64
Labor force participation rate	1,848	4.85	2.67	0.05	17.26
Log total population (in thousand people)	1,848	532.59	633.73	13.67	5,965.41
Log population density	1,848	923.92	2,051.93	1.19	15,643
The role of agriculture (in %)	1,848	25.60	15.96	0	93.34
The role of manufacture (in %)	1,848	13.22	14.05	0.10	80.03
The role of mining (in %)	1,848	8.06	14.20	0	89.70

To determine the most appropriate method to use in estimation, we performed several assessments to determine the estimation method, as previously discussed. The parameter for the lagged dependent variable estimated using pooled OLS was used as the upper-bound estimate. Meanwhile, the result of the FE estimation was used as the lower-bound estimate. If the difference GMM estimation results show coefficients that are close to or below the FE estimation, then the system GMM must be prioritized.

Table 3. Regression Results Using Several Methods

Dependent Variable	<i>g</i>			
	(1) OLS	(2) FE	(3) One-step System GMM	(4) Two-step System GMM
Independent Variables	Coef.	Coef.	Coef.	Coef.
<i>g_{t-1}</i>	0.3104** (0.1245)	-0.3746*** (0.1112)	0.2450** (0.1058)	0.2875*** (0.1002)
<i>spike</i>	-0.0007 (0.0160)	0.0202 (0.0197)	-0.0011 (0.0159)	-0.0118* (0.0067)
<i>N</i>	1,386	1,386	1,386	1,386
<i>R</i> ²	0.1430	0.0023		
<i>F</i>	9.79	13.15	1,259.99	1,260.98
Number of groups	462	462	462	462
Number of instruments			19	19
A-B test for AR (1) (<i>p</i> -value)			0.245	0.274
Hansen Test (<i>p</i> -value)			0.458	0.458

Robust standard errors are in parentheses: **p* < 0.10; ***p* < 0.05; ****p* < 0.01. The covariates are total spending (%), government size, share of PAD, investment, years of schooling, labor force participation rate, total population, population density, the roles of agriculture, manufacture, and mining, LKPD opinion, and SAKIP predicate.

From the regression results using the OLS method, the coefficient of the lagged dependent variable real GRDP growth was 0.3104 (upper-bound), while the

FE method showed a parameter coefficient of -0.3746 (lower-bound). The coefficient value of the lagged dependent variable parameter in the difference GMM method, both one-step (0.7081) and two-step (0.4310), exceeded the upper-bound, which made the use of the system GMM more precise and still efficient. The coefficient of the lagged dependent variable parameter in both system GMM methods, one-step and two-step system GMM, was between the upper and lower bounds. However, the robust standard error of the two-step system GMM method was smaller than that of the one-step system GMM, which made using the two-step system GMM method more efficient (Bond et al., 2001).

The Hansen test result of 0.458 indicates that the instrument used in the model is valid (p -value > 0.05). The Arellano-Bond test results on Autoregressor 1 (AR1) showed a p -value of 0.274, which was not statistically significant at a p -value > 0.05 , which means accepting H_0 . Due to the limited research period, the Arellano-Bond test's range was just AR1, so accepting H_0 , which stated there was no autocorrelation, should have been rejected. These results indicated that there were econometric problems, so that treatment was needed, i.e., adding a time lag to the dependent variable.

After adding a time lag to the dependent variable and including Island by year effects in the estimation, this study found that an increase in year-end spending spikes by one percentage point would reduce real GRDP growth by 0.0590 percentage points and is statistically significant at 5%. The average year-end spending spike in the 462 districts was 16.65%; if the spikes could be cut in half, real GRDP growth would increase by 0.4912%. Suppose the fourth quarter actual spending could be close to one-fourth of the total actual spending in one fiscal year, ceteris paribus, it would encourage an increase in real GRDP growth of around 0.9824%. In the context of the actual expenditure and real GRDP in 2019, local government's efforts to realize their spending earlier by IDR 129.09 trillion or 16.65% of the total actual expenditure (IDR 775.33 trillion) would increase real GRDP by IDR 88,37 trillion or 0.9824% of the total real GRDP (IDR 8,995.67 trillion).

This research's findings not only highlight the negative consequences of inefficient spending and fiscal decentralization on economic growth but also underscore the intricate interplay between government expenditure patterns and macroeconomic performance. The results of this study pivot toward Indonesia, specifically within the framework of fiscal decentralization. Under this policy paradigm, local governments attain greater autonomy in managing budgets and public services. An anticipated corollary was an upswing in efficiency, leading to finely tuned services and, subsequently, overall economic growth. However, the research yields a counterintuitive revelation – a pattern of sluggish and back-loaded expenditure that tangibly undermines local economic growth. Evidently, despite gaining fiscal empowerment, subnational jurisdictions still heavily rely on central grants, coupled with the continued prevalence of suboptimal spending practices. The empirical findings challenge the conventional belief that fiscal decentralization automatically leads to improved local economic growth. The delay in providing public services due to inefficient spending practices directly impacts overall economic productivity. This phenomenon is not unique to Indonesia; even in international contexts, such as the US and European countries, year-end spending

spikes result in lower-quality expenditures and hindered economic growth (Liebman & Mahoney, 2017; McCue, et al., 2021).

Several other estimations were performed, including the type of local government: state status and district location (Java Island or outside). The estimation results showed that the significance level and the sign of the effect of year-end spending spikes on real GRDP growth had not changed, despite the slightly different magnitude of the parameter coefficient. The estimation result with the dummy island is similar to the main result because the dummy variable was dropped due to collinearity. Furthermore, some estimation was carried out to see the heterogeneity effects between districts. The results are presented in Tables 3 to 5. Some of these classifications were based on differences in fiscal independence, infrastructure development focus, and economic activity.

The district government's efforts to catch up on infrastructure development gaps rely heavily on government spending. With a much larger government size, it was 17.84% compared to 10.10%; constraints in terms of timeliness and quality of local government spending can be a disincentive to economic productivity. Meanwhile, the city government's high level of fiscal independence may have reduced the amount of year-end spending spikes, but it has not succeeded in eliminating its impact on economic growth. According to 2016-2019 data, the average ratio of PAD to total revenue in city governments was 20.17%, significantly greater than the district government's, which was just 9.7%. With a better fiscal independence level, city governments were more flexible in managing their regional budgets. However, city governments had a higher share of capital expenditure; it was 22.49% compared to 19.53%. Capex is known as the type of expenditure with the largest multiplier effect, so the delay in spending would greatly impact economic productivity.

Table 4. Regression Results Using System GMM

<i>Dependent Variable</i>	<i>g</i>	
	(1) Two-step System GMM (linear time trend)	(2) Two-step System GMM (Island x Year FE)
<i>Independent Variables</i>	Coef.	Coef.
g_{t-1}	0.2157*** (0.0646)	0.2111*** (0.0681)
g_{t-2}	-0.2147 (0.1895)	-0.2220 (0.2122)
<i>spike</i>	-0.0538* (0.0298)	-0.0590** (0.0256)
<i>N</i>	924	924
<i>F</i>	389.64	325.76
Number of groups	462	462
Number of instruments	20	30
Hansen Test (<i>p</i> -value)	0.235	0.203

Robust standard errors are in parentheses: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. The covariates are total spending (%), government size, share of PAD, investment, years of schooling, labor force participation rate, total population, population density, the roles of agriculture, manufacture, and mining, LKPD opinion, and SAKIP predicate.

The city government's flexibility in managing the regional budget does not guarantee that it will avoid the negative impact of year-end spending spikes. With greater fiscal independence, the city government may have reduced year-end spending spikes, but it has not reduced the significance of its impact on economic growth, one of which is caused by the large proportion of actual capex at the end of the fiscal year. Quite a high and significant impact of year-end spending spikes was also found in districts/cities outside Java Island. Apart from the lower fiscal independence level, which was 9.18% compared to 20.30%, the portion of capex for districts/cities outside Java Island was also much higher, it was 21.17% compared to 18.50%. Furthermore, the average government size in districts/cities outside Java Island is substantially greater than in districts/cities on Java Island, which was 19.11% compared to 7.52%, implying that regional economic productivity is highly dependent on government spending. District/city governments outside Java Island allocated larger capital spending to fill gaps in physical infrastructure development so that constraints, in terms of timeliness and capex quality, would significantly impact economic growth. With an average year-end spending spike of 16.82%, the success of districts/cities outside Java Island in realizing their spending smoothly, *ceteris paribus*, would encourage an increase in real GRDP growth of around 1.16%.

Table 5. Robustness Check: Using Government Status and Island Location

<i>Dependent Variable</i>	<i>g</i>		
	Two-step System GMM (2 lags) with Dummies		
<i>Independent Variables</i>	(1)	(2)	(3)
	Main results	District/city	Java Island or outside
	Coef.	Coef.	Coef.
g_{t-1}	0.2111*** (0.0681)	0.2138*** (0.0702)	0.2111*** (0.0681)
g_{t-2}	-0.2220 (0.2122)	-0.2264 (0.2119)	-0.2220 (0.2122)
<i>spike</i>	-0.0590** (0.0256)	-0.0603** (0.0263)	-0.0590** (0.0256)
<i>dummy statstatus</i>		-0.6003 (0.5534)	
<i>N</i>	924	924	924
<i>F</i>	325.76	299.34	325.76
Number of groups	462	462	462
Number of instruments	30	31	30
Hansen Test (<i>p</i> -value)	0.203	0.202	0.203

Robust standard errors are in parentheses: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. The covariates are total spending (%), government size, share of PAD, investment, years of schooling, labor force participation rate, total population, population density, the roles of agriculture, manufacture, and mining, LKPD opinion, and SAKIP predicate.

Table 6. Heterogeneity Check

<i>Dependent Variable</i>	<i>g</i>			
<i>Independent Variables</i>	(1)		(2)	
	Type of Government		Island	
	District	City	Java	Outside Java
	Coef.	Coef.	Coef.	Coef.
<i>g_{t-1}</i>	0.2155*** (0.0745)	0.7845*** (0.1839)	0.0341 (1.7642)	0.2464** (0.1040)
<i>g_{t-2}</i>	-0.2451 (0.2245)	0.1558 (0.1124)	-0.0212 (0.2447)	-0.2894 (0.2651)
<i>spike</i>	-0.0613* (0.0325)	-0.0525** (0.0236)	-0.0096 (0.0151)	-0.0689** (0.0298)
<i>N</i>	740	184	224	700
<i>F</i>	225.86	1,733.66	955.84	202.33
Number of groups	370	92	112	350
Number of instruments	30	30	30	30
Hansen Test (<i>p</i> -value)	0.207	0.685	0.193	0.195

Robust standard errors are in parentheses: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. The covariates are total spending (%), government size, share of PAD, investment, years of schooling, labor force participation rate, total population, population density, the roles of agriculture, manufacture, and mining, LKPD opinion, and SAKIP predicate.

Like in other developing countries, spending efficiency plays an essential role in improving economic performance (Tirtosuharto, 2010), so delay in spending would thereby severely reduce the multiplier effect, affecting both economic growth and social welfare. In regions with low levels of efficiency, government budgets are mainly allocated to operational expenditures rather than providing quality public services. Intergovernmental fiscal transfers are frequently taken for granted, resulting in low-quality spending that lacks a strong driving force for the economy. Furthermore, Dick-Sagoie & Tingnum (2021) found that local governments which depend on own-source revenue are more autonomous than those that depend on central government transfers. By being autonomous, local governments will have the freedom to regulate their own governments and be able to fund their recurrent and development expenditure from own-source revenues. In this case, they have less chance to be controlled and used as the central government's agents to achieve their political aims. With the absence of (or less) political control, local governments can then focus on their development roles and are most likely to provide goods and services which meet the needs of the local people they serve. This meets the allocative efficiency principle advocated by Oates (2003). Additionally, if efforts are focused towards the end of the year, regional taxes such as hotel, restaurant and entertainment taxes, which are levied monthly, and fees/charges can be neglected. Delays can also lead to insufficient human resources and a strengthening of information technology, the two factors that contribute to tax enforcement reliability (Zheng & Lu, 2021).

This study emphasizes the critical role of fiscal decentralization in shaping local economic landscapes. While decentralization aims to empower local governments with autonomy over fiscal resources and public service delivery, its outcomes are complex. The findings from Indonesia underscore that despite the newfound fiscal freedom, local jurisdictions became heavily reliant on central grants, inadvertently curbing their ability to efficiently allocate resources. This

contradicts the anticipated positive effects of fiscal autonomy (Tiebout, 1956; Rondinelli, 1981), highlighting the importance of a balanced approach to decentralization that considers the interplay between local and central authorities. The study also aligns with the work of Alesina & Wacziarg (1998), illustrating how the diversity of public services increases with a larger population, thereby necessitating private sector involvement and subsequently reducing the size of government. However, the Indonesian government opted for a decentralized development paradigm instead of shrinking government size. This shift reflects the need for tailored approaches in diverse economies, acknowledging that each nation's unique circumstances influence the optimal mix of public and private sector involvement.

CONCLUSION

The study's exploration of the intricate relationship between local expenditure and national economic performance reveals a critical gap between optimism and action. Despite the expectation that local spending could greatly enhance economic growth, there remains a concerning lack of commitment to improving the efficiency and timeliness of these expenditures. In 2019, a staggering 459 out of 462 observed districts tended to realize over 30% of their spending in the fourth quarter. While this was a slight improvement from 2018, it was far worse than the situation in 2016, when only 321 out of 501 districts demonstrated similar behavior. This ongoing trend raises serious questions about the effectiveness of local spending and its impact on economic development.

Using a dynamic panel data approach, this study examines in depth the impact of year-end spending spikes on real GDP growth. This approach not only overcomes the reverse causality econometric challenges but also uncovers an important finding: year-end spending spikes significantly reduce real GDP growth. This discovery underscores the crucial role that the timing of spending plays in influencing economic outcomes. The study goes deeper and analyzes the heterogeneity between districts and cities. Interestingly, while the effect of year-end spending spikes is more pronounced across districts, there is a negligible marginal difference. This implies that local government efforts to fill infrastructure gaps, dependent on government spending, can be thwarted by time and quality constraints, ultimately affecting economic productivity.

In addition, the research shows that despite their greater fiscal independence, cities have not been able to fully eliminate the impact of year-end spending spikes on economic growth. This is due to the higher ratio of own-source revenue to total revenue in cities, giving them greater flexibility in managing their budgets. However, the dominance of capital spending in city budgets amplifies the impact of spending delays on economic productivity due to the high multiplier effect associated with capital spending. Interestingly, the impact of year-end spending spikes extends beyond the context of the island of Java, particularly in districts and cities with larger government size and larger proportions of capital spending. This suggests that the timeliness of municipal spending has a significant impact on economic growth outcomes.

Some limitations of this study are acknowledged in this study. The relatively short observation period limits the depth of analysis and underscores the need for future research to extend the time series for more robust insights. Selection bias

should also be considered, particularly in counties excluded due to a lack of spending data, often due to poor financial management. These findings are even more strongly reflected when less developed regions are disregarded. Thus, future research should include other local spending behaviors, thus improving the completeness of estimates and policy implications.

The results have significant policy implications. From a political point of view, the central government, especially the Ministry of Finance (MoF) and Ministry of Home Affairs (MoHA), must strengthen the process of continuous monitoring, guidance and monitoring, and use the information in the documents for forecasting and implementation of regional spending as an early warning. Early warning is also needed, especially for local governments with extremely low spending realization. Support to the government's internal inspectorate (aparatus pengawasan internal pemerintah/APIP) and law enforcement officials (aparatus penegak hukum/APH) needs to be optimized in order to smooth the procurement of goods/services and avoid administrative criminalization. Timeliness is even more important considering that one of the provisions of Law No. 1 of 2022 on Central-Local Government Financial Relations (Hubungan Keuangan Pusat dan Daerah/HKPD) stipulates that local governments must allocate 40% of their funds to the regional budget for public service infrastructure, the type of expenditure with the highest share of expenditure peaks at the end of the year. Finally, local governments also need to improve, particularly by increasing their commitment to conducting early auctions and increasing fiscal independence.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

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Conceptualization (50%), investigation (100%), data collection (100%), methodology (50%), validation (50%), writing (50%), original draft preparation (100%) (A.F); Conceptualization (50%), methodology (50%), validation, writing (50%), review and editing (100%), supervision (100%) (K.K.). All authors have read and agreed to the published version of the manuscript.

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