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Incumbents' Behavior and Strategic Interactions Among Local Governments: The Case of Indonesia

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Abstract

This paper investigates Yardstick Competition among local governments in decentralized Indonesia by distinguishing bad from good incumbent behavior. By doing so, this paper provides a more explicit connection between theoretical foundation and empirical investigation, where political incumbency is viewed based on the political economy perspective. Given that voters can compare and benchmark their incumbent's performance, an incumbent who aims for the throne twice must consider neighboring local governments' performance as the reference, leading to strategic interaction across local governments. We conduct empirical examinations using Two-regime Spatial Econometrics for panel data consisting of 99 local governments in the West, Central, and East Java Provinces from 2010 to 2017. Our empirical estimation results confirm that mimicking behavior by bad incumbents, characterized by the underperformed public sector, is evident. Bad incumbents mimic their neighbor's public spending. However, we find no evidence of Yardstick Competition by incumbents in general.

Keywords:
intergovernmental relations; structure and scope of government; general public economics
JEL Classifications: D72; H72; H73.

Introduction

Political reform that enables local citizens to select local government through direct elections should have improved checks and balances mechanisms, political accountability, and improved public service provision quality. The mechanism through which public service improvement occurs in decentralized political and fiscal power is a competition-encouraging milieu across local jurisdictions, including Yardstick Competition. Yardstick Competition occurs because citizens in a local jurisdiction can assess their incumbent's performance by benchmarking the incumbent's performance based on other jurisdictions' performance. People's ability to evaluate and benchmark other jurisdictions' performance affects their decision to reward or punish incumbents/politicians. The incumbent will consider the comparison views by voters and adjust their behavior by adopting mimicking behavior. Yardstick Competition compels the incumbents who struggle to retain the next cycle office to interact strategically with other local jurisdictions. Then this political behavior will induce fiscal accountability (Belleflamme & Hindriks, 2005; Besley & Case, 1995).

The literature on Yardstick Competition keeps progressing within different perspectives, methods, and political contexts. Besley & Case (1995) investigated Yardstick Competition among state governments in the U.S. and found evidence that vote-seeking correlates to tax-setting through politicians' nexus of Yardstick Competition. Allers & Elhorst (2005) found evidence of Yardstick Competition across local governments in the Netherland in which voters can penalize incumbents based on anticipated tax rate differentials, especially when incumbents have no large majority backup. Accordingly, incumbents tend to conduct tax rate-based mimicking. Similar to Allers & Elhorst's (2005) work, Yardstick Competition is evident in the case of Norwegian local governments, where comparative performance leads to positive spatial autocorrelation of public sector efficiency (Revelli & Tovmo, 2007). Simultaneously, the publication of a national performance assessment system (SSPR, social services performance rating) in the U.K. reduced the chance of mimicking (Revelli, 2006).

Bocci et al. (2019) argued, although Yardstick Competition is not detected, the policy decisions of municipalities in Italia are affected by the behavior of neighboring municipalities alongside balance sheet variables and political and socio-economic aspects. Furthermore, he argued, since property tax is the primary source of municipal revenue in Italia, policy choices influenced by neighboring municipalities are due to the spillover effect despite the electoral cycle. Taking public sector efficiency into scrutiny, Santolini (2020) revealed political Yardstick Competition among Italian municipalities by which voters evaluate and benchmark public sector efficiency using neighboring local governments' performance. Accordingly, mimicking behavior arises by which local governments adopt innovative administrative practices developed in neighboring jurisdictions. Slightly different from others who used the Yardstick Competition framework in analyzing fiscal interaction among local jurisdictions, Hory (2018) investigated fiscal interaction using the Yardstick Competition framework at the international level. He pointed out a contemporaneous Yardstick Competition to demonstrate delayed fiscal interactions where incumbents mimic neighboring governments' behavior from the previous period.

In Indonesia, the fiscal and political power delegation to subnational governments became the primary reform agenda after the collapse of the thirty-two-year authoritarian government (Basri & Hill, 2020). The decentralized era of Indonesia provides several conditions allowing the Yardstick Competition to exist (see Chalil, 2020). First, decentralization in Indonesia gives a discretionary to the municipalities to collect taxes and decide their spending. Second, Indonesia adopts a direct election that lets the citizens elect a mayor matched to their preferences. Third, incumbency is prevailing in Indonesia (Lewis et al., 2020). Those three aspects allow the citizens and the incumbent candidate to interact strategically, implying that the Yardstick Competition would likely play a critical role in Indonesian politics.

Yardstick Competition is likely prevalent in a mature democracy, seemingly not the case in a young democracy. Nevertheless, open information access to public sector disclosure has allowed local citizens to compare cross-jurisdictional performance, demanding incumbents to look well-performed as they struggle to the next cycle. In this circumstance, mimicking by incumbents with poor public sector performance will be practiced for the sake of pertaining the office to the second throne. Another recognition of the presence of Yardstick Competition that leads to strategic interaction across local governments is the public services resemblance. Incumbents will soon adopt an innovation of public service provision by a neighboring good mayor that receives widespread appreciation. An example is Public Service Mall (mal layanan publik), a public service innovation first developed in Banyuwangi Regency. Acknowledged as an innovation, neighboring local governments soon adopted Public Service Mall. Other local governments' Mayors do not want to lose political advantages from the presence of Public Service Mall policy. This strategic interaction results in a widespread improvement in public service provision.

Studies related to Yardstick Competition in Indonesia are limited. Decentralization in Indonesia is stimulating to inspect, provided the political realm. The works investigating Yardstick Competition in Indonesia were by Granado et al. (2008) and Chalil (2020). Granado et al. (2008) found Yardstick Competition among Indonesian districts where the incumbent's popularity negatively correlated with its tax revenue but positively correlated with neighboring districts. Chalil (2020) examined Yardstick Competition among Indonesian local governments by investigating the fiscal interaction among local governments in Indonesia and then tested its impact on the voting results. He found neighborhood performance insignificantly affects voter gauge.

This paper investigates spending-based strategic interactions among Indonesian local governments by characterizing bad and good incumbents' behavior. We conduct an empirical investigation using two-regime spatial econometrics covering 99 municipalities in West Java, Central Java, and East Java provinces from 2010 to 2017. Compared to the work of Chalil (2020) and Granado et al. (2008), this paper emphasizes the Yardstick Competition conducted by bad incumbents using two-regime spatial econometrics. Chalil (2020) and Granado et al. (2008) primarily utilized single-regime spatial econometrics. This approach gives no clear distinctions between politicians' behavior (e.g., incumbent and non-incumbent); hence, it is unclear whether Yardstick Competition induces fiscal interactions (Elhorst & Freret, 2009). Yardstick Competition, two-regime spatial econometrics is frequently utilized because it could distinguish the region by the status of the mayors, whether they are the incumbents or not (see Allers & Elhorst, 2005; Paul Elhorst & Fréret, 2009).

This paper also offers a more explicit connection between theoretical foundation and empirical investigation of Yardstick Competition by empirically distinguishing bad from good incumbents. Our empirical examination is close to the previous works of Allers & Elhorst (2005) and Paul Elhorst & Fréret (2009) that examined Yardstick Competition by focusing on incumbency status and size of a coalition. However, the theoretical model underpinning Yardstick Competition illustrates e mimicking behavior is performed by bad incumbents, not incumbents in general (see, for example, Besley & Case, 1995; Caldeira, 2012). Furthermore, we argue that defining political regime merely on incumbency status and the coalition's size without distinguishing bad from good incumbents could be misleading, especially for the Indonesian Case due to the dynamic and inconsistent parties' coalition (Fossati et al., 2020; Mietzner, 2008). Specifically, elections at Indonesian local-level governments are more personalized. The candidate's required party sponsorship is not built on mutual loyalty between the candidate and the party but constitutes a business transaction (Mietzner, 2010).

Our empirical examinations demonstrate the following findings: First, fiscal interaction is prevalent among Indonesian local-level governments. Specifically, it exemplifies that a one percent increase in neighbors' fiscal spending leads to a 0.2 percent increase in local fiscal spending. Second, empirical tests for the model selection between single and two-regime models suggest rejecting the single-regime model in favor of the two-regime model, implying that fiscal interaction among local governments in Indonesia probably consists of Yardstick Competition. Third, the two-regime model estimations confirm the theoretical foundation by which the mimicking behavior is not done by the incumbents in general but by bad incumbents. Unlike Paul Elhorst & Fréret (2009), Chalil (2020), and Granado et al. (2008), who revealed Yardstick Competition among incumbents in general, our result implies that only bad incumbents would intensively mimic their neighbor's spending. Specifically, we find that bad incumbents mimic their neighbor's expenditure by almost 30 percent more than non-bad incumbents do. These findings are robust in various robustness tests. Lewis et al. (2020), pointed out bad incumbency in the second term due to term limits and lack of political incentives results in delivering public services less effectively than the first term. Unlike Lewis et al. (2020), we argue that mimicking behavior has allowed bad incumbents to grip their second throne to some extent within the Indonesian political context.

Section 2 discusses the empirical strategy. Subsequently, the empirical results and robustness tests are presented in section 3. Finally, sections 4 and 5 provide the discussion and conclusion.

Methods

Empirical Models for Fiscal Interaction and Yardstick Competition

For an empirical investigation, we employ spatial econometrics. The general nesting, or the so-called Spatial Durbin Model (SDM) formation, for the fiscal interaction model in a panel data expression is as the following:

$$y_{it} = \delta \sum_{j=1}^{N} w_{ij} y_{jt} + \alpha + \boldsymbol{X}_{it}\beta + \sum_{j=1}^{N} w_{ij} x_{jt} \theta + \mu_i + \tau_t + \varepsilon_{it} \quad (1)$$

where y_{it} denotes the fiscal policy variables (e.g., expenditure, revenue, or particular tax rate) for jurisdiction *i* at time *t*; $w_{ij} y_{jt}$ reflects the spatial lag of the dependent variables, which explains the variables for fiscal interaction; X_{it} represents the independent variables in the model; $w_{ij} x_{jt}$ denotes the spatial lag of independent variables. We primarily follow Allers & Elhorst (2005), Chalil (2020), and Elhorst & Freret (2009), which includes general allocation grants, special allocation grants, fiscal revenue, unemployment rate, poverty rate, and population density for the explanatory variables. For the spatial weight matrix, *w*, we utilize the first-order queen's contiguity to define the neighbors.

We specify the yardstick theoretical framework using the expenditure variable in scrutiny for two reasons. First, the political budget cycles induced by the fiscal expenditure are prevalent in developing economies (Block, 2002; Schuknecht, 2000; Shi & Svensson, 2006; Vergne, 2009) and new democracies (Akhmedov & Zhuravskaya, 2004; Brender & Drazen, 2005) that fits the political-economic features in Indonesia. Besides, expenditure-side political budget cycles are prevalent in Indonesian municipalities (Sjahrir et al., 2013). Second, the concern about expenditure-side fiscal policy dominates the local tax policy in local-level governments. Decentralization in Indonesia delegates mainly on spending function with limited taxing delegation leading in no small dependency to transfer from the national government. The income tax and VAT responsibilities are still held by the central government. Therefore, the expenditure-side fiscal policy is open to exploit to target the majority of voters in local-level governments. Empirically, fiscal interaction is confirmed if δ in equation (1) is significantly positive, $\delta > 0$.

We use a two-regime spatial econometrics model developed by Allers & Elhorst (2005). The general nesting specification for Yardstick Competition is expressed as follows:

$$y_{it} = \delta_1 d_{it} \sum_{j=1}^{N} w_{ij} y_{jt} + \delta_2 (1 - d_{it}) \sum_{j=1}^{N} w_{ij} y_{jt} + \alpha + \boldsymbol{X}_{it}\beta + \sum_{j=1}^{N} w_{ij} x_{jt} \theta + \mu_i + \tau_t + \varepsilon_{it} \quad (2)$$

Where δ_1 and δ_2 respectively denote the coefficients of spatial lag dependent variables related to the first (d_{it}) and the second regime ($1 - d_{it}$). We follow Allers & Elhorst (2005) and Elhorst & Freret (2009) by attributing the first political regime (d_{it}) as the first-period mayors in a given size of coalition with dummy variables as can be seen in equation (3). Empirically, the existence of Yardstick Competition is confirmed if $\delta_1 > \delta_2$, where $\delta_1 < 0$ and $\delta_2 < 0$.

$$d_{it}^{IN} = \begin{cases} 1 \text{ for First Period Mayor} \\ 0 \text{ for Second Period Mayor} \end{cases} \quad (3)$$

Furthermore, given Indonesian political features, we extend the standard model for two reasons, first, by distinguishing bad from good incumbents in which mimicking behavior is conducted by rent-seekers, bad incumbents who strive to retain the office. Second, Indonesia's political coalition is ambiguous due to the convergence of Indonesian parties' political economy spectrum (Fossati et al., 2020; Mietzner, 2008), leading to dynamic and parties' coalition inconsistency. Democracy in Indonesia struggles with protracted and unconsolidated democracy. The candidate's required party sponsorship is not contingent on mutual loyalty between the candidate and parties but a business transaction (Mietzner 2010; Chua 2009; Robinson 2004).

Given τ is the public sector performance generated from the flow of production function in the public sector, and g is the expenditure to revenue *ratio*, we define bad incumbent as the first-period mayor who performs low τ, relative to the benchmark ratio, $\bar{\tau}$:

$$\tau_{it} = f(g_{it}) \text{ and } \bar{\tau}_t = \frac{\sum_{i=1}^{n} \tau_{it}}{n}$$
$$\text{where } \frac{\partial \tau}{\partial g} > 0; and \ \frac{\partial^2 \tau}{\partial g^2} < 0 \quad (4)$$

We first define the bad mayors as follows:

$$d_{it}^{BM} = \begin{cases} 1 \text{ for Bad Mayor if } \tau_{it} < \bar{\tau}_t \\ 0 \text{ For Otherwise if } \tau_{it} \geq \bar{\tau}_t \end{cases} \quad (5)$$

By multiplying d_{it}^{IN} and d_{it}^{BM}, we could empirically define bad incumbents as follows:

$$d_{it}^{BI} = \begin{cases} 1 \text{ for Bad Incumbents} \\ 0 \text{ for Otherwise} \end{cases} \quad (6)$$

The expression defined in equation (6) implies that bad incumbents are characterized by relatively low public sector performance given the spending-revenue ratio. Thus, it aligns with the theoretical foundation asserting that bad incumbents would always come up with relatively low public sector performance provided spending and taxation power due to the rent maximizing behavior. On the contrary, good incumbents provide relatively high fiscal spending. Also, the inclusion of fiscal revenue aims to normalize the relative fiscal structure among local governments.

Data

This paper exploits the panel data of 792 observations, covering 99 municipalities in West Java, Central Java, and East Java from 2010 to 2017 (see Table 1 for descriptive statistics).[1],[2] Java island consists of many overall voters in Indonesia. Based on the Indonesian Commission of General Election data that portrays the number of valid votes in all provinces in Indonesia during the presidential election in 2019, provinces in Java island contribute more than fifty percent of Indonesia's total votes, making Java politically crucial for Indonesian politics.

Nevertheless, concerning the political institutions, the Special Region of Jakarta and the Special Region of Yogyakarta are distinctive from other provinces in Java. As the capital city of Indonesia, Jakarta conducts no direct election for local governments.[3] Specifically, the Governor has all responsibility to appoint the heads of the

1 We exclude Pangandaran regency since it formally became a municipality since 2012 (see Law No. 12 Year 2012).

2 For data collecting process, our dataset is primarily collected from Indonesia Database for Policy and Economic Research (World Bank), National Statistics Bureau (BPS), and GADM for local jurisdiction administrative areas in Indonesia.

3 See Law No. 29 Year 2007: *Pemerintahan Provinsi Daerah Khusus Ibukota Jakarta Sebagai Ibukota Negara Kesatuan Republik Indonesia* (Government of Special Region of Jakarta as the Capital City of Republic of Indonesia).

Table 1.
Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max	Unit of Account
Fiscal Expenditure Per Capita	792	1823.63	1001.14	546.12	7473.79	Thousand of IDR
General Allocation Grant Per Capita	792	947.95	540.79	53.26	3698.31	Thousand of IDR
Total Fiscal Revenue Per Capita	792	1856.76	1013.41	521.71	7487.41	Thousand of IDR
Special Allocation Grant Per Capita	792	132.48	132.00	0.00	987.59	Thousand of IDR
Household Income Per Capita	792	671.97	273.45	282.27	1902.47	Thousand of IDR
Unemployment	792	36.91	35.75	2.42	248.37	Thousand of People
Poverty	792	12.44	4.90	2.32	32.47	Ratio
Population Density	792	2.42	3.11	0.27	15.31	Ratio (Thousand of People)

Sources: calculated based on a dataset collected from Indonesia Database for Policy and Economic Research (World Bank), National Statistics Bureau (BPS), and GADM for local jurisdiction administrative areas in Indonesia.

local government. On the other hand, Jakarta's local governments' fiscal structure is distinctive in outlying other local governments (Chalil, 2020; Sjahrir et al., 2013). For the Special Region of Yogyakarta, Law No. 13, the Year 2012 on Privilege of Special Region of Yogyakarta provided special political autonomy to Yogyakarta, differentiating its political institutions from other provinces. Accordingly, the Sultan has legitimacy as a cultural symbol and head of government, leading to a lack of local democratic institutions in the Special Region of Yogyakarta (Tyson, 2010). Empirical investigations in the Indonesian political economy literature frequently observe regions in West, Central, and East Java Provinces as significant parts of decentralized democracy in Indonesia. These provinces consist of a large portion of overall voters in Indonesia. For instance, Amri & Damuri (2019) and Fossati (2019) conducted a political survey in Indonesia that primarily emphasizes West, Central, and East Java.

Issues on Panel Spatial Model Selection

Following the literature in spatial econometrics (see, Elhorst, 2010, 2014; LeSage & Pace, 2009), two main approaches, specific-to-general and general-to-specific, are utilized to select a spatial model specification that best describes the data. The specific-to-general method employs the Ordinary Least Square (OLS) as the point of departure to select the most-fitted model specification and test whether the Spatial Lag Model (SAR) or the Spatial Error Model (SEM) is more appropriate to describe the data. In this regard, Anselin (1988) and Anselin, Bera, Florax, & Yoon (1996) proposed classic and robust Lagrange Multiplier (LM) tests to examine the null hypothesis for the non-existence of Spatial Lag and Spatial Error. The general-to-specific approach should be conducted if either one or both of these null hypotheses are rejected. The general-to-specific approach utilizes Spatial Durbin Model (SDM) as the point of departure to select the best model specification. For this Case, the test is conducted to examine the following hypothesis: H_0: $\theta = 0$ and H_0: $\theta + \delta\beta = 0$. One may use the Likelihood Ratio (LR) test if the SDM is estimated using maximum likelihood or the Wald test. The Wald test is considered to outperform the LR test in terms of its sensitivity to non-linear parameterization. The conclusion of the test sequence, according to Elhorst (2014), is categorized into four prominent cases, as follows:

a) If H_0: $\theta = 0$ and H_0: $\theta + \delta\beta = 0$ are rejected, then SDM appropriately describes the data;
b) If H_0: $\theta = 0$ cannot be rejected while the LM test chooses the SAR model; therefore, SAR is appropriate to explain the data;
c) If H_0: $\theta + \delta\beta = 0$ cannot be rejected while the LM test chooses SEM; hence, SEM describes data the best.
d) If the tests indicate none of these conditions (a, b, and c) are fulfilled, but LR/Wald test chooses SDM; therefore, SDM should be chosen as it generalizes both SAR and SEM.

However, we should also test whether the fixed effect model (one-way or two-way) appropriately describes the data or, in other cases, random effect fits the most as we use panel data. In this regard, we perform two general tests frequently utilized in panel data analysis: the Hausman test (HT) and the LR test (Baltagi, 2005). The HT tests whether the model consists of the endogeneity problem; hence, the random effect model cannot be used, while the LR test examines which fixed-effect model, one-way or two-way, fits the most.

First, we conduct the HT and LR tests to examine the fittest panel data specification. The result for the HT (28.9934, 15 degrees of freedom [df], p=0.0161) indicates we should reject the null hypothesis, which implies we must reject the random effects model in favor of the fixed-effects model. On the other hand, for the LR test, we find it rejects the two-way error model in favor of the time-period fixed effect, where the LR test for the null hypothesis of the non-existence of spatial fixed effects is not rejected (58.5097, 99 df, p=0.9996). In contrast, the null hypothesis of the non-existence of time-period fixed effects is rejected (105.1679, 8 df, p=0.0000).

We find that LM, LR, and Wald tests for the time-period fixed effect are statistically insignificant for the spatial model selection test, implying OLS with time-period fixed effects is the most appropriate specification to describe the data (see Appendix A, Tables A.1 and A.2). However, we find the Spatial Error LM tests are rejected for the spatial fixed-effect model. Furthermore, the Spatial Error Wald test for the spatial fixed effects model also rejects the null hypothesis for non-spatial error, which implies that spatial factors exist for the spatial fixed effects model, especially for the spatial error. Therefore, in this case, we acknowledge the spatial aspects of the data generating process by utilizing the spatial fixed effects model, implying we follow the second-best model selection's rule-of-thumb by neglecting the LR test to meet this paper's objectives. On the other hand, Elhorst (2010) explains that the cost of ignoring the spatial aspects of the model is high due to the omission of relevant variables.

We conclude the spatial error model with spatial fixed effects describes the data appropriately based on the model selection procedure. However, Elhorst (2010) and LeSage & Pace (2009) argue SDM produces unbiased coefficients, although the data generating process selects SAR or SEM. The rationales are that the cost of ignoring spatial dependence in the dependent variable and the independent variables is relatively high, while ignoring spatial dependence in the disturbances, if present, will only cause a loss of efficiency. Therefore, we primarily utilize SDM with one-way spatial fixed effects in this paper.[4]

Results

Strategic Fiscal Interaction: Single-regime Model

Table 2 displays the empirical results containing single-regime estimations using SEM and SDM. First, we shed light on the estimated spatial error coefficient, λ, in the SEM and the coefficient of the spatial lag variable

4 However, we still provide SEM estimation and discussion (see Table 2).

in SDM, δ. The results show the estimation significantly contains a positive spatially correlated error, where $\lambda > 0$. Second, for the SDM estimation, our empirical results suggest fiscal interaction prevails for the Indonesian local-level government. Empirically, results illustrate that a one percent increase in neighbors' fiscal spending encourages a 0.2 percent increase in local budgetary expenditures. This estimated interaction coefficient approximates the interaction effects conducted by several works, such as the interaction effect of 0.20 by Besley & Case (1995), 0.27 demonstrated by Solé-Ollé (2006), and 0.35 by Allers & Elhorst (2005), but

Table 2.
Fiscal Interaction: Single-regime Model

	(SEM)	(SDM)
General Allocation Grant	-0.009204 (-0.138176)	-0.046591 (-0.641056)
Special Allocation Grant	0.656136*** (10.879753)	0.677849*** (7.69004)
Revenue	0.85977*** (24.280616)	0.854211*** (20.735198)
Household Income	0.116425** (2.262763)	0.085178 (1.363788)
Unemployment	0.180444 (0.399685)	0.197127 (0.435722)
Poverty	-0.999394 (-0.191714)	-1.783291 (-0.272659)
Population Density	-1.444276 (-0.390317)	1.781886 (0.324078)
W*General Allocation Grant		0.242418 (2.312971)
W*Special Allocation Grant		-0.166606 (-1.427023)
W*Revenue		-0.192203** (-2.592686)
W*Household Income		-0.007686 (-0.073556)
W*Unemployment		0.158006 (0.250881)
W*Poverty		21.048873 (2.160695)
W*Population Density		-3.86059 (-0.380987)
δ		0.218987*** (5.085805)
λ	0.204983*** (4.714795)	
Spatial Fixed Effects	Yes	Yes
Time Fixed Effects	No	No
R-squared	0.9888	0.9894
Log-Likelihood	-4810.2188	-4800.9389
Spatial Weight Matrix	Contiguity	Contiguity
Municipalities	99	99
Observations	792	792

*Stars denote statistical significance *, ** and *** at 10%, 5% and 1%, respectively. Numbers in parentheses, ( ), represent t-statistics.*

Source: Author estimation of SEM and SDM using E-Views 10 software.

relatively higher than that in Elhorst & Freret (2009), and lower than that in Chalil (2020) and Schaltegger & Küttel (2002).

For other variables, we find that special allocation grants and revenue are statistically significant in boosting fiscal expenditure per capita of Indonesian local-level governments for both estimations. However, in contrast to Chalil (2020), we find the general allocation or non-competitive grant is statistically insignificant.

Our result shows the higher value of both Log-likelihood and R-squared generated by SDM than SEM indicates SDM outperforms SEM for the model specification. This result aligns with Elhorst (2010) and LeSage & Pace (2009), who argue that the cost of ignoring spatial dependence in the dependent variable or the independent variables is relatively high, while ignoring spatial dependence in the disturbances, if present, will only cause a loss of efficiency.

Yardstick Competitions: Two-regime Model

This section provides two-regime SDM estimations by identifying the political regime in equations (3) and (6). However, we first conducted the Log-likelihood Ratio (LR) test to test whether the two-regime SDM performs better than the single-regime SDM, proposed by Paul Elhorst & Fréret (2009). First, we deploy the LR test to compare single-regime SDM to incumbent-based two-regime SDM. The LR test result shows the single-regime SDM could be rejected, favoring incumbent-based two-regime SDM (7.6062, 2 df, p=0.0223). For the SDM that identifies the political regime based on bad incumbents, the LR test also illustrates that we could reject single-regime SDM in favor of bad-incumbents-based two-regime SDM (303.1578, 2 df, p=0.0000).

Let us now proceed to the Yardstick Competition estimations using two-regime SDM by splitting the political regime into the first and second-period mayors. We find that δ_1 and δ_2 are significant, implying fiscal expenditure from neighbor municipalities

Table 3.
Yardstick Competition: Two-regime SDM

	(1)	(2)
General Allocation Grant	-0.047204 (-0.693551)	-0.04015 (-0.71412)
Special Allocation Grant	0.675793*** (8.200003)	0.884342*** (27.690975)
Revenue	0.854357*** (22.095713)	0.702584*** (10.26758)
Household Income	0.087532 (1.492907)	0.112974** (2.336339)
Unemployment	0.19337 (0.45643)	-0.082035 (-0.234052)
Poverty	-1.327933 (-0.216182)	-1.063273 (-0.209856)
Population Density	14.910963 (0.286884)	-1.834206 (-0.430206)
Constant	1.450867 (0.160484)	-120.473871*** (-18.360506)
W*General Allocation Grant	0.241351** (2.463154)	0.265113*** (3.267233)
W*Special Allocation Grant	-0.165511 (-1.51084)	-0.274174*** (-4.582239)
W*Revenue	-0.19468*** (-2.756213)	-0.138554 (-1.543721)
W*Household Income	-0.007923 (-0.080871)	-0.067459 (-0.832961)
W*Unemployment	0.173245 (0.293296)	-0.087307 (-0.178938)
W*Poverty	20.70878** (2.272736)	23.890678*** (3.164444)
W*Population Density	-35.272316 (-0.371929)	6.959846 (0.885171)
δ_1	0.211088*** (4.746867)	0.293914*** (7.791575)
δ_2	0.228062*** (5.253372)	0.227597*** (5.998172)
$\delta_1 - \delta_2$	-0.017 (-0.9589)	0.0663*** (4.6274)
Spatial Fixed Effects	Yes	Yes
Time Fixed Effects	No	No
Political Regimes	Incumbents	Bad Incumbents
R-squared	0.9895	0.9928
Log-Likelihood	-4797.1358	-4649.36
Spatial Weight Matrix	Contiguity	Contiguity
Municipalities	99	99
Observations	792	792

*Stars denote statistical significance *, ** and *** at 10%, 5% and 1%, respectively. Numbers in parentheses, ( ), represent t-statistics.*

Source: Author estimation of Two-Regime SDM using E-Views 10 software.

affects fiscal expenditure in the first and second periods of mayors (see Column 1, Table 3). However, δ_1 - δ_2 is not statistically significant, implying that incumbents conduct no Yardstick Competition. On the contrary, we find that bad incumbents show off Yardstick Competition, indicated by significant δ_1 and δ_2, and δ_1 - δ_2 is statistically significant. Results suggest that bad incumbents would mimic fiscal expenditure from neighboring municipalities more than other types of mayors (i.e., good incumbents and non-incumbent mayors). Our result indicates bad incumbents mimic their neighbor's expenditure by almost 30 percent higher than non-bad incumbents do.

We find the first and second column estimation results are relatively consistent for the rest of the variables. Also, these results comparatively align with the first model estimate exhibited in Table 2. However, we find that neighboring municipalities' general allocation grant (non-competitive grant) is statistically significant.

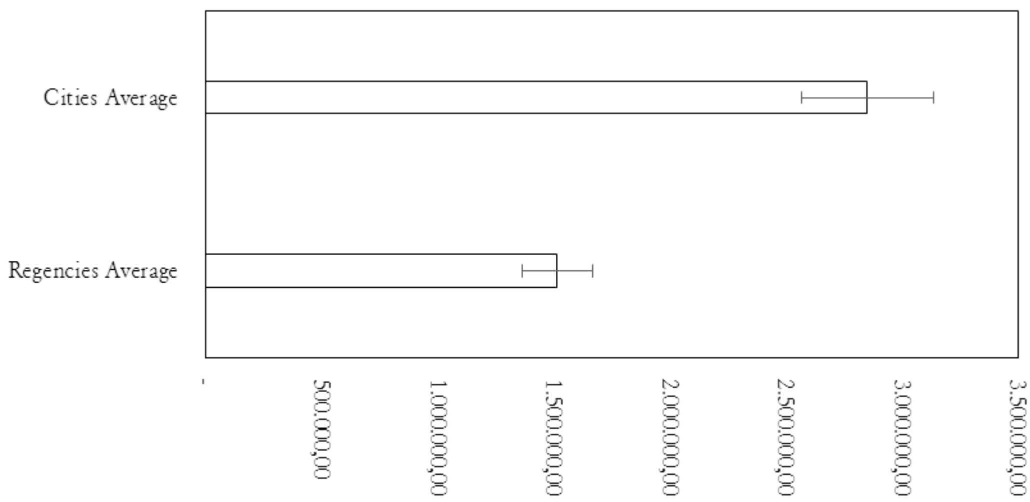
Robustness Tests

This section provides robustness tests to examine whether our findings are consistent in various empirical settings. Our robustness tests imply our primary estimations are consistent for alternative spatial weight matrices and estimators, i.e., cross-sectional spatial econometrics. Table B.1 exhibits the robustness estimations for alternative spatial weight matrices and shows that, in general, our main results are robust (see Appendix B).

Alternative Spatial Weight Matrix. We re-estimate both fiscal interaction and Yardstick Competition by changing the spatial matrix using distance and selected contiguity. We restrict neighbor interaction for the selected contiguity, where cities only interact with cities and the same treatment for regencies. The rationale for this restriction is that expenditure size between regencies and cities, which reflects fiscal disparity, is considerable (see Figure 1). In other words, by this restriction, we assume voters consider the fiscal disparity among local jurisdictions, preventing biased Yardstick Competition (Allers, 2012; Farah, 2019).

We find that fiscal interaction is prevalent in distance-based SDM, while it is statistically weak in the model estimated using selected contiguity, implying the fiscal interaction in the Indonesian local government occurs beyond

Figure 1.
Fiscal Expenditure per Capita (in IDR), Average Value From 2010-2017



Source: calculated based on a series of BPS publication the border between cities and regencies. We find that bad incumbents significantly conduct the mimicking process in the model estimated, using distance-based spatial weight matrix for the Yardstick Competition, but not with the spatial weight matrix of selected contiguity. It deliberates the characteristics of the Yardstick Competition in Indonesia. In assessing their candidate, voters only compare their municipalities' public provision performance to neighboring municipalities and do not consider the institutional differences among municipalities, i.e., cities or regencies. On the other hand, it also implies Yardstick Competition among Indonesian local governments is biased due to the fiscal disparity, leading to a lack of disciplining effect (see, for example, Allers, 2012; Di Liddo & Giuranno, 2016; Farah, 2019).

Alternative Estimator. We operate the second robust test model by utilizing cross-sectional spatial econometrics (Allers & Elhorst, 2005; Chalil, 2020). Consequently, we transform the data from panel to cross-section sets. In this regard, we follow Chalil (2020) by converting the data to the average value from 2010 to 2017. We exploit the SDM model for the single-regime model and SAR two-regime developed by Allers & Elhorst (2005) for the Yardstick Competition model. Tables B.2 and B.3 display single and two-regime spatial estimations for the robustness test. For single-regime estimates, we find no evidence concerning fiscal interaction. However, we find the result parameter for independent and spatially independent variables is consistent with our primary estimation. For Yardstick Competition, we find the first regime parameters are significant, although the second regime parameters, δ_2, are not statistically significant. Specifically, our robustness estimations suggest the incumbents' mimicking process is only statistically significant if we use a spatial weight matrix based on contiguity and distance. However, it robustly indicates the alignment with our primary estimations and the first robustness test, suggesting bad incumbents' Yardstick Competition occurs regardless of the fiscal disparity among cities and regencies.

Discussion

This section provides a discussion on several major findings. First, the estimation results for the single regime model find the general allocation grant or non-competitive grant is statistically insignificant, which implies the non-competitive grant, aimed at correcting fiscal disparity among local jurisdictions, is not promoting higher fiscal expenditure, although it provides a considerable budgetary capacity. On the other hand, a special allocation grant significantly affects fiscal spending. This finding aligns with Boarnet & Glazer's (2002) work that investigated federal grants' role in Yardstick Competition. They specifically find the allocation grant increases fiscal spending of sub-national governments in the United States. Elhorst & Freret (2009) also find the decentralization grant in France's municipalities significantly increases local fiscal spending. Intuitively, both allocation grants and local government revenue increase fiscal capacity, increasing local governments' ability to expand their spending and public provision's considerable responsibility in a decentralized system.

Second, there is an indication that bad incumbents mimic their neighbor's expenditure almost 30 percent higher than non-bad incumbents do. This implies the mimicking behavior for re-electing is not conducted by the incumbents, in general, but by the bad incumbents, specifically, confirming our theoretical framework and implying that identifying the political regime specified by Allers & Elhorst (2005) Elhorst & Freret (2009) is inadequate for Indonesia's Case. We discussed mimicking behavior by bad incumbents and the protracted consolidation democracy in Indonesia that motivate us to employ the two-regime model.

Third, unlike the single regime model, the estimation results for the two regime model find evidence the neighboring municipalities' general allocation grant (non-competitive grant) is statistically significant, suggesting the higher neighbor's non-competitive grant, the higher the fiscal spending in local jurisdictions. In contrast, a special allocation grant (conditional grant) for neighboring municipalities significantly reduces local fiscal spending. The result might indicate the government expects spillover benefits from their neighbors because of the increasing budget by endowed grants, hence the government reduces spending (Boarnet & Glazer, 2002). These findings illuminate a key dilemma of fiscal decentralization and a more precise notion of its dangers. When central governments take on heavy financing obligations, transfers to local governments fail to induce competition among local governments, instead emphasizing the dependence on the center.

Finally, evidence that increasing the poverty rate in neighboring municipalities affects expanding local fiscal spending has caught interest. This might indicate the benefit spillovers or crowding externalities in which socio-economic factors from neighboring residents affect the local government's fiscal spending (Solé-Ollé, 2006). Again, the results shed light on the existence of fiscal indiscipline among local governments in Indonesia, one of the most formidable challenges facing multi-tiered government systems when the system allows local governments to expand their spending while externalizing the cost to others (Rodden, 2002).

Conclusion

This paper demonstrates expenditure-based yardstick competition by distinguishing bad from good incumbents at the Indonesian local-government level. The empirical examinations using single-regime and two-regime SDM based on 99 municipalities' data from 2010 to 2017 to investigate strategic fiscal interaction and Yardstick Competition in Indonesian local governments confirms the theoretical model.

Our empirical examinations demonstrate the following findings: First, we find that fiscal interaction is prevalent for Indonesian local-level government. Specifically, it illustrates that a one percent increase in neighboring fiscal spending stimulates 0.2 percent increases in local fiscal spending. Second, we confirm the theoretical model and the identification method by which mimicking behavior is performed by bad incumbents who seek re-election. At the same time, we find no evidence concerning the mimicking behavior of incumbents, in general, but bad incumbents, specifically. Bad incumbents mimic their neighbor's expenditure almost 30 percent higher than non-bad incumbents do. Unlike Paul Elhorst & Fréret (2009), who found that incumbents conduct Yardstick Competition, and works of Chalil (2020) and Granado et al. (2008), our result implies that bad incumbents, rather than incumbents, would mimic their neighbor's spending more intensively than non-bad incumbents. Our robustness estimations also reveal that bad incumbents' Yardstick Competition arises irrespective of fiscal expenditure disparity between cities and regencies. This finding provides significant insights into the practice of fiscal and political decentralization in Indonesia. Even though Yardstick Competition arises, the competition is open to bias due to the absence of fiscal disparity considerations, leading to a lack of disciplining effect.

We acknowledge several limitations of this paper. First, identifying bad incumbents associated with low public performance as an outcome of the public sector production flow might be too simplistic to meet our theoretical basis. In contrast, incumbents' judgment may be subjective and multi-faceted (Rumayya, Rammohan, Purwono, & Harymawan, 2020), while others emphasize integrity and competence in the issue of proximity (see, for example, Mondak, 1995). Second, the incorporation of fiscal disparity might be needed to confirm the finding of distorted Yardstick Competition due to the absence of fiscal disparity consideration. Third, contrary to theoretical development, the empirical investigation related to distorted Yardstick Competition has drawn relatively minor concern in the empirical literature. On the other hand, this issue is essential to investigate its significant political accountability implications (Allers, 2012; Di Liddo & Giuranno, 2016; Farah, 2019).

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Appendix A
Panel Spatial Model Selection

Table A.1. Estimations for Specific-to-general Model Selection

	Specific-to-general			
	(1)	(2)	(3)	(4)
General Allocation Grant	-0.01853 (-0.516146)	0.028914 (0.480789)	-0.064098 (-1.798315)	-0.1088 (-1.610577)
Special Allocation Grant	0.549104*** (12.293451)	0.645617*** (12.680294)	0.431356*** (6.234491)	0.6009*** (7.364557)
Revenue	0.941489*** (43.348728)	0.853912*** (26.72157)	0.977783*** (44.846597)	0.899751*** (23.931355)
Household Income	-0.020325 (-0.713002)	0.115508** (2.45562)	-0.014687 (-0.457555)	0.087128 (1.639695)
Unemployment	-0.016123 (-0.111011)	0.222628 (0.518613)	-0.049359 (-0.361915)	0.22663 (0.561297)
Poverty	-1.217794 (-1.104239)	0.922251 (0.198561)	-1.056301 (-1.012067)	0.327974 (0.0615)
Population Density	0.251456 (1.437869)	-1.52213 (-0.462613)	0.034675 (0.186167)	-2.218686 (-0.707152)
Constant	43.647584 (1.549665)			
R-squared	0.9879	0.9581	0.9865	0.7904
Log Likelihood	-4845.7	-4816.4	-4793.1	-4763.8
LM Spatial Lag	0.1432	5.01**	0.0992	2.1154
Robust LM Spatial Lag	0.4783	1.7749	0.0244	1.594
LM Spatial Error	12.5065***	15.3494***	0.6729	0.5605
Robust LM Spatial Error	12.8417***	12.1144***	0.5981	0.0391
Spatial Effects	No	Yes	No	Yes
Time Effects	No	No	Yes	Yes
Random Effects	No	No	No	No
Spatial W Matrix	Contiguity	Contiguity	Contiguity	Contiguity
Number of Municipalities	99	99	99	99
Observations	792	792	792	792

Source: Author estimation using E-Views 10 software.

Table A.2. Estimations for General-to-specific Model Selection

	General-to-specific		
	(1)	(2)	(3)
General Allocation Grant	-0.111093 (-1.603029)	-0.111135 (-1.492677)	-0.047082 (-1.278631)
Special Allocation Grant	0.630929*** (7.483395)	0.631586*** (6.973059)	0.461198*** (6.473828)
Revenue	0.890291*** (23.060158)	0.889991*** (21.457967)	0.966309*** (42.095837)
Household Income	0.076942 (1.348578)	0.076748 (1.252109)	-0.016873 (-0.469239)
Unemployment	0.20881 (0.512695)	0.207974 (0.475307)	-0.009081 (-0.057956)
Poverty	-2.001834 (-0.336148)	-2.010688 (-0.314272)	-1.114517 (-0.907337)
Population Density	1.882588 (0.381401)	1.891545 (0.356699)	0.158697 (0.727026)
Constant			

	General-to-specific		
	(1)	(2)	(3)
W*General Allocation Grant	0.030179 (0.261245)	0.031501 (0.253835)	-0.093809 (-1.304869)
W*Special Allocation Grant	-0.258155 (-1.557674)	-0.264045 (-1.484006)	-0.192935 (-1.377441)
W*Revenue	0.092679 (1.046234)	0.082176 (0.870154)	0.079897 (1.584122)
W*Household Income	0.037861 (0.361256)	0.036855 (0.327338)	-0.024924 (-0.355242)
W*Unemployment	0.229084 (0.402137)	0.225946 (0.369188)	0.121111 (0.680854)
W*Poverty	3.998976 (0.39948)	3.989711 (0.370975)	0.58145 (0.333433)
W*Population Density	-6.46226 (-0.680781)	-6.425331 (-0.630056)	-0.551083 (-1.091439)
δ	0.031981 (0.872425)	0.043004 (1.150267)	0.001761 (0.146601)
θ			0.996894*** (13.144943)
R-squared	0.9903	0.9903	0.9865
Log Likelihood	-4760.0143	-4760.0143	-4791.0443
Wald Spatial Lag	5.3848	4.4725	4.4802
LR Spatial Lag	5.661	5.661	4.4682
Wald Spatial Error	7.2001	6.1942	4.4836
LR Spatial Error	6.7488	6.7488	28.415***
Spatial Effects	Yes	Yes	No
Time Effects	Yes	Yes	No
Random Effects	No	No	Yes
Bias Corrected	No	Yes	No
Spatial W Matrix	Contiguity	Contiguity	Contiguity
Number of Municipalities	99	99	99
Observations	792	792	792

*Stars denote statistical significance *, ** and *** at 10%, 5% and 1%, respectively. Numbers in parentheses, ( ), represent t-statistics.*

Source: Author estimation using E-Views 10 software.

Appendix B
Robustness Estimations

Table B.1. Robustness Estimations: Alternative Spatial Weight Matrix

	(1)	(2)	(3)	(5)	(4)	(6)
General Allocation Grant	-0.061896 (-0.85183)	-0.011002 (-0.158371)	-0.060894 (-0.895926)	-0.010105 (-0.155162)	-0.052639 (-0.926527)	-0.043049 (-0.708826)
Special Allocation Grant	0.672013*** (8.012725)	0.745523*** (10.902953)	0.672217*** (8.57397)	0.74539*** (11.660475)	0.705852*** (10.760986)	0.726779*** (12.166685)
Revenue	0.869269*** (21.761813)	0.845714*** (22.815892)	0.868116*** (23.180948)	0.844733*** (24.252687)	0.89333*** (28.583641)	0.876552*** (26.976815)
Household Income	0.088714 (1.474315)	0.129743 (2.449698)	0.092899 (1.635223)	0.133396*** (2.66245)	0.101351** (2.152705)	0.092358** (1.990232)
Unemployment	0.110689 (0.244156)	0.250436 (0.545958)	0.108923 (0.256626)	0.255294 (0.594555)	-0.176731 (-0.497954)	0.282095 (0.704243)
Poverty	1.764038 (0.291997)	1.79692 (0.289019)	2.191557 (0.386611)	2.255162 (0.384056)	3.045304 (0.644648)	-1.810951 (-0.332759)
Population Density	0.506165 (0.133332)	-3.005562 (-0.449982)	0.235019 (0.065336)	-0.614867 (-0.0665)	-0.13309 (-0.044842)	1.171583 (0.200372)
Constant			2.437719 (0.268667)	-2.852373 (-0.452591)	-119.82329*** (-17.879837)	-87.751136*** (-10.715825)
W*General Allocation Grant	0.190346** (2.196135)	0.176563 (1.289321)	0.19003** (2.341228)	0.173717 (1.356629)	0.228718*** (3.366503)	0.212918* (1.778194)
W*Special Allocation Grant	-0.134641 (-1.420704)	-0.239652** (-2.249334)	-0.132427 (-1.485501)	-0.238926 (-2.386987)	-0.088562 (-1.169948)	-0.207597** (-2.221626)
W*Revenue	-0.169226*** (-2.798941)	-0.029796 (-0.347618)	-0.165743*** (-2.852594)	-0.025448 (-0.31099)	-0.196625*** (-3.944712)	-0.064725 (-0.835439)
W*Household Income	0.01105 (0.136233)	-0.168629 (-1.535474)	0.00848 (0.111123)	-0.170592* (-1.654461)	-0.059474 (-0.936224)	-0.215126** (-2.235278)
W*Unemployment	0.353437 (0.545439)	0.210452 (0.233462)	0.375775 (0.619209)	0.239785 (0.283433)	0.22979 (0.45355)	0.019649 (0.024945)
W*Poverty	7.439643 (0.886357)	10.045242 (0.95065)	7.406712 (0.943817)	10.264917 (1.03746)	11.393391* (1.732461)	16.841698* (1.818037)
W*Population Density	-4.09342 (-0.698363)	6.232151 (0.894978)	-3.713391 (-0.674939)	5.880288 (0.901981)	5.49601 (1.192052)	5.367691 (0.882512)
δ_1	0.161105*** (3.791383)	0.09896* (1.948606)	0.148484*** (3.405981)	0.083203 (1.583672)	0.18344*** (4.790412)	0.134116*** (2.753418)
δ_2			0.164449*** (3.836846)	0.106435** (2.076554)	0.129159*** (3.358449)	0.107072** (2.121725)
$\delta_1 - \delta_2$			-0.016 (-1.0638)	-0.0232 (-1.1207)	0.0543*** (4.4347)	0.027 (1.318)
Spatial Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	No	No	No	No	No	No
Political Regimes	No	No	Incumbents	Incumbents	Bad Incumbents	Bad Incumbents
R-squared	0.9893	0.9891	0.9893	0.9891	0.9925	0.9905
Log-Likelihood	-4805.4456	-4810.254	-4801.469	-4806.2741	-4659.6925	-4752.901
Spatial Weight Matrix	Distance	Selected Contiguity	Distance	Selected Contiguity	Distance	Selected Contiguity
Municipalities	99	99	99	99	99	99
Observations	792	792	792	792	792	792

*Stars denote statistical significance *, ** and *** at 10%, 5% and 1%, respectively. Numbers in parentheses, ( ), represent t-statistics.*

Source: Author estimation using E-Views 10 software.

Table B.2. Robustness Estimations: Cross-sectional Based Panel Spatial, Single-regime

	(1)	(2)	(3)
General Allocation Grant	-0.07993***	-0.095617***	-0.090854***
	(-3.016729)	(-3.620111)	(-3.170022)
Special Allocation Grant	0.310033***	0.240925**	0.317354***
	(2.957853)	(2.264101)	(2.902815)
Revenue	1.004347***	1.017301***	1.010317***
	(60.8534)	(63.196615)	(54.530568)
Household Income	-0.061054***	-0.072992***	-0.028784
	(-2.206986)	(-2.683073)	(-1.432078)
Unemployment	-0.011991	-0.01207	-0.024013
	(-0.119122)	(-0.115424)	(-0.211581)
Poverty	-0.730806	-0.896032	-0.22529
	(-1.002911)	(-1.246689)	(-0.328617)
Population Density	0.086688	0.013393	0.173334
	(0.656126)	(0.106467)	(0.887878)
Constant	-0.069523***	-0.04862	-0.062512
	(-0.630648)	(-0.427424)	(-0.561272)
W*General Allocation Grant	-0.156551***	-0.077751*	-0.03724
	(-2.713129)	(-1.737203)	(-0.485003)
W*Special Allocation Grant	-0.164108	0.154909	0.156692
	(-0.786052)	(0.861665)	(0.596766)
W*Revenue	0.021715	0.024635	0.022245
	(0.161889)	(0.188828)	(0.144174)
W*Household Income	-0.037453	0.039201	0.024657
	(-0.763497)	(1.073104)	(0.685408)
W*Unemployment	0.177403	0.115258	0.024454
	(1.585991)	(1.002799)	(0.161591)
W*Poverty	1.274406	0.572451	-0.536405
	(1.423191)	(0.569104)	(-0.546211)
W*Population Density	-0.21586	-0.244784	-0.380513
	(-0.710845)	(-1.331812)	(-1.498002)
δ	0.102478	0.017048	-0.006428
	(0.821295)	(0.136278)	(-0.043674)
Spatial Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	No	No	No
R-squared	0.9994	0.9994	0.9994
Log-Likelihood	-438.38216	-440.94279	-445.38067
Spatial Weight Matrix	Contiguity	Distance	Selected Contiguity
Municipalities	99	99	99

*Stars denote statistical significance *, ** and *** at 10%, 5% and 1%, respectively. Numbers in parentheses, ( ), represent t-statistics.*

Source: Author estimation using E-Views 10 software.

Table B.3. Robustness Estimations: SAR Two-regime Estimations

	(1)	(2)	(3)	(4)	(5)	(6)
General Allocation Grant	-0.005829 (-0.027557)	-0.054092 (-0.273405)	-0.079862 (-0.517662)	-0.025606 (-0.120786)	-0.074527 (-0.375769)	-0.101595 (-0.651554)
Special Allocation Grant	1.01748*** (66.837371)	1.017515*** (66.745676)	1.022469*** (63.174194)	1.013306*** (66.132067)	1.013604*** (66.107402)	1.017826*** (62.581878)
Revenue	-0.102642*** (-3.976521)	-0.102981*** (-3.987835)	-0.108166*** (-3.975108)	-0.095026*** (-3.660472)	-0.095872*** (-3.693428)	-0.100792*** (-3.671816)
Household Income	0.23507** (2.377648)	0.238476** (2.410731)	0.231825** (2.245012)	0.234095** (2.368165)	0.237586** (2.403029)	0.235402** (2.277088)
Unemployment	-0.067498** (-2.750478)	-0.066489** (-2.702015)	-0.068594** (-2.628407)	-0.067438*** (-2.74815)	-0.066324*** (-2.696186)	-0.069561*** (-2.668069)
Poverty	-0.079403 (-0.822227)	-0.088524 (-0.920524)	-0.064532 (-0.649651)	-0.0884 (-0.917059)	-0.097133 (-1.013151)	-0.068844 (-0.692973)
Population Density	-0.993022 (-1.495088)	-0.919565 (-1.358091)	-1.089556 (-1.605341)	-1.016369 (-1.533044)	-0.939263 (-1.389146)	-1.13182* (-1.670591)
Dummy A	47.719516** (2.001465)	49.447888** (2.1164)	55.119784** (2.316385)	53.317701** (2.295782)	54.602849** (2.408259)	62.553374*** (2.74692)
Dummy B	52.233195** (2.247128)	53.546408** (2.358078)	59.771222** (2.615723)	48.433571** (2.044934)	49.957096** (2.162228)	58.27342** (2.509502)
Constant	0.04483 (0.373577)	0.050547 (0.420554)	0.013359 (0.106151)	0.085708 (0.726199)	0.088331 (0.747575)	0.057208 (0.466059)
δ_1	0.011592** (2.17395)	0.008408** (2.000068)	0.005628 (1.10776)	0.011455** (2.150891)	0.008312** (1.982318)	0.004452 (0.886992)
δ_2	0.00649 (1.26405)	0.005277 (1.460273)	0.005115 (1.010711)	0.006207 (1.215776)	0.005145 (1.425081)	0.004263 (0.855762)
$\delta_1 - \delta_2$	0.0051 (0.6003)	0.0031 (0.4969)	0.0005 (0.0712)	0.0052 (0.6181)	0.0032 (0.5029)	0.0002 (0.0262)
R-squared	0.9994	0.9994	0.9994	0.9994	0.9994	0.9994
Log-likelihood	-438.38978	-438.53403	-441.62323	-438.38948	-438.49601	-441.73168
Political Regime	Incumbents	Incumbents	Incumbents	Bad Incumbents	Bad Incumbents	Bad Incumbents
Spatial Weight Matrix	Contiguity	Distance	Selected Contiguity	Contiguity	Distance	Selected Contiguity
Municipalities	99	99	99	99	99	99

*Stars denote statistical significance *, ** and *** at 10%, 5% and 1%, respectively. Numbers in parentheses, ( ), represent t-statistics.*

Source: Author estimation using E-Views 10 software.