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Analyzing Districts in Indonesia**

Alfa Farah

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Abstract

Many countries have adopted decentralization policies in order to strengthen democratic governance. Nevertheless, empirical literature on whether decentralization actually strengthens democratic governance is relatively limited when compared to empirical literature on the impact of decentralization on a wide array of fiscal or economic variables. Therefore, this paper empirically explores the effect of fiscal decentralization on democratic governance, particularly by highlighting one aspect of democratic governance, namely participation in local elections. Upon analyzing data from districts across Indonesia using the within-between specification, the empirical findings generally suggest that participation in district mayoral elections might not necessarily be driven by the increased autonomy that district have, but rather by some adverse consequences of decentralization such as capture by local elites. In addition, the analysis shows that when a district government gains fiscal power, this might not necessarily encourage electoral participation when the district's budget is mostly allocated to spending that does not benefit the public at large.

JEL-Codes: H71, H72, H77, D72

Keywords: fiscal decentralization, fiscal autonomy, voter turnout, local election, the within-between specification

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University of Münster
CIW – Center for Interdisciplinary Economics
Scharnhorststrasse 100
D-48151 Münster

phone: +49-251/83-25329 (Office)
e-Mail: clementine.kessler@uni-muenster.de
Internet: www.wiwi.uni-muenster.de/ciw

1 Introduction

Across the world, one of the central impetuses for implementing decentralization initiatives is to improve governance (Bardhan 2002; Faguet 2014). Decentralization initiatives, both in developed and developing countries, fundamentally include an agenda for political reforms geared toward more inclusive democratic governance. Experience in many countries, such as Bolivia, Peru, the UK, Cambodia and Mexico has shown that the main dynamic behind decentralization is to encourage and improve public participation in policy making (Faguet 2014).

Although strengthening democratic institutions is one of the main driving forces behind the adoption of decentralization policies in many countries, the existing empirical literature rarely addresses this issue. Instead, the literature mainly focuses on how decentralization impacts on a wide array of fiscal and economic variables, such as economic growth (for example, Davoodi and Zou 1998; Zhang and Zou 1998; Akai and Sakata 2002; Iimi 2005), regional disparities (for example, Lessmann 2012; Rodríguez-Pose and Ezcurra 2010; Sepulveda and Martinez-Vazquez 2011) and efficiency (for example, Rodríguez-Pose, Tijnstra, and Bwire 2009). This is hardly surprising, since the pioneering work on decentralization mainly shown that decentralizing the delivery of public goods and services increases efficiency. In particular, classical theories have cited three main channels through which decentralization might increase efficiency, namely homogeneity of preference (Oates 1999), competition between jurisdictions (Tiebout 1956) and informational advantages of the local government (Hayek 1948, 83-84).

Nevertheless, previous empirical studies on the effects of decentralization produced inconclusive results. For example, in terms of the effects of decentralization on economic growth, some studies observed positive effects (Akai and Sakata 2002; Iimi 2005), whereas some found negative effects (Davoodi and Zou 1998; Zhang and Zou 1998). On this account, Qian and Weingast (1997) argue that such inconclusive results were found, at least partly, due to non-existent or weak democratic governance. According to Qian and Weingast (1997), democratic governance, which allows for active citizen's participation, is an essential prerequisite for and is a normative objective of successful implementation of decentralization in less developed

and transitional economies. An empirical study by Enikolopov and Zhuravskaya (2007) also showed that political institutions heavily influence the outcomes of fiscal decentralization. The intriguing subsequent question would be, what happens if democratic institutions are missing or weak? On this account, Inman and Rubinfeld (1996), Martinez-Vazquez and R. McNab (1997), and Martinez-Vazquez (2011) argue that in countries in which democratic institutions are missing or weak, decentralizing power to local governments helps establish and enhance democratic governance because it encourages citizens' participation and increases government accountability. In particular, fiscal decentralization decreases the distance between citizens and the government, intensifies the visibility of government's activities and strengthens the sense of public engagement.

Emanating from what is argued by Inman and Rubinfeld (1996), Martinez-Vazquez and R. McNab (1997), and Martinez-Vazquez (2011), this paper explores the relation between fiscal decentralization and democratic governance. In doing so, this paper focuses on one aspect of democratic governance, namely participation in local elections. Under the premise that the public has a higher incentive to vote when the elected government has more authority and when the prospective policies depend substantially on who wins the election, decentralizing fiscal power to local governments should increase public participation in local elections.

In particular, this paper empirically investigates the relation between fiscal autonomy and voter turnout in local elections by exploiting decentralization experience in Indonesia. Indonesia is of particular interest since the country's prime motivation when undertaking its decentralization reforms immediately upon the collapse of the authoritarian regime in 1998 was to promote local participation and engagement in public decision making (Rasyid 2003). A further democratic reform took place in 2005, in which direct elections of the local governments were introduced.

One of the main challenges in empirical studies that assess the effects of fiscal decentralization is that fiscal decentralization is likely endogenous. Accordingly, in order to establish a robust causal link, the endogeneity problem should be addressed. One method for treating the endogeneity problem is to apply an instrumental vari-

able approach, but finding a valid exogenous instrument for fiscal decentralization remains challenging (Martinez-Vazquez, Lago-Peñas, and Sacchi 2017). Another method is to apply a quasi-experimental design such as a difference-in-difference method or a regression discontinuity design. However, such methods are frequently not applicable when analyzing a single-country case. When panel data is available, the endogeneity problem could be moderated by applying a fixed-effects model, which partly solves the omitted variable bias by removing all effects of time-invariant variables. This, however, implies that the fixed-effects model considers only those variations within a group. This could be problematic in several instances, such as when the study wants to compare between groups, or when time-invariant variations are important for explaining the outcome variable, or when the main explanatory variable does not vary much over time.

Acknowledging the aforementioned challenges, this paper applies the *within-between* specification, first introduced by Mundlak (1978). This specification not only features the standard fixed-effects model in moderating the endogeneity problem, but it also allows the empirical analysis to benefit from variations in the data set that are both within a group and between groups. This is particularly important for the current study, since the data set employed in the analysis shows that the variations between districts are generally larger than the variations over time within a district. Thus, *within-between* specification prevents this study from losing variations that might be important to explain voter turnout.

The empirical results show that variations in the voter turnout both within and between districts is positively explained by per capita expenditure and per capita revenue. In particular, a higher per capita expenditure and per capita revenue lead to a higher voter turnout within a given district and across districts. These two indicators, however, might not adequately capture districts' fiscal autonomy since the revenue source mainly consists of transfers from the central government. Meanwhile, what is particularly striking is that per capita tax revenue, a better measure of fiscal autonomy, negatively explains variations in voter turnout across districts. This is partly consistent with what has been found by de Mello and Barenstein (2001), but, it is important to note that the effects observed across districts are confounded by other district-specific characteristics for which this study fails to

account. Taking this into consideration, the results imply that participation in district mayoral elections might not necessarily be driven by the increased autonomy that the districts have but rather by some adverse consequences of decentralization such as capture by district elite. In addition, the analysis shows that a district government's increase in fiscal power might not necessarily encourage electoral participation when the district's budget is mostly allocated to spending that does not benefit the public at large.

This paper contributes to the literature that empirically investigates the impact of fiscal decentralization. In particular, it enriches the limited literature on the relation between fiscal decentralization and voter turnout. So far, empirical studies investigating this issue are relatively limited; these include, to name a few studies, Hajnal and Lewis (2003), Blais, Anduiza, and Gallego (2011), and Michelsen, Boenisch, and Geys (2014). In addition, this study also demonstrates the application of the *within-between* specification, a method that has not yet been widely adopted in empirical analysis, and show how this specification might improve the empirical analysis on the electoral impact of fiscal decentralization.

2 Related Literature

This section starts by discussing related theoretical contributions on how decentralization strengthens democratic governance, it proceeds with empirical evidence on the relation between fiscal decentralization and governance, and it concludes with empirical evidence on the relation between fiscal decentralization and voter turnout.

Weingast (2009, 2014) argues that decentralizing power to lower-level governments strengthens democratic institutions by creating limit conditions. There are at least three channels through which limit conditions are established. First, by decentralizing fiscal powers to sub-national governments, the responsibility of providing local public goods becomes relatively independent of the national government and, accordingly, politician's stakes of losing national government office become lower (Weingast 2009, 2014). Losers of national elections are willing to comply with the election results because they have local branches on which they can still rely

to maintain their political power. With increased political participation, losers can strengthen their local political bases to win national office in the next elections. Second, by decentralizing power to local governments, the scale of diversity is reduced into smaller and more homogeneous units. This makes consensus more attainable, which is particularly essential for democratic consolidation in countries characterized by considerable diversity. Third, decentralization greatly reduces the likelihood of democratic instability in countries without limit conditions and perpetual institutions, since unlike the democratically elected national government the sub-national governments are presumably not powerful enough to expropriate citizens' rights and property

In addition, Myerson (2006) argues that a democracy can protect itself against failure by devolving power to independently elected local governments. In a new democracy, there is a limited supply of politicians having a good reputation for delivering public goods and services, meaning that voters might expect all politicians to be corrupt. Accordingly, voters have few incentives to replace corrupt leaders. On this account, decentralization can be seen as a way to nurture politicians with good reputations. Local government serves as an arena for local politicians to develop and demonstrate skills to deliver public goods and, thus, build a reputation. Hence, decentralization makes elections more effective for voters, because it allows a wider selection of reputable candidates for national office.

Empirical literature addressing the relation between decentralization and governance is relatively limited when compared to empirical literature on the effects of decentralization on a range of policy-relevant outcomes. Some example are de Mello and Barenstein (2001) and Martinez-Vazquez and R. M. McNab (2006). de Mello and Barenstein (2001) employed various governance indicators in their empirical analysis, namely corruption, graft, government effectiveness, voice and accountability, rule of law, political instability and violence, and regulatory burden. Using cross-country data of 78 countries during 1980 to 1998, their analysis showed that fiscal decentralization, as measured by the share of sub-national spending in total government expenditures, was generally positively associated with governance. Furthermore, the study showed that tax revenue was not associated with governance, whereas the share of non-tax revenue and the share of central gov-

ernment transfer were positively associated with governance. The absence of a correlation between tax revenue and governance, which was particularly striking, was possibly due to local government capture and soft-budget constraints.

Martinez-Vazquez and R. M. McNab (2006) analyzed a data set of 52 developed and developing countries during the period of 1972 to 1997 to study the interaction between fiscal decentralization and democratic governance. Using the data set from the Freedom House, the authors constructed a composite governance index to measure political rights and civil liberties. The results suggested not only a bi-directional causality but also a time-wise relationship between the two, implying that past democracy performance influences the current decentralization performance, and vice versa.

Other studies such as Hajnal and Lewis (2003), Blais, Anduiza, and Gallego (2011), and Michelsen, Boenisch, and Geys (2014) empirically investigated the relation between fiscal decentralization and specific democratic governance indicators, specifically citizens' participation. The core argument binding these studies is that citizens have a higher incentive to vote when the elected government has more authority and when the prospective policies depend substantially on who wins the election. Under a decentralized system, sub-national governments have expanding authority to manage public budget, in both collecting taxes and allocating spending. This creates incentives for the local citizens to engage in decision-making related to this public budget. Hence, voter turnout is expected to be higher in sub-national governments with a higher degree of fiscal autonomy.

In particular, Hajnal and Lewis (2003) discussed types of municipal institutions that affect local voter turnout. When elected officials have only a small role in delivering public services, such as when public services are contracted out or outsourced, the public presumably has less interest in local politics and, thus, voter turnout decreases. Along the same lines, Blais, Anduiza, and Gallego (2011) argue that devolving power to local governments increases the importance of local governments relative to the central government. As a consequence, voter turnout in local elections rises, whereas voter turnout in national elections falls. The cross-country data failed to confirm the hypotheses. However, when applied to Canada

and Spain, the results showed that fiscal decentralization increased electoral participation in sub-national elections and reduced the gap between voter turnout in the sub-national and the national elections. Michelsen, Boenisch, and Geys (2014) discussed the institutional design of public good provision. Using a standard Downsian theory, these authors formally showed that federal municipalities observe the highest voter turnout, whereas fully centralized municipalities have the lowest voter turnout. This theoretical predictions were confirmed by their subsequent empirical analysis employing a data set of German municipalities.

3 A Simple Downsian Framework

The effect of fiscal decentralization on voter turnout can also be analyzed using the standard theory of rational voting (see Downs 1957; Riker and Ordeshook 1968). From this theory, an individual decision on whether or not to vote depends on the expected benefits from and the cost of voting. An individual will vote if the expected benefits exceed the cost. Disregarding the expressive form of voting, the expected benefits from voting are the difference between the expected utility of the candidates (ΔU) times the probability of casting a decisive vote (ρ).

$$\rho\Delta U - C \geq 0 \tag{1}$$

Following this notion, fiscal decentralization will encourage political participation if it increases the probability that an individual will be a pivotal voter and/or increases the expected utility from voting and/or decreases the cost of voting.

Consider a country comprising only two decentralized districts indexed by $j \in \{1,2\}$. Each district has the same size population, normalized to unity. The representative voter i in each district elects the government via a contested election. The representative voter i in district j derives utility from private goods x_{ij} and public goods g_j . The voters do not differ in tastes for public goods, either within or between districts. Mobility and inter-jurisdiction spillovers are not possible.

Assume further that all representative voters have an endowment of the private good, normalized to unity. The level of the public goods in each district is simply

defined by the district's fiscal revenue, τ_j . The utility of the representative voter in district j is thus defined as $U_{ij} = 1 + G(\tau_j)$, in which $G(\tau_j)$ is strictly increasing and strictly concave.

By assuming that there are only two candidates competing in each district, namely candidate A and B , the expected benefit of voting for voter i in district j can be rewritten

$$B_{ij} = \rho_{ij} |\lambda_{ij}^A - \lambda_{ij}^B| U(\tau_j) - C_{ij} \geq 0 \quad (2)$$

The effect of fiscal decentralization on the benefit of voting is captured via $U(\tau_j)$. In particular, fiscal decentralization leads to variation in $U(\tau_j)$ since it allows districts to collect their own revenues and allocate their budgets. This falls in line with the uniformity assumption of the Decentralization Theorem (Oates 1999), in which the decentralized districts are able to provide a diversified level of public goods, whereas the central government can only provide a uniform level of public goods in all districts.

Equation 2 has an implication for empirical analyses of this paper. By controlling for ρ_{ij} , $|\lambda_{ij}^A - \lambda_{ij}^B|$ and C_{ij} in the empirical analysis, if district 2 has a higher fiscal revenue than district 1, $\tau_2 > \tau_1$, it follows that the benefits of voting in district 2 are higher than they are in district 1, $\sum B_{i2} > \sum B_{i1}$. This implies that districts with a higher fiscal revenue and, thus, a higher degree of fiscal autonomy should observe a greater electoral participation.

4 Institutional Context

4.1 Fiscal Decentralization

The unprecedented fall of President Soeharto in 1998 not only marked Indonesia's transition from an authoritarian regime to a democracy, but it also restructured the relations between Indonesia's central government and its regional governments (Aspinall and Fealy 2003). As regions began to pressure the central government for more control over their own resources, leading to the threat of secession, Indonesia abruptly adopted decentralization policies. In 1999, the initial decentralization laws were passed, with an ambitious intention to be fully implemented in 2001;

Table 1: The Composition of a District's Budget (2001-2005)

	2001	2010	2015
<i>% of Total Revenue</i>			
Own-source Revenue	7	7	13
Intergovernmental Transfer	90	84	64
Other Revenue	3	8	23
<i>% of Total Expenditure</i>			
Capital Expenditure	31	21	24
Non-Capital Expenditure (e.g. Personnel Expenditures)	69	79	76

Source: Nasution (2016), SIKD, Author's tabulation

accordingly, this has been considered as one of the most radical decentralization policies ever implemented (Aspinall and Fealy 2003).

Following the decentralization policies, the structure of government has remained unchanged, consisting of five tiers of government, namely the central government, provinces, districts, sub-districts and villages, but the government functions have changed substantially, such that districts have become autonomous. The decentralized districts have since had an expanded authority for providing public services, which primarily includes primary and secondary education, health care, housing and infrastructure, and for collecting local taxes. By 2007, provinces and districts had administered nearly 40% of total public expenditures and executed more than 50% of public investments (World Bank 2007).

As is widely observed in developing countries, in Indonesia fiscal decentralization is characterized by relatively large expenditure responsibilities, but limited revenue autonomy. Districts are relatively free in how they allocate their budget, but they have to meet a standard requirement of local public good provisions. Nevertheless, most of expenditure is allocated for personnel expense (50% of the total expenditure). Capital expenditure accounts for less than 25% of the total expenditure (Table 1).

With regard to their revenue-generating authority, districts are allowed to collect

district taxes. However, tax bases¹ are determined unilaterally by the central government. Districts are allowed to adjust tax rates, but only within a specified maximum. In addition, districts are allowed to collect charges and fees. However, revenues from charges and fees account for a very small portion of the total revenue. Consequently, districts are highly reliant upon central government transfers. Overall, own-source revenue, a major part of which is tax revenue, accounts for less than 10% of total revenue, while central government transfers contribute more than 80% (Table 1).

4.2 Political Decentralization

Following the fall of the authoritarian regime in 1998, district mayors were elected by the democratically elected local legislatures.² In order to further strengthen citizens' participation and increase government accountability, the greatest democratic advancement took place in 2005. Province governors and district mayors have since been directly elected by local electorates, via the so-called *Pemilu Kepala Daerah* (regional head elections). The election of regional heads followed the earlier move of direct presidential elections in 2004.

Each District Election Commission (*Komisi Pemilihan Umum Daerah*, KPUD) independently organizes the district mayoral elections, which use a first-past-the-post electoral system. A district mayoral candidate must be accompanied by a vice mayoral candidate, and pairs of mayoral and vice mayoral candidates may run with or without a nomination from a political party or a coalition of parties. The winner serves a five-year term, and the term limit for the district office is two terms (each of five years).

The first local elections were conducted throughout 2005 in 215 districts and 11 provinces. Hitherto, three waves local elections have been hold. The first was during during 2005-2009, the second during 2010-2014 and the third during 2015-

1. Law No. 28 of 2009 stipulated 11 district taxes, namely tax on hotels, tax on restaurants, tax on entertainment, tax on advertisements, tax on street lighting, tax on parking, tax on C category minerals, tax on water, tax on birds' nest', tax on land and buildings, tax on the transfer of land and buildings.

2. While this was largely the same system as in the previous regime, the main difference was that the candidates were no longer "chosen" by the central government.

2018. In the first and second wave the timing of the elections was idiosyncratic, while the third is simultaneous. By 2027, both executive and legislative elections for all levels of government are expected to take place at the same time.

Since the start of the first district mayoral elections in 2005, the average voter turnout has shown a declining trend, from 74.42 percent in the first wave to 72.29 percent in the second wave (Table 2). Compared to the 2009 and 2014 presidential elections, in which turnout was 72.22 percent and 69.59 percent, respectively, the turnout for the district mayoral elections was slightly higher. This largely aligns with what was argued by Blais, Anduiza, and Gallego (2011), in that decentralization increases the importance of the local government relative to the central government.

Table 2: Voter Turnout in District Mayor Elections (2005-2015)

	Election timing	Number of Districts*			Voter Turnout (%)**		
		<i>Kabupaten</i>	<i>Kota</i>	Total	<i>Kabupaten</i>	<i>Kota</i>	Total
Election period 1	2005 - 2008	364	90	454	75.64	69.95	74.42
Election period 2	2010 - 2009***	398	93	491	73.4	67.68	72.29
Election period 3	2015, 2017, 2018	337	169	506	71.42	65.48	70.49

Notes: Districts are classified into two types, namely *kabupaten* (regency) and *kota* (municipality). The classification was initially based on economic structure and demography, in which *kabupaten* is a more agricultural-based economy

* Total number of districts that held the elections.

** Calculated from the available data.

*** Two districts delayed their second election in 2015.

Source: Rumayya 2016, KPU, author's tabulation

5 Empirical Strategy

5.1 Measuring Fiscal Decentralization

In cross-country studies, four indicators are commonly used to measure fiscal decentralization, namely the share of sub-national governments' expenditures to the total national expenditure, the share of intergovernmental transfers granted to the sub-national governments to the total national revenue, the share of intergovern-

mental transfers received by sub-national governments to the total sub-national governments' expenditures and the share of sub-national governments' own-source revenues to the total sub-national governments' revenue. Accordingly, countries with a higher share of sub-national governments' revenues or expenditures are more fiscally decentralized.

In a single-country study, the degree of fiscal decentralization is translated into the degree of fiscal autonomy; that is, the extent to which sub-national governments have the autonomy to collect their own taxes and allocate their budget. Accordingly, the indicators are modified, such as the share of tax revenue to the total revenue of a sub-national government.

As mentioned in Section 4.1, fiscal decentralization in Indonesia is characterized by relatively large expenditure responsibilities but limited revenue autonomy. In addition, the transfers from the central government account for a major part of a district's revenue. Since districts depend strongly on transfers from the central government transfer is high, total revenue might not adequately capture fiscal autonomy. Therefore, it is important to look at revenue that is self-collected by the district. In this regard, I employed both revenue and expenditure indicators, specifically per capita expenditure, per capita revenue and per capita tax revenue. I expect that these indicators positively affect voter turnout in district mayoral elections.

In addition, in order to capture the district's authority in how it allocates its budget, I look at the expenditure categories. This is particularly essential, because a higher total expenditure might not necessarily translate into better public services, for instance when the public budget is spent for the benefit of office holders instead of the general public. A district's budget classifies expenditures in four general categories, namely personnel expenditure, goods and services expenditure, capital expenditure and other expenditure. Personnel expenditure largely includes government officials' salaries. Good and service expenditure largely covers office-related expenses, such as office supplies and building maintenance. Capital expenditure covers government spending on goods and services intended to create future benefits, such as health and education infrastructures.

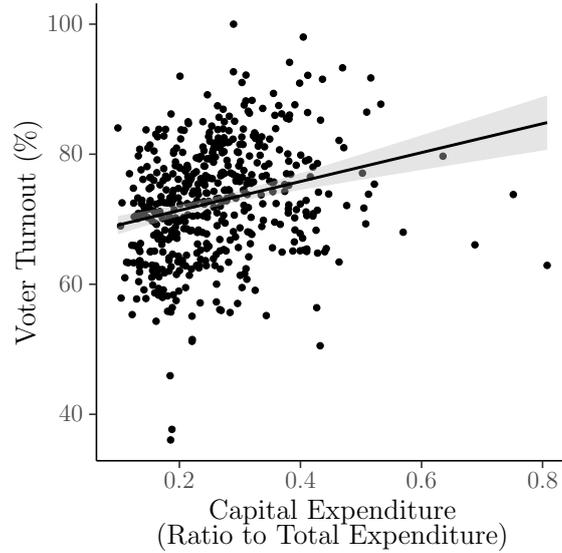


Figure 1: Voter turnout in the district mayoral elections and the share of capital expenditure in the district’s budget, average 2001-2014 (Source: the Directorate General of Fiscal Balance, Ministry of Internal Affairs, Rumayya (2016), KPU, Author’s calculation).

Voters are presumably more likely to attribute their electoral participation to public services from which they directly benefit, such as public schools and roads. In this regard, components of expenditures that directly improve the level of public services should be positively related to voter turnout. Therefore, I expect that the higher the capital expenditure, the higher the voter turnout. In contrast, personnel expenditure is not directly related to providing public goods and is relatively prone to budget misuse directed towards larger official perks. Therefore, the higher the personnel expenditure, the lower the voter turnout.

A preliminary inspection shows a positive correlation between capital expenditure and voter turnout in district mayoral elections, with a correlation coefficient of 0.251, and a negative correlation between personnel expenditure and voter turnout in district mayoral elections, with a correlation coefficient of -0.279 (Figure 1 and 2).

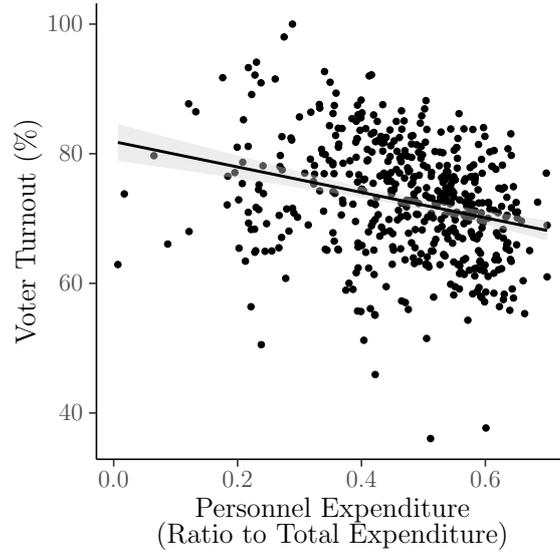


Figure 2: Voter turnout the district mayoral elections and the share of personnel expenditure in district’s budget, average 2001-2014 (Source: the Directorate General of Fiscal Balance, Ministry of Internal Affairs, Rumayya (2016), KPU, Author’s calculation).

5.2 Data and Descriptive Statistics

In order to address the empirical question, I collected district fiscal data and district mayoral election results. The main data source for district fiscal data is the Regional Financial Information System (*Sistem Informasi Keuangan daerah*, SIKD) from the Directorate General of Fiscal Balance, Indonesian Ministry of Internal Affairs. From this source, I extracted data on total expenditure, total revenue, capital expenditure, goods and services expenditure and personnel expenditure from the year 2005 through the end of 2014.

Electoral data are from Rumayya (2016) and the Indonesia General Election Commission (*Komisi Pemilihan umum*, KPU). I included data from the first and second wave of the district mayoral elections, specifically district mayoral elections that were conducted between 2005 and 2014. I excluded data from the third wave of local elections in the empirical analysis because the third wave is not yet completed when I conducted the current empirical analyses. Furthermore, whenever an election was conducted in two rounds, I used the second round voter turnout.

I also included controls covering variables that explain voter turnout, which are mainly collected from Indonesian Statistics (BPS) and INDO-DAPOER World Bank. These controls include population density, adult population, per capita GDP, poverty rate and literacy rate. The final data set covers 454 districts.

Table 3 gives the descriptive statistics of the data employed in the empirical analysis. In particular, it reports not only the means but also the standard deviations for the overall, the within and the between sample. Voter turnout in the first two waves of district mayoral elections were relatively high, with an average of 73%. Looking at the standard deviation, voter turnout within a district, on average, did not vary as much as it did across districts.

The average per capita expenditure was 2.3 million Rupiah and the average per capita revenue was 2.5 million Rupiah. Similar to voter turnout, the variation in the per capita expenditure and per capita revenue between districts was higher than the variation within a district.

Looking at the allocation of expenditures, a district's budget, on average, was mostly allocated to personnel expenditure, which accounted for 50% of the total expenditure. The capital expenditure accounted for only 22% and the goods and service expenditure accounted for only 19% of the total expenditure.

In general, Table 3 shows that the within standard deviation of fiscal indicators and other covariates is smaller than the between standard deviation. This implies that the variables varied more across districts than they did over time within a district. Considering this, comparing across districts is likely more substantive than is comparing within a district over time. Therefore, the estimation strategy should include both the within and between variations.

Table 3: Summary Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
Voter Turnout (%)	o	73.0040	9.2055	37.68	99.65	N = 740
	b		8.6510	37.68	92.675	n = 454
	w		3.6009	56.2840	89.7240	T-bar = 1.6300
p.c. Expenditure (Million Rupiah)	o	2.3198	2.3423	.2693	18.9147	N = 740
	b		2.4841	.4192	16.2755	n = 454
	w		.7111	-3.6833	8.3230	T-bar = 1.6300
p.c. Revenue (Million Rupiah)	o	2.4628	2.6246	.29311	24.9780	N = 740
	b		2.7992	.4093	21.6884	n = 454
	w		.6377	-.8268	5.7524	T-bar = 1.6300
p.c. Own-Source Revenue (Million Rupiah)	o	.1337	.1524	.0028	1.8022	N = 740
	b		.1307	.0080	1.2790	n = 454
	w		.0763	-.4192	.6868	T-bar = 1.6300
p.c. Tax Revenue (Million Rupiah)	o	.0385	.0908	.00054	1.6149	N = 740
	b		.0785	.0005	1.1400	n = 454
	w		.0416	-.4363	.5134	T-bar = 1.6300
%Capital Expenditure	o	22.1159	10.1530	2.9919	64.1714	N = 740
	b		9.8210	4.7243	57.0123	n = 454
	w		3.9226	7.6240	36.6078	T-bar = 1.6300
%Good & Services Expenditure	o	18.2910	5.6123	7.2099	41.2385	N = 740
	b		5.0146	8.2351	38.7309	n = 454
	w		2.8402	6.1117	30.4703	T-bar = 1.6300
%Personnel Expenditure	o	50.8393	12.5647	13.7078	79.8066	N = 740
	b		12.2614	16.5344	79.374	n = 454
	w		4.8903	34.0079	67.6708	T-bar = 1.6300
Population Density (People per km sq)	o	1033.899	2204.371	1.27	15208.91	N = 740
	b		2078.594	1.41	14769.23	n = 454
	w		353.5334	-5016.591	7084.389	T-bar = 1.6300
%Adult Population	o	65.1248	12.8371	15.3966	260.858	N = 740
	b		12.5060	15.3966	260.8574	n = 454
	w		1.8212	35.0435	95.2060	T-bar = 1.6300
p.c. GDP (Million Rupiah)	o	21.8486	30.4845	1.6847	343.3673	N = 740
	b		32.0623	3.3979	343.3673	n = 454
	w		10.3044	-41.3858	85.0831	T-bar = 1.6300
Poverty Rate (%)	o	15.5392	8.7566	1.5	52.45	N = 740
	b		8.4739	1.5	47.53	n = 454
	w		2.7811	7.0942	23.9842	T-bar = 1.6300
Literacy Rate (%)	o	92.4052	7.8274	31.06	99.92	N = 740
	b		8.0592	31.06	99.7802	n = 454
	w		1.3710	84.4551	100.3554	T-bar = 1.6300
Closeness	o	16.6391	16.4858	.0031	89.1204	N = 740
	b		13.5260	.2420	89.1204	n = 454
	w		10.0013	-20.2088	53.4870	T-bar = 1.6300
No. Candidates	o	4.6662	1.8439	2	13	N = 740
	b		1.5964	2	11.5	n = 454
	w		.9949	1.1662	8.1662	T-bar = 1.6300

Notes: o denotes overall, b denotes between and w denotes within. Closeness is the difference in the vote share between the winner and the runner up.

5.3 Estimation Strategy: The *Between-Within* Specification

The approach commonly applied when dealing with panel data is the fixed-effects model. The main reasons are twofold; first, it allows for a correlation between observed explanatory variables, x_{it} , and the unobserved time-invariant individual heterogeneity, μ_i , namely $cov(x_{it}, \mu_i) = 0$ and, second, it helps in dealing with omitted variable bias by removing all effects of time-invariant variables.

Although the fixed-effects model offers several advantages, it also comes with a cost. Specifically, it removes variations between groups and, thus, uses only (time) variations within a group. Therefore, when the explanatory variables do not vary much over time, the fixed-effects model takes out most of the variations in the data set. In this case, the fixed-effects model might lead to imprecise estimates. In addition, since the between variations are removed, the fixed-effects model cannot address research questions in which the main interest is to compare between groups. In this regard, the estimated coefficients generated from the fixed-effects model should be interpreted for a given group, not across group. For example, if this paper applied a fixed-effects model, the empirical results should suggest how a change in a fiscal autonomy indicator in a given district over time might affect voter turnout in the district's mayoral election. The interpretation should not be used to explain the variations in voter turnout across districts, namely that a more fiscally autonomous district has a higher voter turnout its district mayoral election. Nevertheless, this generalization is common in empirical studies using the fixed-effects model.

As displayed in the descriptive statistics (Table 3), the data set employed in this paper features larger between variations. Hence, simply applying the fixed-effects model leads to losing variations that might be important for the empirical analyses. Furthermore, this paper intends to explain how voter turnout changes over time within a district as well as how it varies across districts. Therefore, in order to be able to derive conclusions within a district but also across districts, the specification should include both the within and between variations.

For the above-mentioned reasons, I applied a specification developed by Mundlak (1978) that considers both within and between variations. This specification com-

bines the fixed-effects and random-effects models (Schunck 2013). In particular, in addition to featuring the standard fixed-effects model, this specification relaxes the strong exogeneity assumption of the random-effects model by allowing for a correlation between observed covariates and unobserved time-invariant individual heterogeneity; thus, known as correlated random-effects (Wooldridge 2001, 286-287, 326-328). It estimates the *within*-effects (the effect of variables that vary over time within a group and across groups), which are not biased by a possible correlation with the time-invariant error, and the *between*-effects (the effect of variables that do not vary over time).

Consider a random-effects model of the following form:

$$y_{it} = \alpha + \beta x_{it} + \gamma c_i + \mu_i + \epsilon_{it}, \quad (3)$$

in which i denotes the between-groups index (in this paper, it indicates variables that vary only between districts) and t denotes the within-a-group index (in this study, it indicates variables that vary over time). Accordingly, x_{it} is a variable that varies over time (within-a-group) and across groups. The c_i represents other covariates that vary only between groups, μ_i is the between-groups error and ϵ_{it} is the within-a-group error.

The μ_i can be decomposed into two components, namely $\mu_i = \pi \bar{x}_i + v_i$, where $\bar{x}_i = \frac{1}{n_i} \sum_{t=1}^{n_i} x_{it}$ is a component that is correlated with the observable covariates, and v_i is a component that is uncorrelated with the observable covariates. By decomposing μ_i , Equation 3 can be reformulated:

$$y_{it} = \alpha + \beta x_{it} + \pi \bar{x}_i + \gamma c_i + v_i + \epsilon_{it}, \quad (4)$$

Equation 4 is the correlated random-effects model, where β gives the *within*-effects, whereas π gives the difference between *between*- and *within*-effects. Equation 4 models the endogeneity explicitly by controlling for the means of time-varying variables, \bar{x}_i . Note that there is a correlation between x_{it} and \bar{x}_i .

Bell and Jones (2015) reformulate Equation 4 into:

$$\begin{aligned} y_{it} &= \alpha + \beta x_{it} + (\lambda - \beta)\bar{x}_i + \gamma c_i + v_i + \epsilon_{it} \\ y_{it} &= \alpha + \beta(x_{it} - \bar{x}_i) + \lambda\bar{x}_i + \gamma c_i + v_i + \epsilon_{it} \end{aligned} \quad (5)$$

By rewriting Mundlak's original specification (Equation 4) into the *within-between* specification (Equation 5), the *within*- and *between*-effects are clearly separated. In particular, \bar{x}_i indicates the between-groups variation of x_{it} and, thus, the estimated coefficient λ is the *between*-effects of x_i on y_{it} . The $(x_{it} - \bar{x}_i)$ term indicates the within-a-group variations of x_{it} on y_{it} and, thus, β is the *within*-effects. Since the *within-between* specification clearly separates the *within*- from *between*-effects, the results are easier to interpret. Equation 5 also produces more stable and precise estimates, since mean-centering the regressors removes the correlation between x_{it} and \bar{x}_i . In addition, the estimated coefficient of β , the *within*-effects, is similar to that of the standard fixed-effects model.

Adopting the *within-between* specification, the estimated specification of this paper takes the following form:

$$VT_{it} = \alpha + \beta(F_{it} - \bar{F}_i) + \lambda\bar{F}_i + \gamma c_i + \theta Z_{it} + v_i + \epsilon_{it}, \quad (6)$$

where VT_{it} denotes voter turnout in a mayoral election in district i at year t , defined as the percentage of eligible voters who cast a ballot in the district mayoral election. F_{it} is an indicator of fiscal autonomy for district i at year t . These indicators include per capita expenditure (in natural logarithm), per capita revenue (in natural logarithm), per capita tax revenue (in natural logarithm), percentage of capital expenditure, percentage of goods and services expenditure and percentage of personnel expenditure. Accordingly, \bar{F}_i is the mean value of the associated indicator.

I also included a vector of control variables that crucially explain voting behavior, Z_{it} . The control variables include socio-economic indicators, namely population density (expressed in natural logarithm), percentage of adult population (the number of people who are 15-64 years old), per capita GDP (expressed in natural

logarithm), poverty rate, literacy rate, and election indicators, namely closeness (vote gap between the winner and the runner up) and the number of candidates. In addition, I also included c_i , a time-invariant dummy variable that indicates a new district and takes the value 1 if the district was established after the adoption of decentralization policies.

It is worth mentioning here that although the *within-between* specification solves the omitted (time-invariant) variables bias, it does not rule out the *between*-group endogeneity problem. The correlation between \bar{x}_i and v_i might not necessarily be zero. This problem would also arise if I had applied the standard fixed-effects model. In addition, another possible source for endogeneity is reverse causality. It might be the case that higher voter turnout might pressure the government to allocate the budget into expenditures that directly benefit the citizens. One way to deal with reverse causality is using an instrument that is genuinely exogenous and is strongly correlated with the potentially endogenous fiscal indicators. However, finding valid exogenous instruments for fiscal decentralization measures remains a challenge (Martinez-Vazquez, Lago-Peñas, and Sacchi 2017). Another way to deal with this is to apply a quasi-experimental design such as a difference-in-difference method or regression discontinuity design. However, these two methods are not applicable for this current empirical analyses, since the decentralization policies (the treatment) are implemented in all districts. Since instrumental variable approach and quasi-experimental designs are not feasible, I applied an ad hoc solution by using the lag value of the fiscal indicators. Taking this into account, the empirical findings should not be read as evidence for a causal link between fiscal decentralization and electoral participation.

6 Results and Discussion

Table 4 presents the main estimation results. The first part of the table reports the *within*-effects estimated coefficients, whereas the second part reports the *between*-effects estimated coefficients. Each column in Table 4 corresponds to a fiscal autonomy indicator, namely column 1 provides the estimated coefficients for per capita expenditure, column 2 for per capita revenue and column 3 for per capita tax revenue.

Table 4: Fiscal Autonomy and Voter Turnout

Fiscal Indicator:	Per capita Expenditure (log) (1)	Per capita Revenue (log) (2)	Per capita Tax Revenue (log) (3)
<i>Within-Effects</i>			
Fiscal Indicator	3.4371** (1.5924)	5.4053*** (1.9426)	.4830 (.8541)
Population Density	-.0006** (.0003)	-.0005 (.0004)	-.0007** (.0003)
% Adult	-.0605* (.0345)	-.1076** (.0430)	-.0433 (.0357)
p.c. GDP (log)	-.9028 (1.1146)	-.1825 (1.1486)	-.0122 (1.0223)
Poverty Rate	.0830 (.1112)	.0676 (.1072)	.0721 (.1058)
Literacy Rate	-.2985 (.2171)	-.2793 (.2115)	-.2802 (.2099)
Closeness	-.0126 (.0248)	-.0108 (.0244)	-.0127 (.0244)
No. Candidates	-.2459 (.1969)	-.1821 (.1931)	-.2396 (.1986)
<i>Between-Effects</i>			
Fiscal Indicator	4.3214*** (.6654)	4.9067*** (.7562)	-1.4241** (.6975)
Population Density	-.0003* (.0002)	-.0003* (.0002)	-.0003 (.0002)
% Adult	-.0270** (.0130)	-.0246* (.0148)	-.0096 (.0143)
p.c. GDP (log)	-3.6738*** (.6087)	-3.7820*** (.6459)	-1.1478* (.6111)
Poverty Rate	.1686*** (.0469)	.1686*** (.0503)	.1882*** (.0579)
Literacy Rate	-.0660 (.0474)	-.0471 (.0434)	-.0582 (.0553)
Closeness	.0241 (.0283)	-.0053 (.0294)	-.0090 (.0302)
No. Candidates	-.1408 (.2579)	-.3537 (.2744)	-.2835 (.2992)
New District Dummy	3.0904*** (.7807)	2.5321*** (.8864)	4.2932*** (.8924)
R ²	.4730	.4198	.3618
Adj. R ²	.4553	.3983	.3382
Num. obs.	740	675	675

Notes: The dependent variable is voter turnout in a mayoral election (as a percentage). The explanatory variable in column (1) is per capita expenditure (in natural log), in column (2) is per capita revenue (in natural log) and in column (3) is per capita tax revenue (in natural log). In parentheses are the robust standard errors clustered at district.

*** Significant at the 1 percent level, ** Significant at the 5 percent level, * Significant at the 10 percent level

As expected, column 1 shows that per capita expenditure is positive and significant for both *within* and *between*-effects. The estimated coefficient is significant at the 5 percent significance level for the *within*-effects and at the 1 percent significance level for the *between*-effects. In particular, the estimated coefficient for the *within*-effects is 3.4371, implying that as per capita expenditure of a given district increases by 1%, the voter turnout in the district mayoral election increases by 3.44 percentage points. The estimated coefficient for the *between*-effects is 4.3214. This suggests that a district with a 1% higher per capita expenditure observes a higher voter turnout by 4.32 percentage points. Table 4 column 2 is largely consistent with what is reported in column 1; in particular, it shows that a higher per capita revenue is associated with a higher voter turnout both within a district and across districts. It is important to note here that the total revenue and total expenditure might not adequately reflect the fiscal autonomy of a district, since transfers from the central government account for a major part of each district's budget. Therefore, I conducted a regression using tax revenue, an indicator that should better measure fiscal autonomy.

Table 4 column 3 reports the estimated coefficients for per capita tax revenue. Interestingly, the *within*- and *between*-effects have opposite signs, namely positive for the *within*-effects and negative for the *between*-effects. However, only the *between*-effects is significant (at the 5 percent significance level). This implies that variation in the tax revenue does not explain the variation in the voter turnout over time in a given district. It does, however, explain the variation in the voter turnout across districts; specifically, districts with a higher per capita tax revenue tend to have a lower voter turnout.

The finding from column 3 is particularly striking, since it generally does not align with the notion that fiscal autonomy increases electoral participation; that is, a higher tax revenue is expected to encourage more electoral participation since voters should be highly concerned with how the government allocates the taxes they pay. This finding is partly consistent with de Mello and Barenstein (2001), who observed no correlation between tax revenue and democratic governance and reasoned that local government capture and soft budget constraints account for the absence of a correlation. The *between*-effects found here are also biased by the

time-invariant unobserved heterogeneity, implying that there are presumably unobserved district-specific characteristics, which distinguish the behavior of voters in one district from other districts, that might overestimate the *between*-effects. In particular, lower fiscal revenues might imply lower institutional capabilities to collect revenues, which further implies lower limits on the government’s behavior. On this account, districts in which the tax revenue is low are expected to have lower limits on the government’s behavior and, thus, these districts might be more prone to vote buying and other adverse political exchanges. As a result, vote buying practices might boost voter turnout in districts with relatively low tax revenue. In addition, in alignment with literature that suggests vote buying practices are targeted to voters who are poor (Frey 2019) and uninformed (Fujiiwara and Wantchekon 2013), the data employed in this paper also shows that districts with a lower per capita tax revenue are relatively less developed and less prosperous than those with a higher per capita tax revenue. In particular, the correlation matrix shows that the correlation between per capita tax revenue and per capita GDP is positive (0.2047, with $p = 0.0000$), that between per capita tax revenue and poverty rate is negative (-0.2629 , with $p = 0.0000$) and that between per capita tax revenue and literacy rate is positive (0.1349, with $p = 0.0002$). In alignment with this, the estimated coefficients of per capita GDP, poverty rate and literacy rate imply that districts with a higher GDP per capita, lower poverty rate and higher literacy rate tend to have a lower voter turnout.

I investigated further the relation between types of spending and voter turnout. If fiscal autonomy encourages participation in district mayoral elections, the results should show that types of spending that benefit the public in general, such as spending to finance infrastructure should explain the positive relation between per capita expenditure and voter turnout. In contrast, types of spending that do not directly benefit the public at large are expected to be negatively related to voter turnout. Table 5 displays the results in which components of expenditures are the main explanatory variable, namely capital expenditure in column 1, goods and services expenditure in column 2 and personnel expenditure in column 3.

Table 5: Components of Expenditure and Voter Turnout

Fiscal Indicator:	Expenditure		
	% Capital (1)	% Goods & Services (2)	% Personnel (3)
<i>Within-Effects</i>			
Expenditure Indicator	.0727 (.0612)	.0410 (.0992)	-.1258* (.0730)
Population Density	-.0007** (.0003)	-.0007** (.0003)	-.0007** (.0003)
% Adult	-.0400 (.0332)	-.0338 (.0382)	-.0280 (.0346)
p.c GDP (log)	-.6415 (1.0151)	-.6550 (1.0044)	-.6116 (.9970)
Poverty Rate	.0804 (.1102)	.0738 (.1114)	.0758 (.1114)
Literacy Rate	-.3182 (.2196)	-.3163 (.2320)	-.2921 (.2336)
Closeness	-.0150 (.0249)	-.0116 (.0248)	-.0158 (.0247)
No. Candidates	-.2758 (.2000)	-.2982 (.2011)	-.2615 (.2022)
<i>Between-Effects</i>			
Expenditure Indicator	.1181** (.0495)	.0886 (.0918)	-.1192*** (.0412)
Population Density	-.0005*** (.0002)	-.0006*** (.0002)	-.0005*** (.0002)
% Adult	-.0157 (.0151)	-.0209 (.0167)	-.0157 (.0144)
p.c GDP (log)	-2.5626*** (.6793)	-2.1789*** (.5642)	-2.8893*** (.6656)
Poverty Rate	.2294*** (.0506)	.2265*** (.0533)	.2079*** (.0500)
Literacy Rate	-.0431 (.0459)	-.0391 (.0471)	-.0271 (.0481)
Closeness	.0150 (.0282)	.0113 (.0292)	.0135 (.0285)
No. Candidates	-.0721 (.2776)	-.1360 (.2827)	-.0269 (.2810)
New District Dummy	3.8991*** (.8790)	4.5569*** (.7950)	3.5142*** (.9004)
R ²	.4507	.4466	.4545
Adj. R ²	.4323	.4280	.4362
Num. obs.	740	740	740

Notes: The dependent variable is voter turnout in a mayoral election. The explanatory variable in column (1) is the percentage of capital expenditure to total expenditure, in column (2) is the percentage of goods and services expenditure to total expenditure and in column (3) is the percentage of personnel expenditure to total expenditure. In parentheses are the robust standard errors clustered at district.

*** Significant at the 1 percent level, ** Significant at the 5 percent level,

* Significant at the 10 percent level

As expected, the results show that the estimated coefficients of capital expenditure, as a percentage of total expenditures are positive in both *within* and *between* estimates. However, they are only significant for explaining variations between districts (at the 5 percent significance level), not over time within a district. Although the share of capital expenditure explains the variation of voter turnout across district, this effect is confounded with other district-specific unobserved heterogeneity.

Table 5 column 2 reports how goods and services expenditure relates to district mayoral voter turnout. This expenditure is essential for a well-functioning local government and, therefore, as expected the estimated coefficients are positive for the *within*- and the *between*-effects. However, goods and services expenditure could not significantly explain variations in voter turnout. This is presumably because the allocation for this type of expenditure is relatively low, approximately less than 20% of the total expenditure.

Table 5 column 3 reports the regression results involving personnel expenditure as the main explanatory variable. The estimated coefficients of personnel expenditure are negative and significant in both *within*- and *between*-effects. This implies that if a district increases its share of personnel expenditure, voter turnout is expected to decline. In addition, the *between*-effects suggest that districts with a higher share of personnel expenditure tend to have a lower voter turnout.

What might explain the results reported in Table 5 is the following. Although fiscal decentralization expands the fiscal roles of local governments, local electorates might not see that this decentralization significantly affects local policies. Decentralizing fiscal power to local governments might not affect local citizens at large, for example when it does not translate into improved infrastructures. In developing and transitional countries in which democratic institutions are weak and electorates are less well-informed, the benefits of decentralizing public services might be largely compromised by a pervasive capture by local elites (see for example Mookherjee and Bardhan 2000; Alatas et al. 2019). Instead of improving public service provisions, the larger fiscal resources are spent for private or unintended public usage, such as official perks. If the political process is overcrowded by pow-

erful local elites and a pervasive incidence of corruption and vote buying, voters might either withdraw their involvement in politics (Warren 2004; Stockemer, La-Montagne, and Scruggs 2013) or expect a direct pay-off from voting (Karahan, Coats, and Shughart 2006, 2009). Literature on local politics in Indonesia indeed emphasizes that elite capture and vote buying are rampant (for example Aspinall 2010). Public budget overspending is also pervasive and mainly driven by a lack of democratic accountability (Sjahrir, Kis-Katos, and Schulze 2014).

In addition, I conducted regressions using the lag value of fiscal indicators in order to moderate the endogeneity bias caused by reverse causality. The results reported in Appendix Table A.1 and A.2 are generally consistent with what are reported in Table 4 and 5, in that most of the signs and significance of the fiscal indicators remain the same. Only the sign of tax revenue changes from positive to negative in the *within* estimates. In addition, per capita expenditure and per capita tax revenue are no longer significant. These additional results, particularly the changing sign and significance of per capita tax revenue, underpin the main findings of this paper, in that the electoral effects of fiscal decentralization found are confounded by other factors that were not adequately included in the estimations.

As shown here, the *within-between* specification takes the empirical analyses further than the standard fixed-effects model does, namely by generating not only the *within* estimates, which are similar to the estimates of the fixed-effects model, but also the *between* estimates. Although the *between*-effects remain biased by the time-invariant unobserved heterogeneity and, thus, interpretation of the *between*-effects should take this into consideration, the *within-between* specification that allows this paper to compare the *within*- and the *between*-effects provides insights on how the unobserved heterogeneity intervenes in the relation between fiscal decentralization and voter turnout.

7 Conclusion

The empirical findings of this paper offer additional insight on understanding the relation between fiscal decentralization and voter turnout. By decomposing the *within*- and *between*-effects, the empirical analysis is able to distinguish what fac-

tors explain the variation in voter turnout within a given district from what factors explain the variation in the voter turnout across districts.

In particular, the results show that per capita expenditure and per capita revenue positively explain variations in voter turnout both within and between districts. Nevertheless, these two indicators might not sufficiently measure a district's autonomy, since the revenue source is mainly transfers from the central government. Meanwhile, per capita tax revenue, a better measure of fiscal autonomy, shows a negative effect across districts only. Taking into consideration that the *between*-effects are presumably confounded by unobserved district-specific heterogeneity, the results imply that participation in a district mayoral election might not necessarily be driven by the increased autonomy that the district has, but rather by some adverse consequences of decentralization such as capture by district elite. In addition, the analysis shows that as a district government has larger fiscal power, this might not necessarily encourage participation when the district's budget is mostly allocated to spending that does not benefit the public at large.

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Appendix: Additional Tables

Table A.1: Fiscal Autonomy and Voter Turnout (Lag)

Fiscal Indicator:	Per capita Expenditure (log) (1)	Per capita Revenue (log) (2)	Per capita Tax Revenue (log) (3)
<i>Within-Effects</i>			
Fiscal Indicator (lag)	2.3418 (1.4687)	2.8750* (1.7126)	-.1745 (.7160)
Population Density	-.0006* (.0003)	-.0006* (.0003)	-.0006* (.0003)
% Adult	-.0743* (.0386)	-.0800** (.0385)	-.0553 (.0374)
p.c. GDP (log)	.3803 (1.2692)	.2420 (1.3291)	.6276 (1.2146)
Poverty Rate	.1371 (.1297)	.1397 (.1301)	.1323 (.1344)
Literacy Rate	-.1814 (.2766)	-.1976 (.2756)	-.1839 (.2787)
Closeness	.0051 (.0263)	.0045 (.0265)	.0061 (.0265)
No. Candidates	.0111 (.2120)	-.0051 (.2112)	-.0079 (.2163)
<i>Between-Effects</i>			
Fiscal Indicator (lag)	4.3903*** (.7201)	4.5560*** (.7304)	-.7673 (.5833)
Population Density	-.0003* (.0002)	-.0003* (.0002)	-.0004** (.0002)
% Adult	-.0364*** (.0106)	-.0382*** (.0106)	-.0220 (.0160)
p.c. GDP (log)	-3.4884*** (.6305)	-3.6234*** (.6411)	-1.3558** (.6767)
Poverty Rate	.1527*** (.0534)	.1524*** (.0528)	.2126*** (.0597)
Literacy Rate	-.0678 (.0482)	-.0659 (.0482)	-.0923 (.0620)
Closeness	.0064 (.0306)	.0071 (.0301)	.0016 (.0316)
No. Candidates	-.2975 (.3064)	-.3019 (.3035)	-.3102 (.3224)
New District Dummy	2.2726** (.9473)	2.0413** (.9515)	3.7198*** (.9342)
R ²	.4086	.4105	.3541
Adj. R ²	.3847	.3866	.3278
Num. obs.	619	619	614

Notes: The dependent variable is voter turnout in a mayoral election (as a percentage). The explanatory variable in column (1) is per capita expenditure (in natural log), in column (2) is per capita revenue (in natural log) and in column (3) is per capita tax revenue (in natural log). In parentheses are the robust standard errors clustered at district.

*** Significant at the 1 percent level, ** Significant at the 5 percent level,

* Significant at the 10 percent level

Table A.2: Components of Expenditure and Voter Turnout (Lag)

Fiscal Indicator:	Expenditure		
	% Capital (1)	% Goods & Services (2)	% Personnel (3)
<i>Within-Effects</i>			
Expenditure Indicator (lag)	0.0135 (.0580)	0.1157 (.0827)	-0.1432** (.0705)
Population Density	-.0007** (.0003)	-.0006** (.0003)	-.0005* (.0003)
% Adult	-.0563 (.0370)	-.0480 (.0373)	-.0548 (.0378)
p.c. GDP (log)	.0855 (1.1790)	.0696 (1.2446)	.1230 (1.2002)
Poverty Rate	.0895 (.1231)	.1386 (.1364)	.1137 (.1277)
Literacy Rate	-.1897 (.2650)	-.1093 (.2761)	-.1880 (.2755)
Closeness	-.0159 (.0236)	-.0033 (.0245)	.0016 (.0258)
No. Candidates	-.0804 (.2123)	-.0390 (.2115)	.0036 (.2119)
<i>Between-Effects</i>			
Expenditure Indicator (lag)	.1095** (.0505)	.1548 (.1029)	-.1285*** (.0440)
Population Density	-.0005** (.0002)	-.0006*** (.0002)	-.0005*** (.0002)
% Adult	-.0176 (.0148)	-.0239 (.0176)	-.0192 (.0144)
p.c. GDP (log)	-2.2204*** (.7064)	-1.9619*** (.6135)	-2.7006*** (.6853)
Poverty Rate	.2057*** (.0571)	.2138*** (.0582)	.2050*** (.0564)
Literacy Rate	-.0590 (.0468)	-.0655 (.0461)	-.0349 (.0489)
Closeness	-.0097 (.0325)	-.0094 (.0333)	-.0049 (.0320)
No. Candidates	-.2257 (.3378)	-.3277 (.3324)	-.1937 (.3307)
New District Dummy	3.1661*** (1.0938)	3.8394*** (.9644)	2.7270** (1.0838)
R ²	.3987	.3953	.3932
Adj. R ²	.3741	.3706	.3687
Num. obs.	610	612	621

Notes: The dependent variable is voter turnout in a mayoral election. The explanatory variable in column (1) is the percentage of capital expenditure to total expenditure, in column (2) is the percentage of goods and services expenditure to total expenditure and in column (3) is the percentage of personnel expenditure to total expenditure. In parentheses are the robust standard errors clustered at district.

*** Significant at the 1 percent level, ** Significant at the 5 percent level, * Significant at the 10 percent level

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University of Münster
CIW – Center for Interdisciplinary Economics
Scharnhorststrasse 100
D-48151 Münster

phone: +49-251/83-25329
fax: +49-251/83-28429

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