The Effect of Government Structure on Public Expenditure: Evidence from Russian Self-Government

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Abstract

The thesis explores the effect of the local self-government structure on municipal fiscal policy. It was shown that in democratic countries, appointed officials have different incentives from the elected ones. I investigate whether this effect is present in the setting where democratic accountability is restricted, and appointed mayors depend on governors' decisions. I use an unbalanced 10-years sample of 443 Russian cities which account for approximately one-half of the Russian population, to test empirical hypotheses. The gradual process of spatial diffusion of transitions from election to appointment system allows employing IV strategy. I find that switch from elected mayors results in a 15-20% decrease in income flows from region to municipality and a corresponding 10-15% fall in local government expenditure. The driving mechanism is a weak bargaining position of appointed mayors and governors' incentives to keep resources. Finally, I find a weak negative effect of appointment on the level of public goods provision.

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Introduction

One of the key questions of political economy is how formal institutions can shape the policy decisions of public officials and, consequently, policy outcomes. Several theoretical considerations in different areas of public economics suggest that selection procedure has a decisive role in determining policy outcomes (Maskin and Tirole, 2004). This range of theories is often applied to the country level considering differences between autocrats and democratic leaders (Besley and Kudamatsu, 2008) or between presidential and parliamentary systems within democratic regimes (Persson and Tabellini, 2000). However, empirical support for the hypothetical difference caused by selection procedures is limited due to considerable variation in many other country-level characteristics.

Some scholars turned to the sub-national level and investigated variations in government structures in local self-government where two primary forms of government exist. In *mayor-council* system, both mayor and local council are elected by the citizens, and in the *council-manager* system, municipal representatives hire a local chief executive. The advantage of such a perspective is the relative homogeneity of the municipal units within one country. Besides, the intuitive similarity between council-manager and parliamentary systems on the one side and between mayor-council and presidential systems on the other side provides empirical researchers the ability to hypothesize mainly about government size and expenditure patterns of national government based on the findings at a local level (Saha, 2011; Blume et al., 2011).

However, almost all research in the area is done either on the sample of US (Vlaicu and Whalley, 2016; Enikolopov, 2014) or German (Hessami, 2018; Ade, 2014) cities, i.e., in highly decentralized and democratic countries. Virtually no attention is paid to the cases where appointments occur under strict control and where elections are not fair and democratic accountability is limited, i.e., in non-democratic countries where a large share of the world population lives. I try to shed light on this topic. Therefore, my research question is how government structure at the local level influences government spending in a centralized environment?

I utilize the theoretical distinction between a *politician* and a *beuracrat* proposed by Alesina and Tabellini (2007, 2008). Using these concepts, I derive empirical hypotheses about the fiscal policy

of appointed mayors in the centralized setting where they are accountable to the official at a higher level of the governmental hierarchy. In particular, I expect governors to shrink financial flows of intergovernmental transfers to the municipalities headed by appointed mayors. They, in turn, will decrease the public expenditure of the local budget. The key mechanism is political and administrative subordination of the appointed chief executive and her weaker bargaining position.

To study the effect of government structure at the local level, I explore the case of Russian municipal reform started in 2003 and coincided with (or caused by) the centralization of Russia's non-democratic regime. The reform introduced a system of mayoral appointment and resulted in almost complete elimination of the local elections in Russian cities. I utilize data on 443 Russian cities, which account for nearly half of the country population during ten years: from 2008 to 2017.

The Instrumental Variables approach is employed to overcome endogeneity issues common for policies that allow voluntary self-selection into a treatment. In particular, I follow Acemoglu et al. (2019) investigation of the effect of democratic institutions on economic growth. They exploit the fact that democratic transitions appear in spatially concentrated waves. Similarly, the spread of the appointment system in Russia started in several hotbeds and gradually propagated through the neighbors of early adopters (Gel'man and Lankina, 2008).

The estimation results show a large and significant negative impact of the election removal on the quantity of financial aid received by a municipality from a regional budget. The size of the effect varies across specifications and lies within 15-20% interval. Being limited in their ability to change taxes, Russian appointed mayors have to decrease the expenditure by 10-15%. The results are robust to a comprehensive set of tests, sample, and variable definitions. Finally, I try to explore the consequences of the changing budgetary policy for good public provision. Here the results are less unambiguous and require further investigation.

The paper is structured as follows. In the first chapter, I review theories and recent findings on differences between elected and appointed officials. The second part of Chapter 1 is devoted to details of Russian municipal reform. Then, I proceed with the identification strategy and data description. Chapter 3 contains results of the empirical analysis as well as robustness examinations and a small

discussion about implications for public goods provision analysis.

1 Literature Review

1.1 Government Structure and Policy Choices under Democracy

The broadest and most used classification of selection procedures is a distinction between elected and appointed public officials. The former is a *politician*, and the latter is a *bureaucrat*. The usual approach used to model differences between these two types of public agents is to describe different utility functions. In a simple two-period model Maskin and Tirole (2004) assume that both types have their policy preferences and value of the office. The only difference is that an accountable politician has to care about the re-election in the second period while a nonaccountable official does not have such concerns and stays in office irrespective of her policy decision. Eager to stay in office creates pandering of the politician to the public opinion. Maskin and Tirole (2004) conclude that nonaccountability is preferred when policy choices are technical and require costly information acquisition.

Alesina and Tabellini (2007) confront this logic assuming that both bureaucrat and politician are accountable but differ in how they are held accountable. Elected official depends on the voters at the time of elections and is motivated solely by the re-election. A bureaucrat is accountable by the appointing body that evaluates her according to organizational goal achievement. It implies that bureaucrat cares about the perception of her ability that determines future career options. Assuming that an appointing body measures bureaucrat performance by social welfare maximization, the conclusion about her advantage over politicians in technical tasks holds Alesina and Tabellini (2007). Redistributive policies create incentives for bribing and lobbying the appointed official, making the choice of the selection procedure less straightforward (Alesina and Tabellini, 2008). The advantage of Alesina and Tabellini's model is that it can be extended by another specification of the goal appointing body pursue.

Several authors apply the theory of election/appointment differentiation to the municipal level of governance, where various local government structures exist. A traditional and most common type at the local level is the so-called *mayor-council* model, where a mayor and local council are distinct entities that are directly elected and independent of each other. The *council-manager* model appeared in the

city of Staunton in 1908. This municipal government usually consists of the city council, which is directly elected, and the chief executive (city manager) appointed by the council. From the beginning, the main argument for the replacement of elected chief executive with city manager was in line with theoretical considerations: politically neutral and capable administrator is more suitable for routine tasks of city management (Svara, 1989).

Empirical validation of the hypothetical difference requires a measure of policy choice. Persson and Tabellini (2003) use total government expenditure to expose the impact of presidential and parliamentary systems at the national level. By analogy, scholars employ this indicator to investigate the differences in public spending patterns across municipal units with varying institutional arrangements. Despite many attempts to determine the effect, the results are controversial. MacDonald (2008) finds no statistically significant difference in public expenditure levels between elected and appointed officials. Coate and Knight (2011) use similar data on US cities and document approximately 10% decrease in total spending per capita as a consequence of a switch from appointment to election mechanism. They explain the difference with MacDonald (2008) by measurement error in the city structure variable. The impact of the same magnitude and direction is reported in German municipalities where all local governments gradually expelled institution of city managers during the 1990s (Blume et al., 2011). On the contrary, Ruhil (2003) uses historical data and concludes that the emergence of the city manager in local government led to a transient reduction of the public expenditure. Higher expenditure rates are observed when the total amount is disentangled into categories: elected mayors spend more on infrastructural issues resulting in possibly higher levels of public goods provision (Saha, 2011).

The findings are robust when policy outcome measures the level of public employment. Mayoral elections create a political cycle in police hiring rate, which is absent in cities governed by a manager (Vlaicu and Whalley, 2016). Enikolopov (2014) shows that politicians engage in targeted redistribution through a higher employment rate in patronage jobs. German elected mayors also tend to spend more on personnel (Ade, 2014). These results generally contradict the findings on the reduction of the total expenditure.

One explanation for results inconsistency leads directly to the theoretical arguments. Local gov-

ernment models differ by the incentives they impose on the officials. It is hard to justify any motive rather than re-election for elected mayors, but city managers can be evaluated differently depending on the tasks set by the appointing body. Therefore, the overall effect on expenditure is determined by the goals of this body. They might include maximization of the welfare and additional redistribution, budgetary parsimony, or simple reallocation of the resources.

Second, expenditure is always a function of income and cannot be unobstructedly increased without additional taxation or external finance opportunities (grants and transfers from other levels of the budgetary system). Although research in this area is limited, several findings are worth mentioning. Ade (2014) shows that tax revenue is less under the mayor-council system in municipalities of 3 reformed German states. Hessami (2018) similarly exploits time variation in German municipal reform to examine investment grants' reciprocation rate. She finds that the electoral cycle triggers elected executives' activity: cities attract 7-8% more grants in election years after switching to a mayor-council system. At the same manager's ability to increase expenditure depends on the amount of intergovernmental aid to a greater extent (Bae and Feiock, 2004). It signals that managers are willing to spend more only if additional resources are granted.

How can external finance depend on the local structure? First, through higher activity driven by direct incentives to please voters (Ferejohn, 1986). Second, the bargaining power of the officials at a lower level and the political goals of the grantor politician (Grossman, 1994). The city manager occupies a weaker position in intergovernmental relations because she does not represent (or represent to a lesser extent) particular political or interest groups.

All pieces of the research mentioned above concern how different selection procedures produce different outcomes in a relatively homogenous setting of a democratic country. One can speculate that all these mechanisms work only in such a setup and irrelevant for the countries where democratic accountability is absent or limited. However, as I showed, election and appointment systems do not produce different amounts of public goods or exhibit aversion to expenditure *per se*. A constellation of several preceding factors applied to different mechanisms of governance results in varying outcomes. At the very least, (1) the goals of the appointing entity and (2) external fiscal constraints have to

be examined. An institutional framework can provide insights and relevant predictions that can be tested in an environment that differs from the original model if one properly accounts for a broad range of institutional arrangements. The following subsection is devoted to describing such a broad institutional environment and system of local self-governance in Russia.

1.2 Government Structure and Policy Choices in a Centralized Environment

1.2.1 Background of Russian Municipal Reform

The modern history of Russian local self-government is illustrative for understanding Russian political history after the collapse of the USSR. Russia inherited both the Soviet federative structure[1] and local administrative division. In the 1990s the central government was weak, and regions quickly built up their autonomy[2]. While central authorities attempted to establish a dialogue with regional officials, the local level was out of focus of the Russian government. Such decentralization and lack of regulation led to variation in municipal development. Some regions reformed self-governance on their territory; others preserved a purely Soviet system (Young and Wilson, 2007). The distinct phenomenon of the period is a high degree of disagreement between governors and influential mayors of regional capitals and other large cities. The conflicts arose because of the competition for scarce resources and political influence inside and outside the region (Slider, 2004).

Everything changed in 2003 with a passage of a new law on "General principles of organization of local self-government". First, a clear and unified classification of the municipal entities was introduced. At the first level, municipalities are classified as city districts (large cities and regional capitals), municipal rayons (primarily rural areas that usually incorporate small towns), and inner territories of federal cities[3]. City districts and municipal rayons have administration and the local council, but the

[1]Hereafter, I use the term "region" to denote federative units which correspond to states in the US or Germany. The official naming for the Russin regions is "federal subjects of Russia". The number of regions has changed several times since the adoption of the Constitution in 1993. There were 89 regions at the beginning. In the early 2000s, several small and underdeveloped regions (*autonomos okrugs*) became part of larger neighbors, and the number of federative units decreased to 83. Annexation of the Crimean Peninsula in 2014 increased the number to 85.

[2]The most extreme cases of growing autonomy involved the adoption of Declarations of State Sovereignty by multiple regions which declared their political and economic independence.

[3]Federal city is a particular type of region in Russia. There are only three of them (Moscow, Saint-Petersburg, and Sevastopol), and they are excluded from the following analysis due to their specific status.

Table 1: Local government structure in Russia

		Are where mayoral election?	
		Yes	No
Who is the mayor?	Head of administration	Mayor-council	2014-model
	Speaker of council	Council-manager	Council-manager

Note: The table describes 4 possible government structures that Russian municipal units can adopt. The shaded area denotes set of models which are treated as one appointment system in the paper. The blank cell denotes election system

territories of the latter are further divided into urban and rural settlements with their governmental apparatus. Second, the law listed all responsibilities that can be delegated entirely to the local level or shared with the regional executive branch. Third, the law limited variation in governmental structures and described all possible institutional configurations at the local level. The key innovation here is the introduction of the council-manger system where the head of the municipality is a local council speaker, and the head of administration is an appointed city manager.

In 2014 amendments to the law introduced a new model of local government where the mayor is fully appointed without distinction between the head of municipality and head of administration. This model is a uniquely Russian invention. Table 1 summarizes all the possible government structures currently available for the municipalities in Russia. Shaded models share one common feature: the local council appoints the person with administrative power and responsibility for allocating the budget. Hereafter all these models are united into the category *appointment* system, while a mayor-council model is called the *election* system.

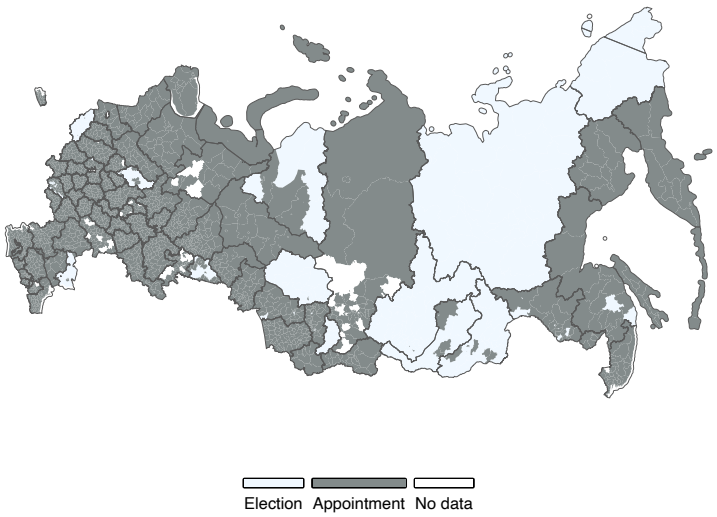
Municipal reform was a part of a more ubiquitous process of centralization and consolidation of the authoritarian regime (Golosov, 2011). This process required a reduction of autonomy at all levels of the political process. Federal authorities eliminated regional independence by substituting elections of governors with direct presidential appointments. The municipal level consisted of numerous entities, and direct control over them was practically impossible. Thus, federal officials came up with the concept of "power vertical" – a hierarchical system of administration where governors are held responsible for everything happening inside their regions before the federal authorities (Gel'man and Ryzhenkov, 2011). Municipal reform gave regional authorities a set of instruments to increase their

power inside the region.

The institutional structure of Russian self-governance experienced dramatic change with gradual but inevitable elimination of the local elections. Figure 1 illustrates how the institutional landscape changed over the years of the reform: most Russian municipalities did not hold mayoral elections in 2018. One can mention that at the onset of the reform in 2006, the appointment system was primarily located in several areas of the Volga region, North Caucasus, and North-Western part of Russia. This fact is of particular importance for this research and will be discussed in detail in the next chapter.

Figure 1: Results of the municipal reform

(a) 2008



(b) 2018

1.2.2 Regional and local incentives in Russia

In line with the institutional framework discussed in the previous section, one needs to understand the policies pursued by the governor. There is a consensus in the literature that one of the primary goals of the public officials in authoritarian regimes that involve electoral competition is vote delivery in favor of the incumbent or ruling party. Indeed, Reuter and Robertson (2012) provide sufficient evidence that during 2004-2012 Russian governors had a higher probability of reappointment if United Russia, the pro-government ruling party, performed well in the region. It is logical to assume that governors propagate this task to a municipal level. Electoral patterns at the local level have also been studied (Saikkonen, 2021) and are out of the scope of this paper.

Another strand of literature focuses on intergovernmental fiscal relations(Treisman, 1999; Desai et al., 2005). Russian budgetary system is complex and includes three levels: federal, regional, and municipal. The latter is the weakest one because a minimal number of taxes goes directly into the local budget. On average, municipal districts earn only 25% of the income from taxes and other activities. For city districts, this number is higher and equal to 45%. The remaining resources come in various grants, predominantly from the budget of a region where the municipality is located. At the same time, Russian law allows taking a large share of obligations from the local level and financial support of these responsibilities. In this "fiscal game" sub-national authorities are interested in keeping money at the level of regional treasury and not giving them to municipalities (Gimpelson and Treisman, 2002). Direct management of the financial flows is preferable to only secondary control available if resources are dispersed across municipalities. One of many possible motives for such behavior is corruption. Allocation of government procurement contracts is connected to high cash inflows from private companies to politicians (Mironov and Zhuravskaya, 2016). The body responsible for the distribution of contacts receives these flows. Therefore, there are incentives for the governors and other region-level authorities to spend money directly rather than through local budgets. Lower financial supply from the regions have to force local budgets either to spend less or to find other sources of income (Zhuravskaya, 2000).

Another issue worth discussion is "May decrees" – a collection of documents signed by Vladimir Putin after re-election in 2012. These decrees contained a directive to increase the wage of public

employees in systems of education, health care, culture to the average wage in the corresponding region. The federal budget did not secure this indication financially, and regions rapidly increased their debt. The federal government forced them to cut expenses. Thus, regional authorities obtained an additional incentive to preserve money and to force a reduction of the local government expenditure.

However, the ability of governors to decrease local payments is limited in most institutional environments. The theory of intergovernmental fiscal relations suggests that amount of money allocated in the form of grants is a function of bargaining power (Grossman, 1994). Treisman (1999) and Popov (2004) show that bargaining position of the sub-national elites was among strongest predictors of the intergovernmental transfers from central government to the region. At the local level, the government structure plays a pivotal role in bargaining because it determines the degree of independence of the local administration from the regional executives. In particular, appointed mayors are politically weaker than elected ones even if elections are not free and fair. It implies that appointed mayors are more vulnerable to external fiscal cuts.

There are both theoretical and empirical reasons to treat appointed local executives as more dependent. The design of the appointment procedure reveals governors' control over local politics at different steps of the process. First, governors have to nominate 1/2 of the competition commission. This body is assembled to evaluate a set of documents of those who applied for a city manager's office. Command over half of the commission makes the governor a veto player who can block any undesirable candidate. Second, the appointment is regulated by the hierarchical control over the local United Russia branch that occupies the majority in a city council (Golosov, 2011).

The empirical inquiry also gives several indirect arguments in support of the claim that appointed mayors are generally accountable to the regional authorities. First, biographical analysis shows that appointed mayors are more likely to have working experience in the regional administration or local administration of the other city (Buckley et al., 2014). The share of mayors coming from the level of regional executive branch increased from 18% in 2008 to 30% in 2019. It indicates that many of the appointed mayors come from the governor's team. Second, governors do not push through the election abolishment in the cities where mayors have a firm grip over local politics. In such places, the switch

from election to appointment correlates with the political strength of the mayor measured as a margin of victory at the mayoral election (Reuter et al., 2016). Third, appointed mayors have a significantly lesser probability of being arrested (Buckley et al., 2020). Initiation of criminal proceedings against the mayor is a good proxy measure for conflict between governor and city executive and a tool of political persecution: in 2012 85% of arrested mayors came from oppositional parties (Buckley et al., 2014). Everything listed above gives enough evidence to conclude that mayoral appointment in a Russian setting is associated with the lesser autonomy of the mayor and her dependence on the head of the region.

Finally, some clarification about the position of elected mayors is needed. Common perception suggests that occupation of elected office in the system of unfree elections does not increase the political weight of the officeholder. It is a misleading conclusion due to several reasons. First, pro-government candidates can lose the elections even in the authoritarian system[4]. Second, elected mayors have to organize local political machines that work in their favor (Gel'man and Ryzhenkov, 2011). Electoral fraud cannot be made out of nothing and requires bonding with locals. It involves mobilization of voters on the enterprises, communication with local businesses and maintaining consensus among local elites. Third, local elections allow the accumulation of resources through strategic reallocation of government procurement contracts and corruption (Mironov and Zhuravskaya, 2016).

The following mechanism drives the expected impact of the local government structure in the Russian centralized setting. Governors are interested in reducing the local budget expenditure through cuts in intergovernmental grants from the regional to the municipal level. The resistance of local executives constrains governors' ability to implement such a policy. At the same time, appointed mayors are less resilient due to political and administrative dependence. Consequently, it is easier for governors to force expense reduction in cities where mayors are appointed.

H_1 : Cities with appointed mayors receive less transfers from the regional budget.

H_2 : The level of public expenditure is lower under the system of mayoral appointment.

[4]There are cases of mayoral elections in Yekaterinburg and Petrozavodsk in 2013. Examples of incumbent loss at the regional level include four governor races where candidates supported by United Russia lost their offices in 2018.

2 Empirical Strategy

2.1 Identification Strategy

To evaluate the effect of the government structure on local government spending, one would like to estimate the following equation:

$$y_{it} = \gamma D_{it} + \psi X_{it} + \pi_i + \tau_t + \varepsilon_{it}, \tag{1}$$

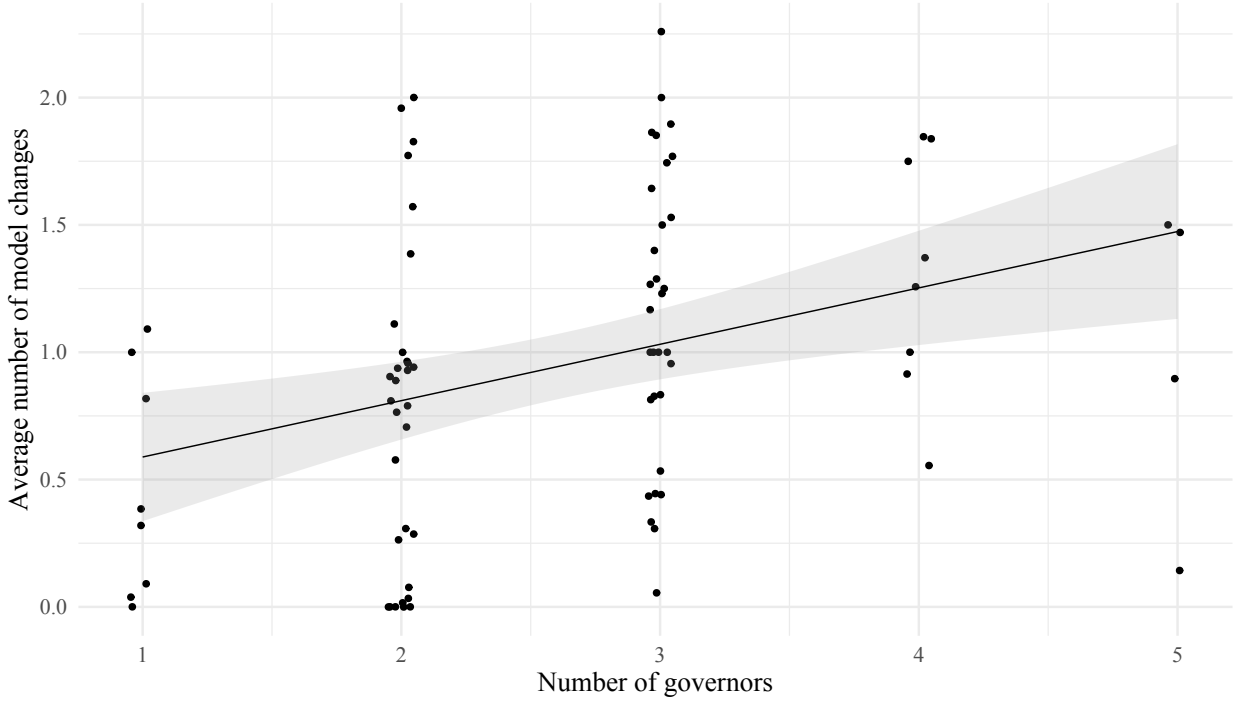
where y_{it} - is either measure of government expenditure or amount of grants received. D_{it} is a dummy variable equal to 1 if the mayor in city i at year t was appointed and 0 if he was elected with γ being the coefficient of interest. X_{it} is a set of covariates. τ_t and π_i are year and city fixed effects respectively. I expect γ to be negative for both outcome variables.

γ will be a valid estimate under the assumption that D_{it} is uncorrelated with the error term. Such an assumption is not plausible since D_{it} is not randomly assigned, and endogeneity issues might arise. Other unobservable factors can determine the level of government expenditure and switch to mayoral appointments. First, Reuter et al. (2016) showed that politically stronger mayors had a higher probability of preserving the election method because governors valued their ability to deliver votes in favor of the ruling party.Second, elites cohesion and settlement allowed to postpone the switch from election to appointment mechanism (Golosov et al., 2016). There is a positive correlation between the average number of switches from one model to another across all municipalities and the frequency of governor changes during 2006-2017 as it is depicted in Figure 2. This fact implies that local government structure might be endogenous to the overall stability of the regional political regime[5].

To correctly identify the effect, I utilize the Instrumental Variables (IV) approach. The choice of the instrument is inspired by Acemoglu et al. (2019). This paper contributes to a long debate about the relationship between economic development and regime type. The authors use the fact that democratization appears in regional waves uncorrelated with regional economic trends. According to their

[5]Low number of changes is observed in both directions: highly centralized *Republic of Tatarstan* adopted appointment very early and never switched back, while *Kemerovskaya oblast* hold elections till 2018. Both regions were prominent for their politically strong leaders which occupied their offices since 1990s.

Figure 2: Switches in local government structures and stability of the regional regime



Note: Each dot represent a region. Average number of switches is calculated based on changes between 3 models present in the data across cities and municipal rayons.

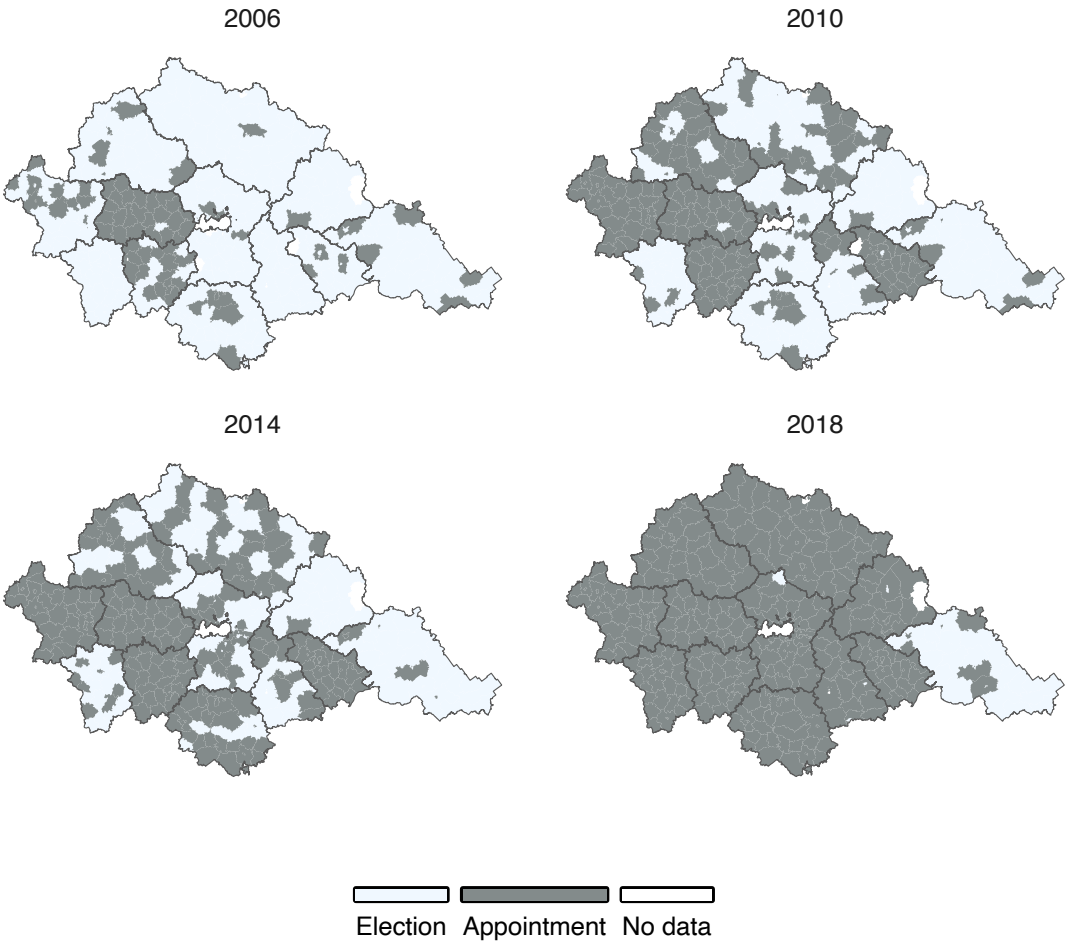
argument, democratization in a given country depends on democracy in the states that shared the same institutional design before the democratization. The hypothetical mechanism connects the spread of the democracy with "diffusion of the demand for democracy (or, more generally, dissatisfaction with a given regime) across countries within a region, which tend to have similar histories, political cultures, practical problems, and close informational ties" (Acemoglu et al., 2019, p.80). The dynamics of the democracy conditioned on the region and initial regime type works as an instrument that can predict democratization in a particular country but does not directly affect its economic development. The advantage of the instrument is that it isolates political events inside the country from broader range of country's economical characteristics (Dorsch and Maarek, 2019).

One can apply the same logic of diffusion to the sub-national level. The diffusion concept is often applied to the municipal level in the context of policy diffusion and implementation of innovations in governance techniques. Knoke (1982) first pointed out the significant effect of the spread of the council-manager system across neighboring cities on adopting the same type of local government structure on the sample of US cities. Choi et al. (2013) do not model neighbors' effect directly, but some indirect variables such as the Republican vote can signal the possible positive effect of proximity effect on city-council adoption. More importantly, such an effect was documented in Russian municipalities by Gel'man and Lankina (2008). They show that spatial diffusion was a significant source of the spread of the newly created council-manager system at the early stages of the reform implementation. Local news analysis shows city officials' explicit references to the neighbors' experience in mayor election elimination.

Figure 3 attends to illustrate the diffusion process with a somewhat anecdotal example of the Central economic region. One can see that there was one hotbed of the appointment model in *Kaluzhskaya oblast* in 2006. The further abandonment of mayoral elections first appeared on the borders of that region. Then, the diffusive process gradually moved to the east of the economic macro-region resulting in almost complete elimination of local elections.

I exploit such spatial variation in the analysis and construct instrument based on the information about the government structure of the neighbors. Following Acemoglu et al. (2019), I construct the

Figure 3: Diffusion of appointment system in Central economic region



instrument:

$$Z_{it} = \frac{1}{N_{i,D_{i0}}^{A_i} - 1} \sum_{j \in A_i, D_{j0} = D_{i0}, i \neq j} D_{jt} \tag{2}$$

For each city i area A_i is defined as the territory of the region where i is located and territories of the regions adjacent to it. Thus, A_i is a set containing all cities in the region and neighboring regions except for a city i itself. $N_{i,D_{i0}}^{A_i}$ is a number of cities with the same government structure as i in area A_i at the initial period when the city first appears in the sample. For a predominant share of the cities, this year is 2006. Thus, Z_{it} is a jackknifed average of appointment prevalence conditional on (1) spatial proximity of the cities and (2) initial institutional choice. Such an instrument contains information about the dynamics of institutional choices of the neighbors. The equation 1 can be rewritten using the 2SLS notation:

$$D_{it} = \theta Z_{it-1} + \mu X_{it} + \theta_i + \psi_t + v_{it} \tag{3}$$

$$y_{it} = \gamma \widehat{D_{it}} + \psi X_{it} + \pi_i + \tau_t + \varepsilon_{it}, \tag{4}$$

where lagged values of Z_{it} work as an instrument for a mayoral appointment at year t.

2.2 Data and Sample

The sample is an unbalanced panel of Russian city districts in 2008-2017 with some exclusions. In particular, 44 city districts that are closed cities, i.e., cities with military bases and military research facilities excluded from the analysis. Moscow and Saint-Petersburg are not municipal units, so they are also out of the sample. Municipal rayons are excluded because they accommodate settlements on the territory with a separate governance structure, an additional level of budgeting, and division of responsibilities. It makes comparison less straightforward. Besides, the overall quality of data is much lower for rayons than for city districts. The final sample consists of 443 city districts which accounted for approximately 46% of the Russian population in 2017. The number of observations and cities can vary across specifications due to data availability issues, so I report both numerals for each model. Figures 4 and 5 summarize the data in two dimensions – space and time.

Figure 4: Distribution of the cities in the sample

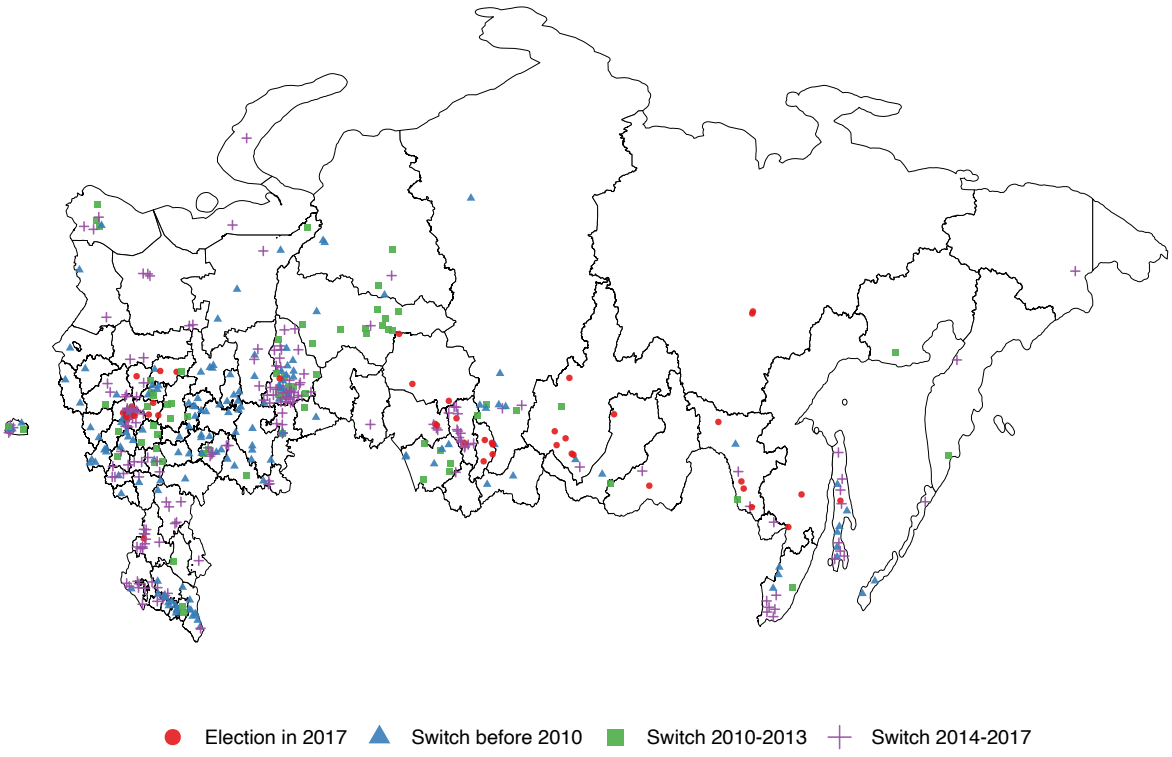
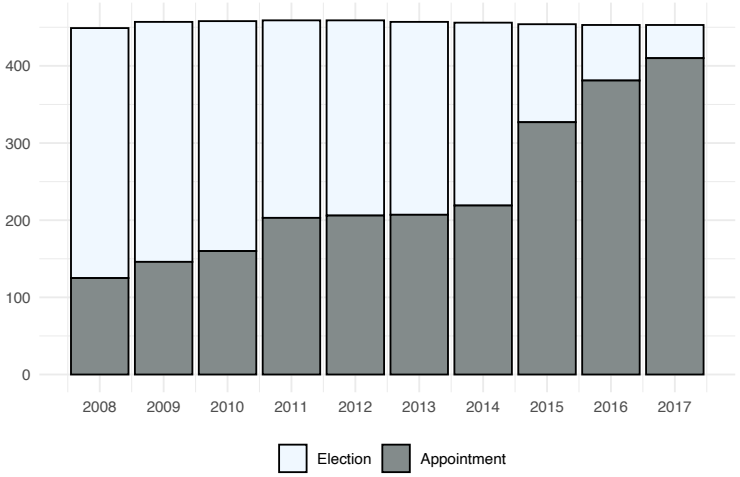


Figure 5: Dynamics of appointment adoption in the sample



The data comes from several sources. Database of Indicators of Russian Municipalities assembled by the Russian Federal State Statistics Service is the only source of municipal statistics, and it contains detailed information about the municipal level. The quality of data is low in terms of completeness and errors for most of the variables. Information about local budgets (both on expenditure and income) and basic demographic and economic statistics suffer less from missing values. To increase the number of valid observations and minimize loss due to the inclusion of covariates in the model specification, I fill the missing values in persistent and not volatile variables. In particular, missing values in data on the size of population and dependency ratio are filled with city-specific linear trend models with adjusted R^2 being at least 0.998 across regressions.

Price levels vary significantly across Russian municipalities in the South and beyond Arctic Circle making direct comparison misleading. I adjust all money-valued variables for inflation and purchasing power using regional data on Consumer Price Indes and the Price of a Fixed Set of Commodities and Services. Both indicators come from the Russian Federal State Statistics Service.

The data on local government structure is provided by the Center for Advanced Governance, an independent Russian think-tank. The dataset contains yearly observations based on charters of the municipalities with a three-fold classification (mayor-council, council-manager, and 2014-model in Table 1). I combine two latter categories into one because of the reasons described in the previous section. Retrieval of the information was based on hand coding and extraction of regular expressions for the random sample of charters. After it, the automated search of the expressions was performed with the follow-up validation of the prediction.

The type of government structure is coded according to the legal status of the mayor. The transfer from election to an appointment or vice versa in a particular district or city is always documented in the local council's decision as a change in the charter of the respective municipal unit. This measurement does not guarantee that the mayor was elected or appointed in a particular year because the council can decide on a future structure.

In addition to the variable of interest and instrument, I also include several control variables into regression equations. The set of basic demographic covariates consists of the logarithm of the pop-

ulation and dependency ratio. Direct measures of the level of local economic development are not available, so I use the average wage and per capita income of the local budget from income and property taxes, both logged. Although the latter measure is tied to local government, it is out of its direct control. In Russia, municipal units cannot impose additional taxation, and both types of taxes included as controls are regulated by the federal government and gathered by the federal agency. Log of GRP at regional level measures overall development of the region where the city is located and its ability to deliver financial support to local level. I include the second-degree polynomial of the governor tenure to proxy stability of the political regime at the regional level and city-level vote share of United Russia at the last State Duma election. City and year fixed-effects should absorb all time-invariant differences or common temporal shocks respectively. Summary statistics are available in Table 2.

Table 2: Descriptive statistics

Variable	N	Mean	SD	Min	Q(25)	Q(75)	Max
Appointment	4,555	0.52	0.50	0	0	1	1
Share of appointed (t-1)	4,454	0.47	0.35	0.00	0.17	0.83	1.00
Expenditure pc, log	4,307	3.53	0.53	2.59	3.16	3.76	5.42
Grants pc, log	4,371	2.91	0.66	1.68	2.45	3.23	5.24
Population	4,537	11.07	1.26	7.27	10.26	11.84	14.29
Dependency ratio	4,440	0.67	0.13	0.15	0.58	0.75	1.18
Wage, log	4,521	10.48	0.38	9.33	10.21	10.69	12.10
Tax income pc, log	4,481	2.05	0.64	−0.03	1.64	2.43	4.13
GRP pc, log	4,500	12.97	0.50	11.47	12.67	13.14	15.38
Gov. tenure	4,555	4.99	5.05	0	1	7	23
United Russia share	4,498	0.51	0.17	0.18	0.37	0.63	1.00

2.3 Instrument Validity

Valid identification of the causal effect under the IV approach requires assumptions about the instrument. Here, I discuss two key assumptions that make identification possible: relevance and exclusion restriction.

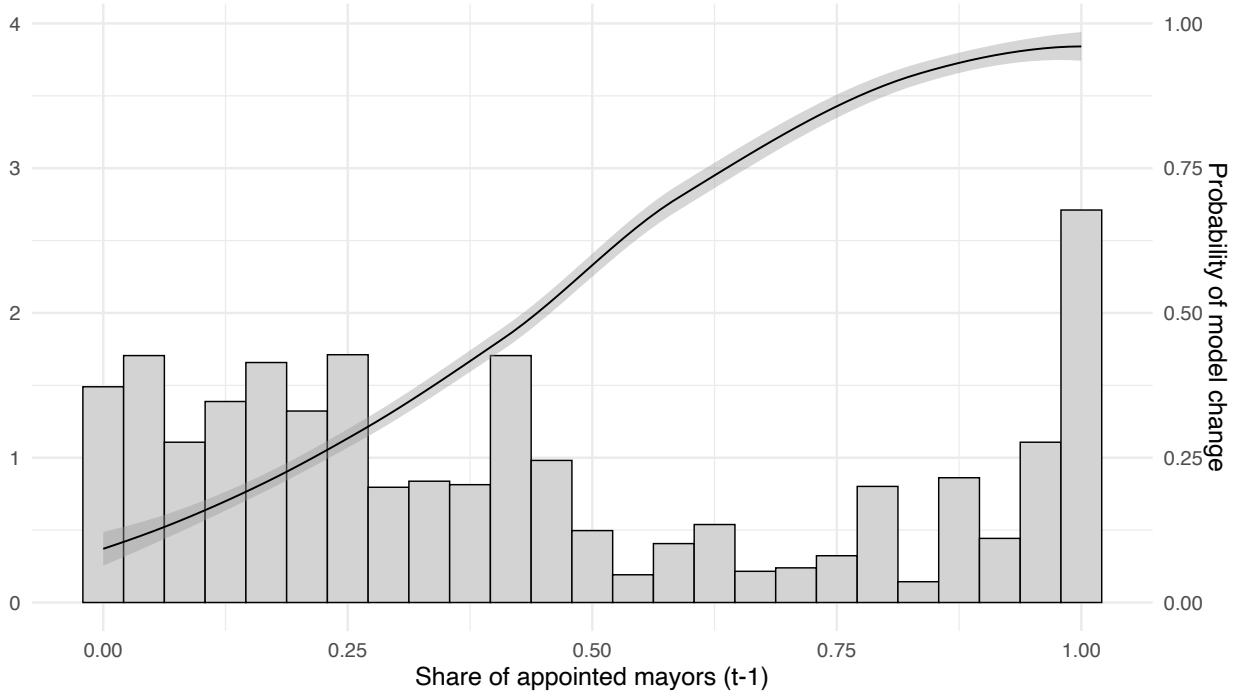
Relevance

Relevance of the instrument implies that the instrument has a significant causal effect on the exposure variable or can proxy the phenomenon that has such effect. In the case of current research, this assumption implies that the dynamics of the governmental structure in the municipal units adjacent to the city affects the choice of the mayor selection procedure in the city. Figure 6 presents the distribution of the instrument and the first stage relation with a binary indicator for a selection method approximated with the local regression method. It signals a robust positive relationship between the share of non-elected mayors in the area defined in the section and the adoption of appointment in the city. However, the right tail of the distribution raises some concerns. It is clear that the instrument values close to 1 are overrepresented in the sample, and at the same time, the slope of the relationship less steep. Most of the values of the instrument equal exactly to one correspond to the years after 2015 with massive waves of election elimination. Figure 1 supports this claim: there are plenty of municipalities surrounded by regions where no elections are held in 2018. Some governors used their right to overturn the elections in the cities, which can undermine the relevance of the instrument in this particular period. Table 3 contains the coefficients from the first stage regressions for the whole sample, sample censored by 2013, and sample starting in 2014. First, one can see the overall strength of the instrument: the increase in the share of non-elected mayors from 0 to 1 leads to a 80 pp increase in the probability of adoption of the mayor appointment system. Although the magnitude of the effect is lower for the later period, it is still large and statistically significant. All tables in the results chapter also include F-tests for weak instruments, which always comfortably reject the null hypothesis of the weak instrument.

Exclusion Restriction

The second crucial assumption is exclusion restriction. It means that the share of appointed mayors in the city's neighborhood has a causal impact on the local government expenditure and amount of grants received only through the city's local government structure. This assumption cannot be tested directly. However, my instrument enables indirect tests: one can include later lags of Z_{it} and make the model over-identified. It allows employing the Sargan-Hansen test of overidentification. Failure to reject the null hypothesis in this test will give indirect evidence that the instrument is exogenous. I

Figure 6: Relevance of the Instrument



Note: X-axis contains the range of values of the instrument Z_{it-1}. Y-axis - fitted probability of a switch to appointment at time t (D_{it}). The fit is non-parametric fit with local linear regression method.

Table 3: First stage regressions

	Appointment		
	Full sample	Year $<$ 2014	Year $\geq$ 2014
Share of appointed (t-1)	0.832***	0.612***	0.565***
	(0.070)	(0.088)	(0.140)
F-stat.	30.5	8.1	16.8
City & Year FE's	Yes	Yes	Yes
Cities	434	434	431
N	4,265	2,561	1,704

**p<0.1; **p<0.05; ***p<0.01. Robust standard errors clustered at regional*
at regional level are in the parentheses. All models include set of the baseline covariates

utilize this strategy in the next chapter and show that one cannot reject the hypothesis that excluded instruments can be considered exogenous.

The are several threats to the exclusion restriction assumption. The most noticeable is that there is a spillover effect from the neighbors. In particular, one can imagine that some cities switched to the appointment at time $t-1$, their mayors became vulnerable, and governors decreased financial aid. The freed resources can be allocated to over municipalities, for example, to the cities where mayors are elected (which have a better bargaining position in line with my argument). It will result in the upward bias of the γ estimate from the second stage. Despite some contradictory logic (I assume that the governor is interested in keeping money, not allocating them to another city, especially to an independent mayor), I also reestimate the main specifications with a slightly different formulation of the instrument. In particular, I define A_i from the Equation 2 as a set of cities only in the adjacent regions but not in the region where city i is located. Therefore, I exclude the possibility that the dynamics of institutional design of the immediate neighbors affect the allocation of resources and expenditure. The disadvantage of this method is that the instrument loses intraregional variation and becomes constant for all cities in each region in a given year. I also estimate baseline models on a sample ending in 2014 to isolate the possibility of a direct effect of the governor on both switch to the appointment and local budget.

Another practical concern consists of economic and political events that are correlated within regions and might simultaneously affect the adoption of appointment and dynamics of fiscal variables. To ensure that change of governor that can be both more parsimonious and forceful in promoting appointment, I control for the current governors' tenure. I also present a set of specifications that control for a broader range of political and economic shocks such as regional protest activity, economic downturns, fiscal cuts from the federal government, etc., that can affect appointment waves and budgetary trends together. These factors will be discussed in more detail in the next chapter.

3 Results

3.1 Main Results

Tables 4 and 5 present the results of the baseline estimation with total government expenditure and all grants as the outcome variables respectively. The first model in both tables is an OLS estimate of Equation 1. Model 2 is a reduced form relationship between the lagged share of appointed mayors and outcome variables. The models through 3 to 5 sequentially add covariates by group starting with demographic variables (3), then adding economic characteristics of the cities and region (4) and political variables (5). The robust standard errors are clustered at the level of regions instead of cities due to clustered sampling of the units and inclusion of region-level covariates (Abadie et al., 2017).

First, one can see that direct OLS estimation shows a negative and statistically significant effect. According to OLS estimates, the adoption of the appointment mechanism corresponds to 3.7% decrease in the total spending from a local budget and 5% fall in transfers. However, the numbers can be biased due to the reasons discussed in the above sections. Therefore, I turn to the IV approach. Models 2 give additional support for the relevance of the instrument - there is a substantive relationship between outcome and share of appointed mayors in the neighboring regions. Very large F-statistics for the test of excluded instruments of 2SLS give no doubt about the instrument's relevance. Models 3-6 of Table 4 indicate that change of institutional design towards mayoral appointment leads to a quantitatively large negative effect on the government expenditure at the local level. The magnitude of the effect varies from -13.7% to -15.5% depending on the specification and is statistically significant at the conventional 5% level. The considerable difference between OLS and 2SLS estimates may reflect a downward bias caused by time-varying unobservables or negative selection bias. An alternative explanation for the difference in magnitudes is that 2SLS represent LATE, i.e., the effect of appointment on expenditure is more substantial in the municipalities in which the effect of the instrument on appointment adoption is stronger. For instance, it is possible that the effect was heterogeneous in time: at the early stages of the reform, a switch from election to appointment among few neighbors was more prominent, while for later periods when non-elected mayors became common practice, such

impact faded.

Table 4: The effect of government structure on the total expenditure

	Total expenditure per capita, log				
	OLS	OLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)	(5)
Appointment	−0.037**		−0.149*	−0.137**	−0.155**
	(0.016)		(0.078)	(0.065)	(0.062)
Share of appointed (t-1)		−0.134***			
		(0.047)			
Population	−0.567***	−0.582***	−0.804***	−0.595***	−0.565***
	(0.093)	(0.096)	(0.122)	(0.110)	(0.098)
Dependency ratio	0.538**	0.485**	0.452*	0.510**	0.475**
	(0.204)	(0.201)	(0.241)	(0.230)	(0.210)
Wage	0.217**	0.193*		0.160*	0.194*
	(0.106)	(0.108)		(0.096)	(0.103)
Tax income pc	0.144**	0.146**		0.144***	0.140***
	(0.056)	(0.055)		(0.049)	(0.053)
GRP pc, log	0.183*	0.193*		0.239**	0.202**
	(0.104)	(0.104)		(0.101)	(0.096)
Gov. tenure	0.008*	0.007*			0.008*
	(0.004)	(0.004)			(0.004)
Gov. tenure2	−0.001**	−0.001**			−0.001**
	(0.0003)	(0.0003)			(0.0003)
UR share	−0.027	−0.037			−0.007
	(0.075)	(0.074)			(0.075)
			First stage		
Share of appointed (t-1)			0.853***	0.860***	0.866***
			(0.062)	(0.062)	(0.063)
F(excl. instrum.)			190.1	191.2	187.8
City & Year FE's	Yes	Yes	Yes	Yes	Yes
Cities	442	433	436	436	433
N	4,158	4,066	4,118	4,089	4,066

**p<0.1; **p<0.05; ***p<0.01. Robust standard errors clustered at regional level are in the parentheses.*

Table 5 indicates that a similar logic can be applied to the results about the effect of election replacement on grants recipiency rate. On average, the effect lies within a range from −15% to −18% fall in received financial aid from the regional level. The difference between the magnitude of effects on expenditure and grants is worth discussing. My hypotheses suggest that the reduction in the total government expenditure is driven by the shrinkage of the financial support from the regional authorities. However, such support is not the only source of local budget. The mean share of grants in total

income is 0.57 in the sample. Therefore, one should not expect linear correspondence between the decrease in grants and reduction of expenditure and, on the contrary, should expect a larger effect on grants. The following example illustrates this logic. The average per cap expenditure of the city budget is approximately 40,000 RUR (540 USD), and the average amount of grants is 24,000 RUR. Given estimates from models 6 from Tables 4 and 5, the estimated decrease in expenditure due to the adoption of mayoral appointments is 5,600, while the predicted reduction of grants is 4,300. These numbers are obviously not identical, but the overall closeness of these two estimates makes sense. It gives indirect support for the mechanism considered in the theoretical chapter.

Another ancillary evidence is the absence of an appointment procedure's effect on the earned income of the municipal budget, i.e., revenue collected from taxation and other activities such as usage (including selling) of the municipal property. The regression results with the logarithm of per capita earned income as the outcome can be found in Table A1 in Appendix. Estimated coefficients are smaller in magnitude and statistically insignificant. It generally confirms the idea that the decline of the expenditure is driven by outside cuts rather than the financial crisis of the local budget.

As mentioned in the section devoted to instrument validity, one can make the model over-identified by adding additional instrument lags in the first stage and perform the Hansen test of overidentification. An over-identified IV estimator also permits modification of the estimation procedure on the second stage. In particular, one can estimate the second stage using a GMM estimator. The IV-GMM estimator has two advantages: (1) it is more efficient than 2SLS in the presence of the heteroskedasticity, and (2) when errors are assumed to be clustered, it does not impose the constraint of constant correlation of individual observations within a cluster (Baum et al., 2003). With one instrument IV-GMM estimator is identical to 2SLS. Table 6 presents the results of the second stage estimation with corresponding statistics. The value of the Hansen test statistic and corresponding p-value in brackets is the same for 2SLS and IV-GMM because the first stage is identical for both estimators. One cannot reject the hypothesis that the excluded instruments are exogenous, so there is indirect support for the exclusion restriction assumption. The estimates of the coefficients of interest are very similar to the baseline models and statistically significant with 2 and 3 lags.

Table 5: The effect of government structure on the quantity of received grants

	Total grants per capita, log				
	OLS	OLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)	(5)
Appointment	−0.050**		−0.150*	−0.161**	−0.186**
	(0.023)		(0.083)	(0.080)	(0.073)
Share of appointed (t-1)		−0.158***			
		(0.058)			
Population	−0.288	−0.289	−0.342*	−0.286	−0.265
	(0.186)	(0.189)	(0.172)	(0.208)	(0.187)
Dependency ratio	0.335	0.243	0.222	0.320	0.236
	(0.302)	(0.302)	(0.312)	(0.328)	(0.312)
Wage	0.155	0.106		0.052	0.111
0.112					
	(0.179)	(0.185)		(0.182)	(0.183)
Tax income pc	−0.067	−0.059		−0.053	−0.064
	(0.064)	(0.065)		(0.061)	(0.063)
GRP pc, log	0.257*	0.269*		0.309*	0.284**
	(0.143)	(0.142)		(0.169)	(0.133)
Gov. tenure	0.002	0.002			0.002
	(0.009)	(0.009)			(0.008)
Gov. tenure2	−0.001	−0.001			−0.001
	(0.001)	(0.001)			(0.001)
UR share	−0.251**	−0.249**			−0.215**
	(0.105)	(0.106)			(0.108)
			First stage		
Share of appointed (t-1)			0.836***	0.845***	0.851***
			(0.064)	(0.064)	(0.066)
F(exclud. instrum.)			173	175.3	167.6
City & Year FE's	Yes	Yes	Yes	Yes	Yes
Cities	443	434	437	437	434
N	4,214	4,122	4,182	4,148	4,122

**p<0.1; **p<0.05; ***p<0.01. Robust standard errors clustered at regional level are in the parentheses.*

Table 6: Two lags of the instrument

	Expenditure		Grants	
	2SLS	IV-GMM	2SLS	IV-GMM
Appointment	-0.157**	-0.167***	-0.186**	-0.190***
	(0.0613)	(0.0600)	(0.0724)	(0.0696)
F(excl. instr.)	93.47		82.66	
Hansen stat.	0.608		0.045	
[p-value]	[0.436]		[0.831]	
City & Year FE's	Yes	Yes	Yes	Yes
Cities	432	432	432	432
N	4059	4059	4112	4112

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ *Robust standard errors clustered at regional level are in the parentheses. All models include set of the baseline covariates*

3.2 Robustness check

I employ several robustness checks to verify the validity of the results. One segment of tests deals with the specificities of the sample. First, the introduction of the new rule that gave regional authorities the right to prescribe local government structure in 2014 can decrease the instrument's relevance and undermine the result. Therefore, I reestimate Equations 3 and 4 on the 2008-2014 sample[6]. Second, some regions are overrepresented in the sample. For instance, there are 64 cities from *Sverdlovskaya oblast* and 33 from *Moskovskaya oblast*, i.e., 21% of sample units. Both of them among normal city districts include large territories which are much closer to municipal rayons but still have a legal status of cities. To guarantee that the overall result is not driven by one of these regions, I exclude them from the sample. Third, I use various definitions of A_{it} to calculate the instrument. In particular, I use 11 economic regions defined in times of the USSR and based on spatial proximity and economic similarity of administrative regions. Forth, I remove cities located in the same region as i from A_{it} to isolate possible influence of the closest cities on the outcome aside the diffusion channel and to increase confidence in exclusion restriction. The estimates of the parameter of interest and first-stage results are presented in Table A2 in Appendix. The results are stable in terms of sign and significance. The magnitude of

[6]The amendments to federal law were introduced in mid-2014. Most of the regions adopted the law only in 2015. Even if some of them did it at the end of 2014, it could not affect budgets that a prepared much earlier.

the effect varies and is significantly larger for time or geographically trimmed samples. The effect is probably especially prominent in the earlier periods supporting the idea about heterogeneity in time.

Another set of robustness procedures concerns possible shocks that are correlated within defined areas and might simultaneously hit fiscal variables and waves of transition to appointment. GRP and governors' tenure in the main specification accounts for the shocks and time-varying properties of the political regime inside the region. Region-specific trends (Model 2, Table A2) extend this logic and account for a possibility that unobserved time heterogeneity drives the dynamics of the outcome at the local level. I also split cities into quantile groups based on expenditure and grants before 2008 and interact quantiles with year fixed effects (Model 1). In principle, it allows controlling for divergent trends in outcome variables that depend on the initial level of development and are correlated across nearby cities (Acemoglu et al., 2019).

Some economic shocks are territory-specific in Russia. For example, the 2009 Great Recession mostly hit regions with well-developed heavy industry, which, in turn, are compactly located in Ural Region and Western Siberia. It can trigger parallel processes of spending reduction as well as switches to appointments because city managers were expected to be more competent in economics. To isolate such a possibility, I calculate lagged average of the log GRP per capita across regions inside A_i and include it as an additional control (Model 3).

One additional mechanism that can be correlated within areas is protest activity. There is evidence that some cities were financially punished for the active participation in the 2011-2012 demonstrations (Enikolopov et al., 2020). Protests, in turn, are usually correlated and affected by the protest activity of the neighboring regions. It is possible that authorities simultaneously punish municipalities financially and push through appointed mayors who are less tolerable to political unrest. Thus, I calculate a lagged moving average of the protest activity (sum of protestors at all protest events during the year). The data on anti-government protests comes from Lankina (2018).

It also can be that regions suffer from cuts of transfers from the federal level. It might reduce transfers to municipalities and lead to regional transition waves because eliminating elections allows saving money. I account for a lagged average of the federal transfers to the regional budget as a log of per

capita grants to exclude such possibility. All alternative channels considered above do not undermine the result, only slightly decreasing the parameters' estimates.

Table 7: Robustness check: alternative explanations

	Type of the robustness procedure					
	Quantiles × Year	Trend	GRP	Regional grants	Protests	All
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A – Total expenditure per capita, log						
Appointment	−0.152**	−0.123***	−0.146**	−0.145**	−0.151**	−0.140**
	(0.069)	(0.043)	(0.065)	(0.061)	(0.062)	(0.065)
			First stage			
Share of appointed (t-1)	0.868***	0.716***	0.853***	0.854***	0.856***	0.850***
	(0.058)	(0.093)	(0.063)	(0.066)	(0.066)	(0.066)
F(excl. instrum.)	222.2	59.1	182.5	166.7	169.7	165.8
City & Year FE's	Yes	Yes	Yes	Yes	Yes	Yes
Cities	422	429	429	429	429	429
N	4,025	4,063	4,063	4,063	4,063	4,063
Panel B – Total grants per capita, log						
Appointment	−0.166*	−0.157**	−0.173**	−0.174**	−0.185**	−0.163**
	(0.090)	(0.071)	(0.077)	(0.074)	(0.075)	(0.079)
			First stage			
Share of appointed (t-1)	0.829***	0.711***	0.840***	0.841***	0.843***	0.837***
	(0.062)	(0.094)	(0.066)	(0.069)	(0.068)	(0.069)
F(excl. instrum.)	181	57.7	161.5	150.5	151.7	147.6
City & Year FE's	Yes	Yes	Yes	Yes	Yes	Yes
Cities	421	430	430	430	430	430
N	4,077	4,119	4,119	4,119	4,119	4,119

**p<0.1; **p<0.05; ***p<0.01. Robust standard errors clustered at regional level are in the parentheses.*
All models include set of the baseline covariates

Finally, I address the measurement issue that can affect the results. The selection procedure is coded according to a legal declaration in the municipal charter. It cannot guarantee that a particular mayor in city i at year t was selected according to the documented procedure. Although the change in the charter usually occurs just before the end of the term or precedes voluntary resignation, I use alternative data that is more accurate in documenting the type of selection in a given year. In particular, I use biographical data of Russian mayors from Buckley et al. (2014) as a primary source. It covers the period until 2012. I extend the dataset using biographies of mayors of regional capitals gathered by

Grineva et al. (2019) and code the remaining cities using publicly available information on the Internet. The resulting database consists of mayors of 159 largest Russian cities (38% of the population) and closely follows the institutional paths of the cities. The difference between charter and exact measure is in Figure A1 in Appendix.

Regressions in Table 8 are estimated using the modified *Appointment* variable. Models (1) and (5) represent simple OLS regression, (2) and (6) – 2SLS estimation with one lag of the instrument. The remaining models include second lag, so I again report Hansen's statistic, which does not allow rejecting exogeniety of the instruments. The last model in each of the two blocks also includes mayor covariates available in the data: age, gender (dummy), previous working experience (set of binary indicators for work in business, state agencies experience, work as a deputy, office in regional administration, etc.) and place of birth (dummy equal to 1 if the mayor was born in the city). The results are robust to different measurement except that estimates of the effect on grants are higher than in the baseline specification.

Table 8: Results of the analysis with actual status of the mayor

	Total expenditure per capita, log				Total grants per capita, log			
	OLS	2SLS	2SLS	2SLS	OLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Appointment	−0.019	−0.168**	−0.160**	−0.199**	−0.039	−0.281**	−0.262**	−0.290**
	(0.021)	(0.067)	(0.067)	(0.079)	(0.038)	(0.108)	(0.109)	(0.124)
				First stage				
Share of appointed (t-1)		0.697***	0.520***	0.466***		0.709***	0.526***	0.475***
		(0.085)	(0.112)	(0.114)		(0.081)	(0.109)	(0.112)
Share of appointed (t-2)			0.240**	0.214**			0.251**	0.221**
			(0.112)	(0.102)			(0.116)	(0.103)
F(excl. instrum.)		66.8	35.4	21.6		75.9	40.7	23.7
Hansen stat.			0.96	0.416			0.96	0.416
[p-value]			[0.673]	[0.481]			[0.673]	[0.481]
Mayor covariates	Yes			Yes	Yes			Yes
City & Year FE's	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cities	159	159	159	158	159	159	159	158
Observations	1,454	1,472	1,471	1,443	1,453	1,471	1,470	1,442

**p<0.1; **p<0.05; ***p<0.01. Robust standard errors clustered at regional level are in the parentheses. All models include set of the baseline covariates*

3.3 Implications for public good provision

Given the large and significant effect of switching from election to appointment of the mayor on the state of local finance, one might be interested in the social consequences of expenditure reduction. Although this question goes beyond the scope of the paper, I would like to approach it shortly. Total public spending does not tell much about the quality and quantity of public goods provision because (1) spending can be directed on non-productive and not socially necessary needs; (2) more significant expenditure might be the consequence of inefficient resource utilization. Therefore, disentanglement of the total expenditure into categories is preferable in the study of public goods provision. Even more reliable conclusions about efficiency can be made if the lower expenditure is associated with at least the same quality of services (Saha, 2011). This section is trying to shed some light on the consequences of municipal reform and local expenditure reduction in addition to the main findings.

Measuring public goods is a complicated task. One way to do so is to choose several indicators that can signal the quality of public services provided in a municipality. I utilize several variables that cover different fields relevant to the population and used in previous research. The ratio of municipal workers occupied in education to school and pre-school pupils is taken into account since this educational level is among the primary responsibilities of Russian self-governance. Beazer and Reuter (2019) showed that the form of governance affected the provision of housing opportunities to the poorest citizens, so I also use the share of families that improved their living conditions (i.e., those who moved from dilapidated housing). Percentage of local roads that require renovation proxies the quality of local infrastructure. Finally, employment in the public sector and investment into municipal property is taken as outcome variables. The simple baseline specification is used in the analysis, with $y_i t$ being one of the measures above. Table 3 reports the results.

The findings are mixed. All the estimated coefficients are negative but either insignificant or significant at 10% level only. However, two weakly significant measures correspond well to existing findings. According to the estimates, under the appointment system, the share of families which improved housing (out of all families who need it) is less by 3.7% pp. Beazer and Reuter (2019) used Generalized DiD as an identification strategy and found on the sample of large Russin cities that appointment led

to 3.8% more bad housing in squared meters per capita. Another variable – municipal investment – is much higher in magnitude (20% fall after election abandonment) but uncertain. However, lower investment perfectly corresponds to fiscal squeezing documented previously. Even though the results are not very robust, they generally support existing findings that the low fiscal incentives of Russian mayors are among the causes of poor performance at the local level (Zhuravskaya, 2000).

There are two explanations for the weak difference found in the performance of the appointed and elected mayors. First, data reliability is a tremendous concern. Fiscal data is better quality because the Federal Ministry of Finance, traditionally one of the strongest, monitors it. Besides, inconsistencies in finance reports are a clear path to jail for Russian mayors, so they have incentives to collect such data carefully. The other variables of the official municipal statistics are not of great interest for a national or regional government, which might justify its noisiness. The second explanation is rooted in my first empirical hypothesis. Suppose regional authorities are interested in keeping money and not giving them to municipalities. In that case, they can do it and provide approximately the same level of public goods but directly from the regional treasury. Clearly, more research is needed in this area with quantification of the responsibilities which remain at the local level and investigation of the monetary flows at the level of the regional budget.

Table 9: The effect of government structure on public good provision

	2SLS				
	Educ. workers to pupils	Share of impr. housing	Canalization req. repair	Municip. workers per 1000	Invest. into municipal. prop.
	(1)	(2)	(3)	(4)	(5)
Appointment	−0.008	−0.037*	−0.035	−3.896	−0.224*
	(0.006)	(0.021)	(0.030)	(3.091)	(0.125)
			First stage		
Share of appointed (t-1)	0.826***	0.835***	0.836***	0.832***	0.851***
	(0.084)	(0.070)	(0.067)	(0.071)	(0.068)
F(excl. instrum.)	95.8	142.3	154	136.4	155.1
City & Year FE's	Yes	Yes	Yes	Yes	Yes
Cities	396	429	427	425	430
Observations	3,343	4,093	3,835	4,058	3,995

**p<0.1; **p<0.05; ***p<0.01. Robust standard errors clustered at regional level are in the parentheses. All models include set of the baseline covariates*

Conclusion

In this paper, I tried to employ existing theories of incentives formation under different selection mechanisms in the case of the Russian local self-government. The main novelty concerns an application of the existing theoretical apparatus that was developed primarily to analyze democratic policy development to a centralized setting of a non-democratic regime. In particular, I studied how the fiscal relations between the municipal and regional levels of governance were affected by replacing the election of mayors with an appointment.

Using the IV approach, I utilized an exogenous variation in the appointment adoption schedule caused by the diffusion of the new institutional structure from the closely located municipalities. The main findings reveal that transition from election decreased transfers recipiency rate and, consequently, expenditure of the local government.

However, the paper has two limitations worth mentioning. First, as it often occurs with IV and 2SLS analysis, the interpretation of the results might not be straightforward. The estimate represents the LATE and not ATE or ATT, i.e., a weighted average for the compilers unless someone is willing to impose a homogeneity assumption. The latter is unplausible in this paper since results based on censored samples produce larger estimates. At the very least, the effect seems to be heterogeneous in time. It limits the ability to give clear and direct policy recommendations.

Second, the scope of the paper was mostly narrowed to intergovernmental budgetary relations. The main findings complement the existing research showing that local executives with low fiscal incentives will not increase efforts to deliver public goods to the municipal inhabitants (Zhuravskaya, 2000). The paper even finds relatively weak but a similar negative effect on a particular type of goods – better quality housing (Beazer and Reuter, 2019). However, a more comprehensive study of changes in sets of responsibilities is needed. More reliable measures of public services quality and strong theory explaining which categories will suffer from the cuts first will also enhance the understanding of the topic.

Appendices

Figure A1: Dynamics of appointment adoption in municipal charters and actual status of mayors

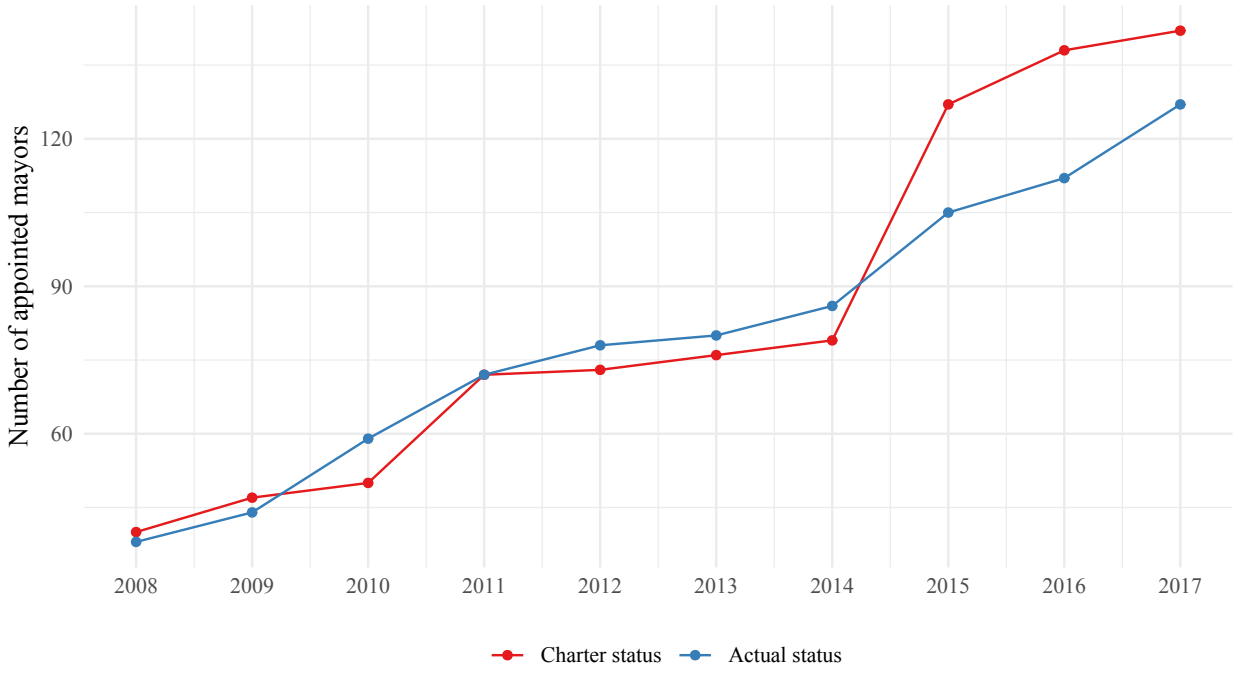


Table A1: The effect of government structure on earned revenue

	Earned revenue per capita, log					
	OLS	OLS	2SLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Appointment	−0.007		−0.088	−0.074	−0.085	−0.083
	(0.021)		(0.139)	(0.124)	(0.120)	(0.120)
Share of appointed (t-1)		−0.072				
		(0.098)				
Population	−0.634***	−0.663***	−0.763***	−0.685***	−0.650***	−0.641***
	(0.092)	(0.090)	(0.109)	(0.111)	(0.090)	(0.086)
Dependency ratio	0.591*	0.620*	0.573	0.697	0.609*	0.605*
	(0.333)	(0.341)	(0.418)	(0.424)	(0.348)	(0.348)
Wage	0.546***	0.520***		0.474**	0.523***	0.513***
	(0.179)	(0.176)		(0.189)	(0.179)	(0.176)
GRP pc	0.217**	0.234**		0.254***	0.239**	0.236**
	(0.092)	(0.093)		(0.083)	(0.093)	(0.094)
Gov. tenure	0.004	0.003			0.003	0.003
	(0.007)	(0.007)			(0.007)	(0.007)
Gov. tenure2	−0.0004	−0.0004			−0.0004	−0.0004
	(0.0004)	(0.0004)			(0.0004)	(0.0004)
UR share	−0.126	−0.189			−0.174	−0.191
	(0.134)	(0.126)			(0.125)	(0.125)
			First stage			
Share of appointed (t-1)			0.824***	0.841***	0.846***	0.918***
			(0.068)	(0.064)	(0.066)	(0.102)
Share of appointed (t-2)						−0.097
						(0.098)
F(excl. instrum.)			148.2	172.4	164.9	81.4
Hansen stat.						0.783
[p-value]						0.624
City & Year FE's	Yes	Yes	Yes	Yes	Yes	Yes
Cities	437	428	430	430	428	428
N	4,206	4,114	4,152	4,134	4,114	4,107

**p<0.1; **p<0.05; ***p<0.01. Robust standard errors clustered at regional level are in the parentheses.*

Table A2: Robustness check: sample

	Type of the robustness procedure							
	2014 censored		w/o Sverdl. and Mosc.		Econom. regions		Outer regions	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A – Total expenditure per capita, log								
Appointment	−0.029	−0.203***	−0.041**	−0.171***	−0.037**	−0.087**	−0.037**	−0.144**
	(0.019)	(0.073)	(0.018)	(0.063)	(0.016)	(0.041)	(0.016)	(0.071)
				First stage				
Share of appointed (t-1)		0.655***		0.852***		0.891***		0.676***
		(0.101)		(0.075)		(0.065)		(0.082)
F(excl. instrum.)		42		128		189.3		67.3
City & Year FE's	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cities	442	433	358	349	442	442	442	433
N	2,896	2,831	3,400	3,308	4,158	4,156	4,158	4,060
Panel B – Total grants per capita, log								
Appointment	−0.046*	−0.328**	−0.064**	−0.226***	−0.050**	−0.123*	−0.050**	−0.178*
	(0.027)	(0.131)	(0.024)	(0.082)	(0.023)	(0.067)	(0.023)	(0.093)
				First stage				
Share of appointed (t-1)		0.672***		0.831***		0.885***		0.676***
		(0.101)		(0.077)		(0.066)		(0.084)
F(excl. instrum.)		44.6		115.9		180.1		64.1
City & Year FE's	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cities	443	434	359	350	443	443	443	434
N	2,934	2,869	3,396	3,304	4,214	4,212	4,214	4,114

**p<0.1; **p<0.05; ***p<0.01. Robust standard errors clustered at regional level are in the parentheses. All models include set of the baseline covariates*

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