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# **THE ROLE OF GOVERNORS IN PUBLIC PROCUREMENT**

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## **THE ROLE OF GOVERNORS IN PUBLIC PROCUREMENT<sup>3</sup>**

This paper analyses the role of autocratic governors in public procurement performance on the sub-national level. In particular, we estimate the impact of autocratic governors' tenure and their local ties on competition over public procurement and contract execution. To this purpose, we use the data on public contracts on road construction and repair in Russian regions from 2011-2014 and match it with the biographical information of governors, who administrate the auctions. We find the evidence that governors who are appointed by the president and do not have pre-governing local ties in the region (governors-outsiders) demonstrate predatory behaviour, compared with governors with local ties (governors-insiders). In particular, governors-outsiders restrict the competition at public procurement auctions significantly more than governors-insiders. Moreover, this restriction becomes worse with tenure in office by governors-outsiders, while governors-insiders do not exert this tenure effect. We argue that this restriction of competition cannot be explained by the intention of better contracts execution. Namely, the delays in execution and the probability of contract termination both increase with tenure for governors-outsiders and are quite stable for governors-insiders.

Key words: public procurement, tenure in office, governor, competition, efficiency, contract execution

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## Introduction

The quality of regional governance and regional institutions is considerably important for state–business relations (Calì and Sen 2011; Pyle 2011; Yakovlev 2006) and particularly for public procurement. Today, public procurement constitutes one of the main mechanisms of state-business interactions and plays a significant role in national economies<sup>4</sup>. Moreover, public procurement is used as an indirect mechanism to achieve important governmental objectives such as stimulating small- and medium-sized business development (European Commission 2008; PwC 2014) and introducing innovation (Aschhoff and Sofka 2009; Rolfstam 2009; Uyarra and Flanagan 2010). Nevertheless, public procurement can also be a source of rent-seeking (Lambert-Mogiliansky and Sonin 2006; Auriol 2006).

In imperfect democracies and autocracies, the role of governors in regional development and state-business relations is crucial because the quality of regional governance is largely determined by governors and depends on their incentives. These incentives evolve over time and are vulnerable to the risk of the governors losing power. Traditionally, the explanation of autocrat's behaviour is related to the theory of 'stationary' and 'roving' bandits (Olson 1993). A 'stationary' (looking-forward) ruler limits rent-seeking behaviour in the short-run to exchange the 'larger share of a pie' for a 'smaller share of a larger pie' (Tullock 2002), while a 'roving' (myopic) ruler enjoys the short-run rent-seeking behaviour in the face of a forthcoming loss of power. The empirical testing of this theory, on both the national and sub-national levels, has led to controversial conclusions. On the one hand, the stability of an autocrat's power, as measured by his\her tenure, is favourable for shaping the business environment and improving institutions, whereas political uncertainty, as measured by incidents of turnover, negatively impacts economic growth and investment. On the other hand, a high rate of turnover may produce higher accountability of rulers, decrease political distortion in the economy and increase institutional quality. The more focused studies have shown that the latter effect is more pronounced when a ruler has local business interest or local ties, so that good quality of institutions would 'insure' that he/she would not lose his/her property after a turnover. Therefore, in addition to tenure and turnover rate, the ruler's local ties play an essential role in shaping regional institutions.

This paper analyses the impact of autocratic governors' tenure and his\her biographical local ties on competition in public procurement on a sub-national level. Using the procurement outcomes of the subordinated local public organizations, such as a governor's performance indicators, is quite natural. Local public contracts are financed from the local budgets and may therefore directly reveal the incentives of governors in their contract allocation. This study is closely related to that of Coviello

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<sup>4</sup> Public procurement accounts for 10–15% of the GDP in developed countries (European Commission 2014) and even more in developing ones (Lewis and Bajari 2011; Ohashi 2009)

and Gagliarducci (2017). Using Italian procurement data, Coviello and Gagliarducci (2017) showed that longer tenure of municipal majors is associated with lower procurement competition and with a higher probability of contracts being allocated to locally based firms. We follow the same idea basing on Russian cases. Instead of municipal majors, who have almost no political power in Russia, we consider regional governors. Unlike Italy, the electoral accountability of Russian governors is significantly lower, so the stationary and roving bandit theory can be tested. Following the literature, we take into account local ties together with political stability of governors, which makes this approach different from that of Coviello and Gagliarducci (2017).

We exploit the contract-level data for all procurements on road construction and repair in Russian regions during 2011-2014. These procurements were conducted by regional and municipal authorities and, theoretically, were able to be supervised by regional elites. This database accounts for more than 125,000 contracts. Our main focus is to study the impact of governors' tenure<sup>5</sup> and local ties on the level of competition at auctions. However, to have an unambiguous interpretation, we also study contracts at the stage of their execution. Procurement competition is measured by the number of bidders at auctions. At the executional stage, we consider delay and termination in contract execution. The choice of road construction and repair procurements showed several motivations. First, these procurements constitute a significant part of annual regional budget expenditures<sup>6</sup>. Second, road constructions projects are close to the financial interests of local elites. One of the examples is the corruption scandal resulting in the arrest of Alexander Solovyov, the head of the Udmurt Republic in April 2017<sup>7</sup>.

The results of the empirical analysis show that the local ties and the tenure of governors are important for explaining the level of competition at auctions and contract execution. The auctions conducted during the period of governors with local ties ('insiders') being in office, on average, demonstrate a 3% higher level of competition than the auctions of governors without local ties ('outsiders'). For outsiders, we observe a large negative effect of tenure on competition, with a reduction of competition by 10% per year, while insiders demonstrate a small increase in competition by tenure (0.3% per year). The restriction of competition by outsiders may be interpreted in two different ways. The first interpretation says that the restriction of competition indicates favouritism in contract allocation. The second interpretation argues that the deliberate restriction of competition helps to exclude incompetent and non-qualified participants, so the contract is better executed. To disentangle these two interpretations, we further analyse the executional stage of the contracts by considering delays and terminations of the contracts. On average, delays in contract execution are 13% (of

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<sup>5</sup> Time in office of the governor up to the date of contract signing.

<sup>6</sup> According to the Federal Treasury information on execution of budgets (<http://www.roskazna.ru/ispolnenie-byudzheta/konsolidirovannye-byudzhety-subektov>) annual share of regional road construction and repair expenditures is approximately 8-10% of regional budgets spending.

<sup>7</sup> <http://tass.com/politics/939186>

contract duration) lower for governors-insiders, while the probabilities of the contracts being terminated are equal for insiders and outsiders. Governors-insiders have no tenure effect for both delays and terminations in contract execution, while for governors-outsiders, the probability of contracts being terminated increases by 5% per year and delays increase by 28% per year. Therefore, we do not find support for the second interpretation of competition restriction by governors-outsiders and conclude that there is favouritism in their behaviour.

The paper contributes to the literature in two ways. First, this paper follows Coviello and Gagliarducci (2017) and tests the impact of local rulers' tenure on the restriction of procurement competition, but in a different political setting – under autocracies, with the additional differentiation of rulers as insiders and outsiders. Second, the paper adds to the strand of empirical literature on stationary and roving bandits by considering public procurement as governors' performance outcomes, while other papers consider the quality of regional institutions as outcomes (investment activity, taxation, corruption, and property rights). The paper confirms that governors-outsiders demonstrate 'predatory' behaviour (Libman, Kozlov, and Schultz 2012) and that the presence of local ties reduces this negative effect (Polishchuk and Syunyaev 2015).

This rest of the article is structured as follows. The next section presents an overview of the literature and the hypotheses. Section 2 briefly explains the Russian institutional background. Section 3 is devoted to a description of procurement and governors' data. In Section 4, we formulate the empirical methodology, and the results are presented in Section 5. We conclude with Section 6.

## **Literature review and hypotheses**

There is a strand of literature that shows that the quality of regional governance and institutions significantly impacts public procurement performance. Using French and EU data, Chong, Staropoli, and Yvrande-Billon (2012) and Chong, Klien, and Saussier (2013) demonstrated the impact of political institutions, such as political competition and quality of public administration, on the procurers' choice for more transparent procurement procedures. Using Italian procurement data, Coviello et al. (2017) empirically showed that in the localities with less efficient courts, contracts are more often awarded to larger suppliers and are subject to longer delays.

In view of weak institutions in developing countries, the quality of regional government is basically determined by regional elites and depends on their incentives and business interests. The connection of businesses with high-level bureaucrats and politicians exists in both developed and developing countries and is usually considered as a 'conflict of interest'. However, such relations occur more frequently in countries with higher corruption (Faccio 2006). In the literature, these relations are investigated from the perspectives of both business and politicians.

The former strand of literature on firms' political connections and public money allocation consistently demonstrates that the government tends to grant benefits and subsidies to politically connected enterprises (Wu, Wu, and Rui 2012; Dai and Cheng 2015). Also, it has been shown that politically connected firms have more open access to public procurement (Goldman, Rocholl, and So 2013; Amore and Bennedsen 2013). In the case of Russia at the end of 2010s, Szakonyi (2016) showed that firms whose CEOs were elected to regional parliaments had higher access to public contracts. Mironov and Zhuravskaya (2016) demonstrated the association between political cycles in regional elections in Russia and illicit financial transactions to politicians from procurement winning firms. Quite a similar result was presented by Boas, Hidalgo, and Richardson (2014) for a Brazilian case in which firms-donators were granted by public contracts after their candidate won.

The latter strand of literature studies bureaucrats' and politicians' incentives to connect with businesses. In imperfect democracies and autocracies, the low accountability of elites to society opens opportunities for them to pursue their own interests (McGuire and Olson 1996; Acemoglu 2006). Olson (1993) proposed the theory of stationary and roving bandits to explain the empirical fact that not all autocrats demonstrate predatory behaviour. According to this theory, stationary bandits limit their rent-seeking behaviour in the short-run to extract higher revenue in the long-run, while roving bandits extract short-run revenue in the face of a forthcoming loss of power. From the perspective of this theory, the autocratic ruler's tenure and probability of being replaced determine institutional and economic development. However, two strands of literature coexist showing quite the opposite impact of an autocratic ruler's tenure and turnover on economic development.

On the one hand, autocrat stability, measured by tenure, has a positive impact on improving the quality of institutions (Holcombe and Boudreaux 2013). Simultaneously, political uncertainty, measured by incidents of autocrat turnover, negatively impacts economic growth and investment activity (Alesina et al. 1996; Aisen and Veiga 2013; Fatas and Mihov 2013). From this perspective, foreign and domestic firms value political stability and the predictability of rules, and they try to avoid investment activity under uncertainty (Brunetti, Kisunko, and Weder 1998; Asiedu 2006). This logic holds even in the case of uncertainty over corruptive behaviour. Malesky and Samphantharak (2008), using the case of highly corrupted Cambodia, showed that governors turnover reduces firms' investment activity because uncertainty about firms' 'bribe schedule' increases. The same result relating to the level of uncertainty of corruption and investment activity was shown for Russia (Levina et al. 2016).

On the other hand, a high rate of turnover may produce greater accountability of autocratic rulers, increase the quality of institutions (Besley and Kudamatsu 2008; Besley, Persson, and Reynal-Querol 2012) and decrease political distortion in the economy (Acemoglu, Golosov, and Tsyvinski 2011). This can be explained by the high probability of an autocrat being replaced causing concern over the

quality of institutions and property rights to protect his/her well-being after losing power. Following this argument, McGuire and Olson (1996) stated that elites with business interests have more incentives to enhance the quality of institutions and property rights. Polishchuk and Syunyaev (2015) theoretically and empirically (using cross-country data) showed that the turnover of elites is positively associated with the protection of property rights and that this effect is especially pronounced for elites with strong business interests. Therefore, the presence of business interest of an autocrat might be even more important in explaining his/her 'like stationary bandit' behaviour rather than turnover or tenure.

Reconciling these two strands of the literature, some authors have also claimed that turnover and tenure have a non-linear effect. However, the direction of non-linearity is also arguable. According to a theoretical paper from Acemoglu and Robinson (2006), political elites have stronger incentives for economic development when they are either highly stable or when they face a high degree of political instability. On the contrary, using cross-country data, (Campante, Chor, and DO 2009) showed the U-shaped relationship between corruption and political stability with minimal corruption in the middle. The aforementioned literature on relations of political stability with economic development is mainly based on cross-country studies and theoretical modelling. Moreover, this does not provide a particular form of relations between political stability and institutional development. This might also be explained by the variety of countries' specifics. In this paper, we focus on the sub-national level of a large developing country in the case of Russia. The literature reflects substantial attention being paid to sub-national autocracies and the behaviour of regional governors (Gibson 2005; Gervasoni 2010; Reuter and Robertson 2012; Libman, Kozlov, and Schultz 2012; Sidorkin and Vorobyev 2017). To clarify the possible relations between governors' stability and institutional development, we first describe the existing literature on governors' incentives in Russia.

Using Russian and Chinese cases, (Rochlitz et al. 2015) showed that the behaviour of governors in regional development is determined by their future career opportunities. In the case of Russia, governors usually do not have any chance for further promotion, and the governor's office is their final position. Zhuravskaya (2010) found that governors have weak incentives to improve regional investment climate because the dominant part of regional taxes is directed to the federal centre. Moreover, the stability of the governors' position generally depends on loyalty to the central authority. In particular, this stability is determined by the share of votes in the region for the ruling party in federal parliament elections, while regional economic growth is not important (Reuter and Robertson 2012).

The analysis of the pre-governing period of Russian governors showed that local origin, business-interest and job position in the administration of the same region play an essential role in regional development. Libman, Kozlov, and Schultz (2012) and Shurchkov (2012) showed that new regional

elites appointed by the federal government from the outside in the middle of 2000s were characterized by more repressive behaviour in terms of taxation and cared less about the development of small- and medium-sized enterprises compared with locally embedded governors. Rochlitz (2014) reinforced these findings and found that in regions where governors have local ties, raider attacks on businesses are less likely. Sharafutdinova and Steinbuks (2017) showed that firms demonstrate a strong preference for locally embedded governors who can maintain pre-existing inter-elite connections in terms of regional state–business relations. Therefore, the pre-existence of the local ties for governors-insiders and their responsibility for regional development, described in the abovementioned literature, provide grounds for the following hypothesis, which we link with procurement outcomes:

***Hypothesis 1: Auctions conducted in the period of governors-insiders being in office have better procurement outcomes.***

The abovementioned literature at the cross-country level showed that an autocrat ruler's tenure is an important factor in explaining the quality of institutions. The analysis at the sub-national level in Russian regions also maintains this finding. Buckley-Farlee (2017) showed that if an incumbent governor wants to be re-elected or re-appointed, he/she tries to reduce regional corruption. Nevertheless, at the end of their career and without further goals for re-election or promotion, governors try to increase their own revenue, which leads to higher levels of regional corruption (Sidorkin and Vorobyev 2017). These results on tenure, combined with Hypothesis 1, lead us to the second hypothesis

***Hypothesis 2: High tenure in office of governors-outsiders negatively impacts procurement performance. Governors-insiders have a less pronounced tenure effect on procurement outcomes compared with outsiders.***

Hypothesis 2 is in line with the result of Coviello and Gagliarducci (2017), which showed that the longer tenure of Italian municipal majors in office is associated with lower procurement competition. Nevertheless, Hypothesis 2 is formulated under the assumption of an autocratic political setting with differentiation between insiders and outsiders.

## **Institutional Background**

### ***Regional elections and appointments in Russia***

In Post-Soviet Russia between 1992 and 1996, the process of selecting regional governors differed across regions: in some regions, they were directly elected by the population, and in others, they were appointed by local parliaments or by the president. After 1996, governors had to be elected across all

regions. This lasted until late 2004 when Russian president Vladimir Putin cancelled governors' elections and introduced a system of appointments by the federal centre. Previously elected governors had to be replaced or reappointed after the expiration of their current terms. The last elected governor's term expired in the end of 2009. The tenure in office for appointed governors constituted either four or five years.

Governors' elections were restored in the middle of 2012. Nevertheless, the rotation of the governors' corpus was quite low and the influence of the federal centre remained dominant. There were 43 regions where governors' elections were conducted from 2012-2014; however, all of the elected governors had been acting regional heads before the elections.

As a consequence of the construction of 'vertical power', governors were more accountable to the federal centre rather than to the population. This occurred independently of whether governors were elected or appointed. Reuter and Robertson (2012) showed that the important criterion for a Russian governor to keep his/her position was a sufficient level of regional electoral support for the ruling party in federal parliament elections rather than for regional economic or institutional development. Therefore, governors obtained significant freedom in shaping the regional economy, judicial system, property rights and other important regional institutes. Further analysis of governors' characteristics found that governors with local ties took care of regional economic and institutional development (Rochlitz 2014; Sharafutdinova and Steinbuks 2017), while governors without local ties did not (Libman, Kozlov, and Schultz 2012; Shurchkov 2012).

### ***Public Procurements in Russia***

In Russia, public organizations are required to procure goods, works and services through open public tenders. As a response to the problems of a high level of corruption and poor public services in the beginning of the 2000s, a major reform of public procurements was implemented with the adoption of Federal Law on Public Procurement (94-FL) in 2005. This law had quite rigid regulation regarding the choice of procurement procedures and criteria for selecting suppliers. The four possible procurement procedures were strictly predetermined:

- *Open auction*: This is a descending English auction. It is considered as the main method of procurement and is obligatory for procurements valued in excess of RUR 500,000 (approximately \$ 17,000).
- *Requests for quotations*: This is a minimal-price sealed-bid auction. It is used for procurements of small amounts (up to RUR 500,000).
- *Single-source contracting*: This is a non-competitive procedure to procure from predetermined suppliers. It can be used for procurements with a value under RUR 100,000 (approximately \$ 3,000). All other options for single-source contracting are explicitly prescribed by Law.

- *Tender*: This procedure is based on a maximal score sealed-bid auction with quality criteria. It is used for procurements of complex services such as R&D and consulting. Quality criteria can account for up to 45% of the total score, with the rest of the score assigned to the price of bid (the lower the price, the higher the score).

Each procurement on road construction and repair in our sample is administrated by the manager of the public organization, who is responsible for the state of roads in a particular region/municipality. The procurement is financed directly from regional/municipal budget. All of these expenditures are planned in advance and fixed in the budget's spending for the forthcoming year. By communicating with the regional/municipal administration, the manager is responsible for preparing the technical specification of procurement, which includes the following:

- The maximal price the buyer is ready to pay (i.e., the reserve price),
- A detailed description of the repair/construction object,
- The requirements for applicants.

The technical specification is announced in advance, and its description is open for everybody on the official website [www.zakupki.gov.ru](http://www.zakupki.gov.ru). When firms submit their applications, the evaluating commission assesses the bid. The evaluating commission consists of the members of the manager's organization (including the manager), representatives from regional/municipal administrations and, if needed, experts on road construction. If the constructed road is managed by the municipality and has regional significance, then the municipality might also invite the representative of regional administration to participate in the commission. The commission evaluates each application and makes conclusions about its compatibility with the requirements in the technical specification. Only the firms with consistent applications are allowed to compete further. For *Open auction*, the next round of open bidding is held for the firms with consistent applications, where the firm with the minimal price wins the contract. If only one application is consistent, then the contract is signed at the reserve price with such firm. The winner of *Requests for quotations* is the firm with consistent applications and the minimal price, which is specified in the same application. The winner of *Tender* is the firm with consistent applications and the maximal score, where the score is calculated by the Commission by accounting for the proposed price and qualification of the firm with appropriate weights (the weights are described in the technical specification). After determining the winner, the manager concludes the contract with the firm and monitors its execution. If poorly executed, the contract might be terminated with partial (possible zero) payment on it when both sides agree. If one side disagrees, the decision regarding the amount of payment is conducted through an arbitrage court. To complete the work detailed in the terminated contract, the organization runs a new auction with appropriate adjustments to its size.

The procedure for supplier selection described above allows regional\municipal administration to participate in two stages: creating the technical specification and evaluating the applications. Thus, the governors' favouritism might show up in both of them. In the former stage, the technical specification might be excessively demanding, so few firms might try to satisfy it and other firms do not apply. In the latter stage, by using discretionary power, unwilling firms might be excluded from competition.

## **The Data**

To test the hypothesis of Section 2, we analyse open contract-level data on public procurements merged with public organizations', regional and governors' characteristics. The main corpus of the data consists of the contract information on road construction and repair in Russia from 2011-2014. The primary source of information on public contracts is available on the official website [www.zakupki.gov.ru](http://www.zakupki.gov.ru), which publishes all of the information on auctions and contracts starting from 2011. This information includes all of the life-cycle stages: call for auction, awarding stage, contract characteristics, execution payments and dates. As we use contract-level data, we also need to control for procurers' and suppliers' characteristics (Ohashi 2009; De Silva et al. 2013), such as procurement activity and size. This information was collected from the website [www.clearspending.ru](http://www.clearspending.ru), which presents aggregate information on procurers and suppliers on an annual basis. As the regional quality of institutions plays an important role in determining the procurement outcomes (Chong, Staropoli, and Yvrande-Billon 2012; Chong, Staropoli, and Yvrande-Billon 2013; Coviello et al. 2017), we exploited the regional information collected from the federal statistical website [www.fedstat.ru](http://www.fedstat.ru) on regional procurement budgets, GRP and quality of roads. The full description of the collected data and their sources is presented in Table A1 of the Annex.

The initial contract-level data consists of more than 157,000 contracts on road construction and repair from 2011-2014. These contracts were awarded through different procurement procedures: both competitive (open auctions, request for quotations, tenders) and non-competitive (single-source contracting). For the purpose of our research, we chose only contracts signed by customers of the regional and municipal subordination type<sup>8</sup>. As a result, we have a sample of 149,306 contracts. From the sample, we exclude unrealistically small contracts (less than 10,000 roubles – approximately \$300). Thus, after cleaning the data and excluding some observations with important missing information, the database is reduced to 128,458 contracts containing all types of procedures from 2011-2014.

The database for analysis contains the following characteristics:

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<sup>8</sup> Federal-level road construction procurements are managed by public organization of federal-level subordination, so we assume that they hardly can be manipulated by regional governors.

- call for auction and bidding information including procurement procedure and level of competition during the bidding process (reserve price, the number of applicants, number of bidders and winning bid);
- contract information including sums and terms of delivery;
- unique ID codes of customers and suppliers;
- information on annual contract numbers and contract values by each customer and supplier from 2011-2014<sup>9</sup>;
- procurer's sphere of economic activity;
- information on the actual contract execution dates and status.

Table A2 in the Annex presents the descriptive statistics of the variables by groups of characteristics. It is noteworthy that open auction is the main procurement procedure, which constitutes 75% of all contracts. So, with further analysis, we provide results for both the total sample and the sample of open auctions separately.

The average contract duration is 142 days for all types of procurement procedures and 153 days for electronic auctions. The average contract price is equal to 1.3 million RUR – (approximately 23.3 thousand USD). The share of contracts signed with suppliers from the same region as the customer constitutes on average 92% in quantity and 66% in contract sum. On average, 91% of the suppliers have at least one contract in their region. Moreover, road construction and repair contracts form a significant share of all of the public procurement for considered suppliers: on average, 27% by number of contracts and 59% by their volume.

By customer ID, we identify their regions and add the following regional information:

- logarithm of regional public spending per cap;
- logarithm of GRP per cap;
- regional road accident rate;
- regional share of roads of regional significance with good quality;

General regional characteristics are presented in Table A3 of the Annex. This table shows the considerable variation in regional characteristics from the perspective of budgets and institutions.

Finally, we use a dataset on Russian governors used in previous studies (Reuter and Robertson 2012; Libman, Kozlov, and Schultz 2012). This dataset was provided by the International Center for the Study of Institutions and Development<sup>10</sup> and contains information on all of the regional governors during 2000-2014. In particular, this database includes the following:

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<sup>9</sup> May include contracts other than road construction and repair.

<sup>10</sup> <https://iims.hse.ru/en/csid/databases>

- exact start and end of their terms;
- birth dates;
- information on their positions before becoming a governor including regions of their previous job;
- information on whether the governor was elected or appointed.

Using these data, we also define regional governor as *insider* if he\she had the job position in the same region during the pre-governance period for at least a total of three years.

For 2011-2014, we have information on 125 different governors in 83 Russian regions. The governors' characteristics are presented in Table A4 of the Annex. This table shows that half of all governors had at most five years' tenure in office and almost 25% of all governors had tenure longer than nine years. Nevertheless, there are some governors with extremely long tenures. Almost 69% of governors are insiders, and only 34% of governors have ever passed through the election process (i.e., 66% of them were assigned by central authority and were never elected).

By using the signing date of each contract, we matched the procurement information with information on the corresponding governor in office. This matching procedure naturally yields the restriction on the period we analyse. Procurement data start from 2011, while the governors' information is bounded by 2014 above. For each contract, we compute the governor's tenure in the office by the date of the contract's signing.

Our main interest is the impact of the governor's status as an insider and his\her tenure on procurement performance. We consider the following performance characteristics: number of bidders in auction; delay in contract execution/ normalized delays<sup>11</sup>; and indicator of contract execution to be terminated. The first variable characterizes procurement competition, while the last two variables describe the problems with the contract's execution. A small number of bidders may indicate competition restriction and/or the supplier's low incentives to participate in auctions. Note that we define the number of bidders only for competitive procurement procedures. Thus, analysis of this variable excludes nearly 9000 *single-source contracts*. Table 1 shows that the average number of bidders is 1.55. This fact suggests a dramatically low level of competition in the area of the public procurement of road construction. We deliberately do not consider price rebates because these might distort the results. A high rebate might be an indicator of a high reserve price and a low winning bid. Moreover, a price rebate does not indicate the competition restriction. The delays in contract execution and terminations characterize the efficiency of the contract execution. Table 1 shows that

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<sup>11</sup> Delay normalized with respect to contract duration. Computed as the delay divided by the difference between the predetermined contract execution date and signing date.

on average, contracts are executed 4-5 days before the deadline, and contract terminations occur in 7-8% of cases.

Parameter	All procedures			Open auctions		
	mean	sd	Observations	mean	sd	Observations
Number of bidders	1.55	0.95	120097	1.45	0.97	96001
Delay, days	-5.22	101.53	103236	-3.84	105.15	77109
Normalized delay	0.38	2.8	103236	0.44	2.87	77109
Terminated contract, dummy	0.07	0.26	103236	0.08	0.28	77109

Note: Columns 1 and 2 report descriptive statistics for the whole sample of contracts, columns 3 and 4 – only for the sample of open auctions. Descriptive statistics for the *Number of bidders* were computed using samples without single-source contracts. *Delay* is the number of days between the actual execution date and the contract execution date. *Normalized delay* is *Delay* divided by the contract duration. *Terminated contract* is dummy variable equal to one if the execution of contract was terminated. *Delay*, *Normalized delay* and *Terminated contract* were computed by the date of data collection (April, 30, 2017), so the contracts with execution in process by this date are excluded.

**Table 1. Descriptive statistics for the dependent variables**

## Empirical strategy

To verify the impact of local ties and the tenure of governors on procurement competition and contract execution, we run a set of linear regression models using the contract-level data.

As the main independent variables, we consider governor's insider status (*Insider*) as a dummy variable and tenure in office by the date of the contract signing (*Tenure*). The set of other control variables includes the characteristics of governors, contracts, procurers, suppliers, and regions. The complete list of controls and their descriptive statistics is presented in Table A2 of the Annex. The following variables are considered as dependent:

- the number of bidders in auction;
- the normalized delay in contract execution;
- the indicator of the contract being terminated;

The basic model specification has the following form:

$$E[y_{tir}] = \beta I_{ir} + \gamma T_{tir} + \delta_1 \mathbf{W}_t + \delta_2 \mathbf{X}_{ir} + \delta_3 \mathbf{Z}_{tr} + u_r, \quad (1)$$

where  $y_{tir}$  is the outcome of the auction with the sequential number  $t$  held during the term of the  $i$ th governor at region  $r$ . Here,  $T_{tir}$  is the governor's tenure in office,  $I_{ir}$  is an indicator of governor-insider,  $\mathbf{W}_t$  is a vector of the contract/suppliers/procurer characteristics,  $\mathbf{X}_{ir}$  is a vector of the governor's characteristics,  $\mathbf{Z}_{tr}$  is a vector of the regional characteristics and  $u_r$  is the regional fixed effect.

The main focus here is on the estimation of coefficients  $\beta$  and  $\gamma$ . Coefficient  $\beta$  shows the average difference in procurement outcomes between insiders and outsiders. Coefficient  $\gamma$  shows the average increment of the dependent variable if tenure increases by one year. The models are estimated by the least square method. To address the problem of heteroscedasticity of errors, we use the White

estimators for standard deviations. The regional fixed effects are introduced as a set of dummy variables, so an LSDV model is estimated.

As the number of bidders has a countable nature, in addition to linear regression, we use negative binomial regression. The form of the corresponding model equation is the following:

$$E[y_{tir}] = \exp(\beta I_{ir} + \gamma T_{tir} + \delta_1 \mathbf{W}_t + \delta_2 \mathbf{X}_{ir} + \delta_3 \mathbf{Z}_{tr} + u_r). \quad (2)$$

Such specification also allows for interpreting coefficients  $\beta$  and  $\gamma$  as semi-elasticities, so they show a relative rather than absolute increment in the number of bidders.

In the data description section, it was shown that 75% of all of the contracts were concluded through *Open auctions*. Therefore, we will show the estimation result both for all of the procurement procedures and for the sample of contracts concluded through *Open auctions*.

As we stated in Hypothesis 2, the effect of *Tenure* might vary depending on the *Insider* status of governors. So we run models (1) and (2) for insiders and outsiders separately by dividing the data into two subsamples<sup>12</sup>. Moreover, we interpret the tenure effect only for these subsamples because the interpretation of tenure in the combined sample might be vague.

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<sup>12</sup> Naturally, the control variable  $I_{ir}$  is excluded from the set of regressors when we estimate the models for subsamples of insiders and outsiders.

## Results

### Main Results

The estimation results of models (1) and (2) for the number of bidders are presented in Table 2.

Variables	All procedures (1)	Open auctions (2)	All procedures (3)	Open auctions (4)	All procedures (5)	Open auctions (6)
<b>Panel A: linear model</b>						
<b>Tenure</b>	0.00465*** (0.00116)	0.00567*** (0.00137)	0.00488*** (0.00145)	0.00563*** (0.00168)	-0.118*** (0.0149)	-0.174*** (0.0189)
<b>Insider</b>	0.0424*** (0.0133)	0.0455*** (0.0168)	- -	- -	- -	- -
<b>Other control variables</b>						
<b>R-squared</b>	0.495	0.476	0.512	0.491	0.484	0.476
<b>Observations</b>	119762	95930	80905	65014	38857	30916
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders
<b>Panel B: negative binomial model</b>						
<b>Tenure</b>	0.0032*** (0.00092)	0.00391*** (0.00116)	0.00301*** (0.00110)	0.00312** (0.00136)	-0.0952*** (0.0110)	-0.147*** (0.0148)
<b>Insider</b>	0.026** (0.0122)	0.0296* (0.0163)	- -	- -	- -	- -
<b>Other control variables</b>						
<b>Observations</b>	119762	95930	80905	65014	38857	30916
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders

Significance levels: '\*\*\*' 0.01 '\*\*' 0.05 '\*' 0.1

**Note:** The table reports estimates (standard errors in parentheses) from linear model (Panel A) and negative binomial model (Panel B). The dependent variable is *Number of Bidders* - number of bidders in the procurement procedure. Control variables presented in the table are *Tenure* - the exact governor's time in office by the date of contract signing and *Insider* - dummy equal to one if the governor was an insider. Other control variables include the governor's age, governor's age squared, indicator that the governor had been elected at least once, dummy variables for year of contract signing, procurement procedure, Log of the reserve price, number of applicants, contract duration, number of products, procurer/supplier/ regional controls, and regional dummy variables. *Sample* reports the sample selection used for estimation: columns 1 and 2 use the combined sample of insiders and outsiders, columns 3 and 4 use the sample of insiders, and columns 5 and 6 use the sample of outsiders. Columns 1, 3 and 5 report the results of estimation using all procedures except for single source. Columns 2, 4, 6 report the results of estimation using only the sample of open auctions.

**Table 2. Results for the number of bidders**

Table 2 demonstrates that the level of competition in the auctions conducted during the governing of insiders is higher, on average, by approximately 3% in comparison to during the governing of outsiders (Panel B, Columns 1 and 2). In absolute values, it is equivalent to a difference in 0.04 bidders (Panel A, Columns 1 and 2). Additionally, competition for outsiders decreases with tenure, on average, by 9.5% (or 0.12 bidders) per year (Column 5). For the sample of *Open auctions*, the reduction of competition is 15% per year (Column 6). For insiders, we observe growth in competition with tenure, which is statistically (but not economically) significant (Columns 3 and 4).

Such restriction of competition during the governing of outsiders might be interpreted in different ways. The first interpretation says that restriction of competition indicates favouritism in contract

allocation, which even becomes more pronounced when a governor-outsider is settled (i.e., with high tenure). The second interpretation argues that deliberate restriction of competition helps to exclude incompetent and non-qualified participants, so the contract may be better executed. Under the second interpretation, the increase in the governor's tenure indicates growth of his/her experience in the selection of well-qualified suppliers, so it results in lower competition. To disentangle these two interpretations, we further analyse the executional stage of the contracts by considering delays and terminations of the contracts.

Table 3 demonstrates the estimation results for contracts' execution. With regard to delays (Table 3 Panel A), we observe that, on average, insiders have lower delays by 13-19% of contract duration (Columns 1 and 2) compared with outsiders. Additionally, governors-outsiders demonstrate growth of delays with tenure by 28% of the contract duration per year on the entire sample of contracts (Column 5) and by 39% per year for Open Auctions (Column 6). Simultaneously, governors-insiders have no tenure effect (Columns 3 and 4). The results of contract terminations are presented in Table 3 Panel B. There is no difference between insiders and outsiders in terms of the probability of the contract to be terminated (Columns 1 and 2). However, the tenure of governors-outsiders is positively related to contract termination. Namely, for outsiders, the probability of a contract being terminated increases by 4-5% per year (Columns 5 and 6), while there is no tenure effect for insiders (Columns 3 and 4).

Therefore, the results of contracts' execution do not support the second interpretation we proposed for restriction of competition. This restriction of competition does not lead to better execution of the contracts; on the contrary, execution becomes worse with tenure. Simultaneously, governors-insiders have both higher competition and better executions. Moreover, tenure is not a significant factor in explaining their procurement performance.

Variables	All procedures	Open auctions	All procedures	Open auctions	All procedures	Open auctions
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: normalized delay in contract execution</b>						
<b>Tenure</b>	0.00791 (0.00562)	0.0055 (0.00679)	-0.000247 (0.00638)	-0.00458 (0.00762)	0.281*** (0.0618)	0.392*** (0.0792)
<b>Insider</b>	-0.127** (0.0575)	-0.193*** (0.0694)	- -	- -	- -	- -
<b>Other control variables</b>						
<b>R-squared</b>	0.045	0.047	0.046	0.048	0.046	0.051
<b>Observations</b>	103236	77109	68413	51700	34823	25409
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders
<b>Panel B: termination of contract</b>						
<b>Tenure</b>	-0.00005 (0.00047)	0.000477 (0.00058)	-0.000483 (0.00057)	0.000359 (0.00072)	0.0448*** (0.00554)	0.0504*** (0.00737)
<b>Insider</b>	0.00141 (0.00470)	-0.00839 (0.00589)	- -	- -	- -	- -
<b>Other control variables</b>						
<b>R-squared</b>	0.119	0.132	0.134	0.148	0.095	0.109
<b>Observations</b>	106743	79694	71142	53779	35601	25915
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders

Significance levels: '\*\*\*\*' 0.01 '\*\*\*' 0.05 '\*' 0.1

**Note:** The table reports estimates (standard errors in parentheses) from linear regression. The dependent variable in Panel A is *Normalized delay* - delay divided by the duration of the contract. The dependent variable in Panel B is *Terminated contract* - dummy variable equal to one if the execution of the contract was terminated and zero otherwise. Control variables presented in the table are *Tenure* - the exact governor's time in office by the date of contract signing and *Insider* - dummy equal to one if the governor was an insider. Other control variables include the governor's age, governor's age squared, indicator of repeated contract, indicator that the regions of procurer and supplier coincide, indicator that the governor had been elected at least once, dummy variables for year of contract signing, procurement procedure, Log of the reserve price, contract duration, number of products, procurer/supplier/regional controls, and regional dummy variables. The contracts with execution in process by 30 April 2017 are excluded. *Sample* reports the sample selection used for estimation: columns 1 and 2 use the combined sample of insiders and outsiders, columns 3 and 4 use the sample of insiders, and columns 5 and 6 use the sample of outsiders. Columns 1, 3 and 5 report the results of estimation using all procedures. Columns 2, 4, 6 report the results of estimation using only the sample of open auctions.

**Table 3. Results for contract execution**

### ***Robustness check***

In this section, we check our results by varying the specifications of the empirical models and sample we used. The first step of the robustness check concerns the governor's duration. It is worth noting that the number of contracts where tenure is larger than eight years is significantly larger for insiders compared with outsiders (see Table 4). So, estimates of the coefficients for tenure in the regression models for insiders and outsiders might be driven by different intervals of tenure. Due to this fact, we exclude contracts corresponding to tenure longer than eight years and run the same set of regression models. The results are presented in Table 5 and Table 6. The results are close to the basic ones. For insiders, the level of competition is 5-7% higher, delays are shorter by 12-20% of the contract duration, and the probability of termination is equal to that for outsiders. The impact of tenure is comparable to the results of the basic model for outsiders. However, in the reduced sample, we also

start to observe the tenure effect for insiders. Insiders reduce the level of competition by 1-2% per year, a growth in delays by 4-5% of the contract duration per year, and the probability of terminating the contract increases by 0.5% per year. Nevertheless, in all of these models, the magnitude of coefficients for tenure is 6-10 times lower for insiders compared with outsiders. This indicates a considerably higher level of favouritism in contract allocation by outsiders.

	<b>Insiders</b>	<b>Outsiders</b>	<b>Total</b>
<b>Tenure <math>\leq</math> 2 years</b>	28993	17042	46035
<b>2 years &lt; Tenure <math>\leq</math> 4 years</b>	17775	11481	29256
<b>4 years &lt; Tenure <math>\leq</math> 8 years</b>	10931	12145	23076
<b>8 years &lt; Tenure <math>\leq</math> 12 years</b>	10107	1447	11554
<b>Tenure &gt; 12 years</b>	18145	392	18537

Note: The table reports the number of contracts falling into each of the five tenure's categories: less than two years, from two to four years, from four to eight years, from eight to twelve years, and more than twelve years. The total sample size is 128,458 observations. Column 1 reports the number of contracts for governors-insiders, Column 2 – for governors-outsiders.

**Table 4. Number of observations corresponding to different intervals of tenure**

Variables	All procedures	Open auctions	All procedures	Open auctions	All procedures	Open auctions
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: linear model</b>						
<b>Tenure</b>	0.00992*** (0.00236)	0.0106*** (0.00325)	-0.0189*** (0.00353)	-0.0315*** (0.00500)	-0.102*** (0.0153)	-0.157*** (0.0193)
<b>Insider</b>	0.0769*** (0.0159)	0.0927*** (0.0206)	-	-	-	-
<b>Other control variables</b>						
<b>R-squared</b>	0.484	0.470	0.495	0.480	0.485	0.478
<b>Observations</b>	91485	72773	54347	43185	37138	29588
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders
<b>Panel B: negative binomial model</b>						
<b>Tenure</b>	0.00536*** (0.0016)	0.00545** (0.00253)	-0.0122*** (0.00233)	-0.0227*** (0.00354)	-0.0948*** (0.0108)	-0.147*** (0.0151)
<b>Insider</b>	0.0514*** (0.0147)	0.0683*** (0.0203)	-	-	-	-
<b>Other control variables</b>						
<b>Observations</b>	91485	72773	54347	43185	37138	29588
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders

Significance levels: '\*\*\*' 0.01 '\*\*' 0.05 '\*' 0.1

**Note:** The table reports estimates (standard errors in parentheses) from linear model (Panel A) and negative binomial model (Panel B). The dependent variable is *Number of Bidders* - number of bidders in the procurement procedure. Control variables presented in the table are *Tenure* - the exact governor's time in office by the date of contract signing and *Insider* - dummy equal to one if the governor was an insider. Other control variables include the governor's age, governor's age squared, indicator that the governor had been elected at least once, dummy variables for year of contract signing, procurement procedure, Log of the reserve price, number of applicants, contract duration, number of products, procurer/supplier/ regional controls, and regional dummy variables. The contracts with tenure larger than eight years are excluded. *Sample* reports the sample selection used for estimation: columns 1 and 2 use the combined sample of insiders and outsiders, columns 3 and 4 use the sample of insiders, and columns 5 and 6 use the sample of outsiders. Columns 1, 3 and 5 report the results of estimation using all procedures except for single source. Columns 2, 4, 6 report the results of estimation using only the sample of open auctions.

**Table 5. Results for the number of bidders (reduced sample)**

Variables	All procedures (1)	Open auctions (2)	All procedures (3)	Open auctions (4)	All procedures (5)	Open auctions (6)
<b>Panel A: normalized delay in contract execution</b>						
<b>Tenure</b>	0.0144 (0.0116)	0.0102 (0.0139)	0.0439** (0.0205)	0.0546** (0.0272)	0.247*** (0.0618)	0.337*** (0.0774)
<b>Insider</b>	-0.118** (0.0593)	-0.201*** (0.0647)	- -	- -	- -	- -
<b>Other control variables</b>						
<b>R-squared</b>	0.045	0.048	0.047	0.049	0.049	0.054
<b>Observations</b>	79215	58648	45940	34379	33275	24269
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders
<b>Panel B: termination of contract</b>						
<b>Tenure</b>	0.00387*** (0.00089)	0.00318*** (0.00121)	0.00528*** (0.00134)	0.00727*** (0.00196)	0.038*** (0.00557)	0.0447*** (0.00741)
<b>Insider</b>	0.00444 (0.00564)	-0.00326 (0.00713)	- -	- -	- -	- -
<b>Other control variables</b>						
<b>R-squared</b>	0.117	0.132	0.135	0.153	0.097	0.111
<b>Observations</b>	81713	60476	47713	35729	34000	24747
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders

Significance levels: ‘\*\*\*’ 0.01 ‘\*\*’ 0.05 ‘\*’ 0.1

**Note:** The table reports estimates (standard errors in parentheses) from linear regression. The dependent variable in Panel A is *Normalized delay* - delay divided by the duration of the contract. The dependent variable in Panel B is *Terminated contract* - dummy variable equal to one if the execution of the contract was terminated and zero otherwise. Control variables presented in the table are *Tenure* - the exact governor’s time in office by the date of contract signing and *Insider* – dummy equal to one if the governor was an insider. Other control variables include the governor’s age, governor’s age squared, indicator of repeated contract, indicator that the regions of procurer and supplier coincide, indicator that the governor had been elected at least once, dummy variables for year of contract signing, procurement procedure, Log of the reserve price, contract duration, number of products, procurer/supplier/regional controls, and regional dummy variables. The contracts with tenure larger than eight years and the contracts with execution in process by 30 April 2017 are excluded. *Sample* reports the sample selection used for estimation: columns 1 and 2 use the combined sample of insiders and outsiders, columns 3 and 4 use the sample of insiders, and columns 5 and 6 use the sample of outsiders. Columns 1, 3 and 5 report the results of estimation using all procedures. Columns 2, 4, 6 report the results of estimation using only the sample of open auctions.

The second step of the robustness check concerns the non-linearity of the tenure effect. To capture non-linearity in tenure of the general form, we employ models with a set of dummy variables instead of the variable *Tenure* itself. These dummy variables correspond to different intervals of governor’s tenure: less than two years, from two to four years, from four to eight years, from eight to twelve years and more than twelve years. The number of contracts falling into each category is presented in Table 4. The reason for such a sample split is primarily due to the fact that the average length of one governor’s term was four years. First term was divided into halves since we believe that procurement outcomes might not change instantly after a new governor comes into office. In addition, we unite the last two categories into one category of ‘Tenure > 8 years’ in the case of governors-outsiders due to sample depletion. Thus, for the sample of governors-outsiders, we use four dummy variables to

estimate non-linear models, whereas for governors-insiders, we use all five dummy variables. The results of estimation are presented in Tables 7-10.

Variables	All procedure (1)	Open auctions (2)	All procedures (3)	Open auctions (4)	All procedures (5)	Open auctions (6)
<b>Panel A: linear model</b>						
<b>2 &lt; Tenure ≤ 4</b>	0.00221 (0.00688)	0.00193 (0.00817)	-0.0286*** (0.009)	-0.0322*** (0.0109)	-0.0297* (0.016)	-0.0512*** (0.0189)
<b>4 &lt; Tenure ≤ 8</b>	0.0253*** (0.00955)	0.0332*** (0.0114)	0.00658 (0.0134)	0.00969 (0.0159)	-0.103*** (0.0261)	-0.13*** (0.0309)
<b>8 &lt; Tenure ≤ 12</b>	0.0381*** (0.0133)	0.0529*** (0.0154)	0.0306* (0.018)	0.0341* (0.0206)	-	-
<b>Tenure &gt; 12</b>	0.0499*** (0.0151)	0.0626*** (0.0176)	0.0934*** (0.0195)	0.103*** (0.0222)	-	-
<b>Tenure &gt; 8</b>	-	-	-	-	-0.109*** (0.0383)	-0.128*** (0.0449)
<b>Insider</b>	0.0478*** (0.013)	0.0512*** (0.0165)	-	-	-	-
<b>Other control variables</b>						
<b>R-squared</b>	0.495	0.476	0.512	0.491	0.483	0.475
<b>Observations</b>	119762	95930	80905	65014	38857	30916
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders
<b>Panel B: negative binomial model</b>						
<b>2 &lt; Tenure ≤ 4</b>	-0.00124 (0.00527)	-0.00379 (0.00646)	-0.0229*** (0.00678)	-0.0292*** (0.00859)	-0.0276** (0.011)	-0.0482*** (0.0139)
<b>4 &lt; Tenure ≤ 8</b>	0.00677 (0.00702)	0.00892 (0.00896)	-0.00748 (0.00969)	-0.0132 (0.012)	-0.0973*** (0.0184)	-0.122*** (0.0236)
<b>8 &lt; Tenure ≤ 12</b>	0.0183* (0.0106)	0.0293** (0.013)	0.0102 (0.0145)	0.00581 (0.0177)	-	-
<b>Tenure &gt; 12</b>	0.0278** (0.0121)	0.0348** (0.0149)	0.052*** (0.0155)	0.0519*** (0.0191)	-	-
<b>Tenure &gt; 8</b>	-	-	-	-	-0.105*** (0.027)	-0.12*** (0.0343)
<b>Insider</b>	0.0333*** (0.0121)	0.0378** (0.016)	-	-	-	-
<b>Other control variables</b>						
<b>Observations</b>	119762	95930	80905	65014	38857	30916
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders

Significance levels: '\*\*\*' 0.01 '\*\*' 0.05 '\*' 0.1

**Note:** The table reports estimates (standard errors in parentheses) from linear model (Panel A) and negative binomial model (Panel B). The dependent variable is *Number of Bidders* - number of bidders in the procurement procedure. Control variables presented in the table are dummy variables corresponding to different intervals of the governor's tenure and *Insider* – dummy equal to one if the governor was an insider. Other control variables include the governor's age, governor's age squared, indicator that the governor had been elected at least once, dummy variables for year of contract signing, procurement procedure, Log of the reserve price, number of applicants, contract duration, number of products, procurer/supplier/ regional controls, and regional dummy variables. *Sample* reports the sample selection used for estimation: columns 1 and 2 use the combined sample of insiders and outsiders, columns 3 and 4 use the sample of insiders, and columns 5 and 6 use the sample of outsiders. Columns 1, 3 and 5 report the results of estimation using all procedures except for single source. Columns 2, 4, 6 report the results of estimation using only the sample of open auctions.

**Table 7. Results for the number of bidders (tenure dummies)**

Variables	All procedures (1)	Open auctions (2)	All procedures (3)	Open auctions (4)	All procedures (5)	Open auctions (6)
<b>Panel A: normalized delay in contract execution</b>						
<b>2 &lt; Tenure ≤ 4</b>	-0.0584** (0.0256)	-0.0611** (0.03)	-0.111*** (0.0347)	-0.135*** (0.0406)	-0.00879 (0.0637)	0.0118 (0.0725)
<b>4 &lt; Tenure ≤ 8</b>	0.068 (0.0438)	0.0485 (0.0505)	0.0497 (0.0649)	0.00938 (0.0765)	0.164 (0.103)	0.171 (0.115)
<b>8 &lt; Tenure ≤ 12</b>	0.0484 (0.0668)	-0.02 (0.081)	-0.0791 (0.0884)	-0.214** (0.105)	-	-
<b>Tenure &gt; 12</b>	0.129* (0.0756)	0.0398 (0.0904)	0.00841 (0.0895)	-0.142 (0.106)	-	-
<b>Tenure &gt; 8</b>	-	-	-	-	0.195 (0.151)	0.213 (0.182)
<b>Insider</b>	-0.126** (0.0567)	-0.179*** (0.069)	-	-	-	-
<b>Other control variables</b>						
<b>R-squared</b>	0.045	0.047	0.047	0.049	0.046	0.050
<b>Observations</b>	103236	77109	68413	51700	34823	25409
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders
<b>Panel B: termination of contract</b>						
<b>2 &lt; Tenure ≤ 4</b>	0.00353 (0.00238)	0.00605** (0.00294)	0.00918*** (0.00325)	0.016*** (0.00407)	0.0101* (0.00569)	0.0041 (0.0071)
<b>4 &lt; Tenure ≤ 8</b>	0.00503 (0.00376)	0.00707 (0.00464)	0.0109** (0.0053)	0.0223*** (0.00665)	0.0178* (0.0101)	0.00634 (0.0125)
<b>8 &lt; Tenure ≤ 12</b>	0.00306 (0.00548)	0.00646 (0.00655)	-0.0136* (0.0074)	-0.00495 (0.00895)	-	-
<b>Tenure &gt; 12</b>	0.00866 (0.00627)	0.0148** (0.0075)	0.000194 (0.00798)	0.00932 (0.00971)	-	-
<b>Tenure &gt; 8</b>	-	-	-	-	0.0664*** (0.0152)	0.0519*** (0.018)
<b>Insider</b>	-0.000808 (0.00463)	-0.0101* (0.00463)	-	-	-	-
<b>Other control variables</b>						
<b>R-squared</b>	0.119	0.132	0.135	0.153	0.094	0.108
<b>Observations</b>	106743	79694	47713	35729	35601	25915
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders

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Significance levels: ‘\*\*\*\*’ 0.01 ‘\*\*\*’ 0.05 ‘\*\*’ 0.1

**Note:** The table reports estimates (standard errors in parentheses) from linear regression. The dependent variable in Panel A is *Normalized delay* - delay divided by the duration of the contract. The dependent variable in Panel B is *Terminated contract* - dummy variable equal to one if the execution of the contract was terminated and zero otherwise. Control variables presented in the table are dummy variables corresponding to different intervals of the governor’s tenure and *Insider* – dummy equal to one if the governor was an insider. Other control variables include the governor’s age, governor’s age squared, indicator of repeated contract, indicator that the regions of procurer and supplier coincide, indicator that the governor had been elected at least once, dummy variables for year of contract signing, procurement procedure, Log of the reserve price, contract duration, number of products, procurer/supplier/regional controls, and regional dummy variables. The contracts with execution in process by 30 April 2017 are excluded. *Sample* reports the sample selection used for estimation: columns 1 and 2 use the combined sample of insiders and outsiders, columns 3 and 4 use the sample of insiders, and columns 5 and 6 use the sample of outsiders. Columns 1, 3 and 5 report the results of estimation using all procedures. Columns 2, 4, 6 report the results of estimation using only the sample of open auctions.

**Table 8. Results for contract execution (tenure dummies)**

For governor-insiders, we observe a 2-3% reduction of competition during the second half of the first term compared to the first half (Table 7). However, starting from the second term, the level of competition is stabilized, and after the third term, the competition even increases by 5% compared with the first two years in office. For governors-outsiders, we observe the opposite result, i.e., there is a negative trend of the level of competition by tenure. In the second half of the first term, there is a 3-5% reduction of competition compared to the first half. In the second and third terms, the reduction of competition becomes 10-12%. As with the basic models, this reduction of competition for governors-outsiders cannot be explained by better contract execution. While the coefficients of normalized delays are statistically insignificant, they are large and positive for the second and third terms of governors-outsiders (Panel A, columns 5 and 6, Table 8). Moreover, the probability of contract termination is 5-6% higher in the third term compared to the first one (Panel B, columns 5 and 6, Table 8). For governors-insiders there is no observable trend in contract execution (columns 3 and 4, Table 8).

In the third step of the robustness check, we consider absolute delays instead of normalized delays as a proxy of the quality of contracts’ execution. The results are presented in Table 9. These results support the main findings of Table 4. On average, insiders show lower absolute delays (columns 1 and 2, Table 9) with no tenure effect (columns 3 and 4, Table 9), while the delays of governors-outsiders increase by 18-21 days per year (columns 5 and 6, Table 9).

Variables	All procedures	Open auctions	All procedures	Open auctions	All procedures	Open auctions
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Delay in contract execution</b>						
<b>Tenure</b>	0.0735 (0.202)	-0.032 (0.257)	-0.13 (0.248)	-0.614* (0.318)	17.7*** (2.03)	21.5*** (2.65)
<b>Insider</b>	-7.62*** (1.89)	-11.7*** (2.41)	- -	- -	- -	- -
<b>Other control variables</b>						
<b>R-squared</b>	0.131	0.130	0.131	0.130	0.140	0.142
<b>Observations</b>	103236	77109	68413	51700	34823	25409
<b>Sample</b>	All	All	Insiders	Insiders	Outsiders	Outsiders

Significance levels: ‘\*\*\*’ 0.01 ‘\*\*’ 0.05 ‘\*’ 0.1

**Note:** The table reports estimates (standard errors in parentheses) from linear regression. The dependent variable is *Delay* - difference between the actual execution date and the contract execution date. Control variables presented in the table are *Tenure* - the exact governor’s time in office by the date of contract signing and *Insider* – dummy equal to one if the governor was an insider. Other control variables include the governor’s age, governor’s age squared, indicator of repeated contract, indicator that the regions of procurer and supplier coincide, indicator that the governor had been elected at least once, dummy variables for year of contract signing, procurement procedure, Log of the reserve price, contract duration, number of products, procurer/supplier/regional controls, and regional dummy variables. The contracts with execution in process by 30 April 2017 are excluded. *Sample* reports the sample selection used for estimation: columns 1 and 2 use the combined sample of insiders and outsiders, columns 3 and 4 use the sample of insiders, and columns 5 and 6 use the sample of outsiders. Columns 1, 3 and 5 report the results of estimation using all procedures. Columns 2, 4, 6 report the results of estimation using only the sample of open auctions.

**Table 9. Regression results for delays**

## Conclusion

In this paper, we present the evidence regarding to what extent and what type of autocratic governors at the sub-nation level may distort public procurement outcomes. In particular, we study the impact of the tenure of autocratic governors and their local ties on the restriction of competition in public procurement. Using the contract-level procurement data on road construction and repair in Russian regions from 2011-2014, we show that governors without local ties in regions (*outsiders*) demonstrate predatory behaviour by restricting the level of competition in auctions. Such behaviour becomes worse with tenure in office. In contrast, governors with local ties in regions (*insiders*) demonstrate a higher level of competition and no tenure effect. These results persist after controlling for auction, procurer and regional characteristics and regional and year fixed effects. To have an unambiguous interpretation of these results, we also use ex-post data on contract execution. The contracts of governors-outsiders have longer delays and a higher probability of being terminated compared with contracts of governors-insiders. Moreover, tenure in office deteriorates these auction outcomes for the former group of governors. Therefore, the restriction of competition by governors-outsiders, which worsens with tenure in office, cannot be explained by better contract execution. Thus, we conclude that favouritism operates in public contract allocation by governors-outsiders. Several robustness checks using subsamples, different model specifications and alternative measures of contract execution lead to similar results.

Our findings provide the grounds for the implementation of policies wherein locally based governors are preferred compared with governors-outsiders in sub-national autocracies under an appointment system. Moreover, there is evidence that procurement regulation should limit the discretionary power of governors over public procurement outcomes through, e.g., the possibility of public auditing and mechanisms of feedback from auction participants.

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## Annex:

Name	Description	Type	Source
<b>Parameter</b>			
Bidders	Number of bidders	Quantitative	www.zakupki.gov.ru
Delay	Difference between the actual execution date and contract execution date, days	Quantitative	www.zakupki.gov.ru
Normalized delay	Delay normalized with respect to the contract execution period. Computed as the delay divided by the difference between the contract execution date and signing date	Quantitative	
Terminated contract	If contract was terminated during the execution period	Factor (1-yes, 0-no)	www.zakupki.gov.ru
<b>Governors controls</b>			
Tenure	Exact governor's time in office by the date of contract signing, years	Quantitative	
Age	Age of the governor by 01.01.2011, years	Quantitative	
Elected	If the governor was ever elected during his/her tenure	Factor (1-yes, 0-no)	
Insider	If the governor ever worked in the region before becoming its regional chief executive	Factor (1-yes, 0-no)	
<b>Contract controls</b>			
Repeated contract	If the pair of procurer/supplier had 3 or more repeated contracts during 2011-2014. The first two contracts are not marked as repeated	Factor (1-yes, 0-no)	
Log contract price	Logarithm of contract price, ln RUR	Quantitative	www.zakupki.gov.ru
Log initial price	Logarithm of initial reserve price, ln RUR	Quantitative	www.zakupki.gov.ru
Number of products	Number of products in contract	Quantitative	www.zakupki.gov.ru
Duration	Duration of contract in days	Quantitative	www.zakupki.gov.ru
<b>Bidding controls</b>			
Applicants	Number of applicants	Quantitative	www.zakupki.gov.ru
<b>Customer controls</b>			
Log cust. contracts sum	Logarithm of the sum of customer contracts' prices during the corresponding year, ln RUR	Quantitative	www.clearspending.ru
Regional subordination	If firm subordination type is regional	Factor (1 – yes, 0 – no)	www.clearspending.ru
Municipal subordination	If firm subordination type is municipal	Factor (1 – yes, 0 – no)	www.clearspending.ru
Activity: public administration	If firm's OKVED (Russian classification of economic activities) corresponds to "Public administration, military security and social services"	Factor (1-yes, 0-no)	www.clearspending.ru
Activity: unknown	If firm's OKVED (Russian classification of economic activities) is unknown	Factor (1-yes, 0-no)	www.clearspending.ru

<b>Supplier controls</b>			
Log sup. contracts sum	Logarithm of the sum of supplier contracts' prices during the corresponding year, ln RUR	Quantitative	www.clearspending.ru
Same region	If supplier and customer are from the same region	Factor (1=yes, 0=no)	
<b>Regional controls</b>			
Log spending	Logarithm of overall regional spending per capita during the corresponding year, ln RUR	Quantitative	www.clearspending.ru
Log GRP	Logarithm of GRP per capita during the corresponding year, ln RUR	Quantitative	www.gks.ru
Accident rate	Number of road accidents with victims	Quantitative	www.fedstat.ru
Good roads share	Share of roads complying with standards, %	Quantitative	www.fedstat.ru

**Table A1. Variables and sources**

Parameter	All procedures				Open auctions			
	mean	sd	min	max	mean	sd	min	max
Bidders	1.55	0.95	0	19	1.45	0.97	0	16
Delay, days	-5.22	101.5	-442	654	-3.84	105.15	-442	654
Normalized delay	0.38	2.8	-0.996	65.75	0.44	2.87	-0.996	65.75
Terminated contract, dummy	0.07	0.26	0	1	0.08	0.28	0	1
<b>Governors controls</b>								
Tenure, years	5.14	5.03	0.00	21.24	5.22	5.06	0.00	21.24
Age, years	52.9	7.86	35.00	71.00	52.9	7.93	35.0	71.0
Elected, dummy	0.31	0.46	0	1	0.33	0.47	0	1
Insider, dummy	0.67	0.47	0	1	0.68	0.47	0	1
<b>Contract/bidding controls</b>								
Repeated contract, dummy	0.47	0.50	0	1	0.51	0.50	0	1
Log contract price	14.1	1.75	9.21	23.2	14.5	1.61	9.21	23.2
Log initial price	14.2	1.75	6.21	23.2	14.6	1.62	6.91	23.2
Duration, days	141.6	175.98	1.00	3702	153.0	187.5	1.00	3702

Applicants	2.04	2.05	0.00	38.0	2.22	2.26	0.00	38.0
Electronic auction, dummy	0.75	0.43	0	1	1.00	-	-	-
Open tender, dummy	0.005	0.07	0	1	-	-	-	-
Request for quotations, dummy	0.18	0.39	0	1	-	-	-	-
Single source, dummy	0.07	0.25	0	1	-	-	-	-
Product amount	1.08	1.05	1	122	1.08	1.16	1.00	122.0
<b>Procurer controls</b>								
Log cust. contracts sum	18.2	2.60	10.1	25.55	18.6	2.41	10.7	25.55
Regional subordination, dummy	0.19	0.39	0	1	0.20	0.40	0	1
Municipal subordination, dummy	0.81	0.39	0	1	0.80	0.40	0	1
Activity: public administration, dummy	0.69	0.46	0	1	0.67	0.47	0	1
<b>Supplier control</b>								
Log supp. contracts sum	17.6	2.34	9.21	25.8	18.00	2.03	10.6	25.8
Same region, dummy	0.92	0.26	0	1	0.92	0.27	0	1
<b>Regional controls</b>								
Log spending	10.2	0.57	5.26	12.25	10.2	0.55	5.26	12.25
Log GRP	12.6	0.50	11.1	15.3	12.6	0.50	11.06	15.3
Accident rate	3947.7	2854.3	24	12010	3997.5	2824.6	24	12010
Good roads share	0.41	0.19	0.008	0.95	0.41	0.19	0.008	0.95
<b>Year controls</b>								
Sign year2011, dummy	0.19	0.39	0	1	0.17	0.38	0	1
Sign year2012, dummy	0.30	0.46	0	1	0.29	0.46	0	1
Sign year2013, dummy	0.34	0.47	0	1	0.35	0.48	0	1
Sign year2014, dummy	0.17	0.38	0	1	0.19	0.39	0	1

Table A2. Descriptive statistics

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	min	q25	median	q75	max	mean	sd
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Population	42 906	774 751	1 194 781	2 362 928	2 035 490	1 729 044	1 742 850
GRP per capita (RUR)	85 191	181 088	256 256	340 473	3 971 959	376 999	521 351
Overall spending per capita (RUR)	445	17 774	23 508	31 989	169 826	31 848	29 302
Number of road traffic accidents with injured	28	1 010	1 960	3 111	11 617	2 431	2 098
Share of roads of regional significance with good quality (%)	3	25	36	50	84	38	18

**Table A3. Regional characteristics**

	<b>mean</b>	<b>sd</b>	<b>min</b>	<b>q25</b>	<b>median</b>	<b>g75</b>	<b>max</b>
Term length (up to the end of 2014 or leaving the office, in years)	6.52	5.26	1	2	5	9	22
Age (by 2011)	52.71	8.08	35	47	53	59	71
Governor was elected (at least one time in a history) - dummy	0.34	0.48					
Insider - dummy	0.69	0.46					

**Table A4. Governors characteristics**