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Roving bandits in action: Outside option and governmental predation in autocracies

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No. 190

**Roving Bandits in Action:
Outside Option and Governmental Predation in Autocracies**

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Abstract

The paper investigates the influence of outside options on the predatory behavior of autocrats. An outside option is referred to as the opportunity of an incumbent ruler to continue his career outside his current territory of control. The paper uses data on the effectiveness of tax collection and the repressiveness of tax jurisprudence for Russian regions in 2007-2009 and finds that regions ruled by governors with substantial outside options are characterized by more repressive behavior of tax authorities. However, surprisingly, the same tax authorities collect less additional revenues for the public budget. It conjectures that the presence of an outside option induces autocrats to behave like ‘roving bandits’: they use tax audits to establish control over regional companies, but exploit this control to extract private rents rather than revenues for the regional budget used for public goods provision.

Key words: roving and stationary bandit, tax auditing, predatory government, Russian federalism

JEL classification: D72, D73, H77, P26

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I. INTRODUCTION

While in democracies elections and multiple veto players are supposed to be able to restrict governmental predation, in non-democratic states predatory behavior is more likely. However, autocrats are also rarely unconstrained in their predation. For instance, the need to invest in measures ensuring their power (Wintrobe 1990); the danger of revolution (Acemoglu and Robinson 2006) and the concessions to the public (Gandhi and Przeworski 2006) also play an important role. Yet the most obvious factor constraining the predation by the autocrats is that predation is costly for the economic development in the long run. Thus, a forward-looking dictator with no concerns for stability of his power should limit her rent-seeking, thus exchanging the ‘larger share of a pie’ for a ‘smaller share of a larger pie’ in terms of the absolute revenue received (Tullock 2002), and if rulers are myopic, one has to expect an increase in predation (e.g. Weede 2011). This argument explains the difference in behavior between the ‘stationary’ and the ‘roving’ bandits, according to Olson (1993): a roving bandit, i.e. a predatory ruler or warlord without claim to a particular territory in a world of anarchy, will exhibit much higher rent-seeking than a stationary ruler, who has to make sure that he will be able to receive some income from his territory in the long run. When and under which conditions stationary bandit behavior can be observed became subject of a large theoretical and empirical discussion (see McGuire and Olson 1996; Wilke, 2002; Overland et al. 2005; Chaturvedi and Muenster 2005; Dalgic and Van Long 2006; Shen 2007; Paltseva 2008; Pitlik 2008; Azam et al. 2009).

The distinction between stationary and roving bandits has been empirically tested in the literature using several proxies. The existing studies focus their attention on two main factors possibly constraining the farsightedness of the autocrat. The first one is age; assuming that the older autocrat does not expect to stay in power for a long time due to natural reasons, one could expect the aging dictator to behave more like a roving bandit (Jong-A-Pin and Mireau 2011). The second factor, which has so far received much greater attention in the literature, is the political instability, increasing the probability of power loss and hence turning potential ‘stationary’ bandit into a ‘roving’ one (the empirical findings, however, mixed: see Goldsmith 1987; Clague et al. 1996; Alesina et al. 1996; Fosu 2002; Campos and Nugent 2002; Polishchuk and Syunyaev 2011). Although the role of these factors in restricting the horizon of decision-making of autocrats is important, there is a further aspect of the ‘roving bandit’ story which deserves detailed consideration. If one looks at his-

torical examples of societies where roving bandit behavior flourished, like medieval Vikings or nomads in Central Eurasia (Kurrild-Klitgaard and Svendsen 2003), it seems to be possible to conclude that the predatory behavior was primarily determined by the presence of an *outside option*, i.e. territories the bandit could loot after the rents from a particular country are extracted. From this point of view, roving bandits are primarily motivated by *low costs of mobility* and *large rents* present elsewhere, which can be extracted.

The role of the outside options in the behavior of the modern autocrats has been, however, to our knowledge never investigated before. Clearly, it is partly due to the fact that most modern autocrats do *not* actually have an outside option: it is hardly imaginable that they receive a similar position with unconstrained power anywhere else than in the country they already rule, unlike, for example, their counterparts in the medieval Europe, where kings and princes often changed the territories they actually controlled. However, while for autocrats on the *national level* outside option is likely to be absent in the modern world, the situation is entirely different for the *sub-national* political regimes. In the recent years political science has devoted substantial attention to the analysis of sub-national autocracies, i.e. power systems established by regional governors both in conjuncture with the central authority, but also independently from it (see Gibson 2005; McMann 2006; Gel'man 2010; Gervasoni 2010). Sub-national political and institutional variation has been found to have a profound impact on economic development (e.g. Besley and Burgess 2002; Green 2011). If the regional autocracies are created by governors appointed by the central government and the chances for re-assignment to another position or region are relatively high and depend on political behavior of the regional autocrat rather than on her growth performance, then these regional governors should satisfy the same conditions 'roving bandits' of the past did: high mobility combined with significant outsider option. Thus, studying behavior of regional governors in this system could prove to be an additional test of the 'roving bandit' conjecture complementing the existing literature.

The objective of this paper is to examine the influence of the presence of outside option on the predatory behavior of regional autocrats studying the behavior of the Russian regional governors in the late 2000s. For several reasons Russia presents an excellent and almost unique empirical laboratory for investigating the question we are interested in. Since the early 1990s the Russian regions have been ruled by well-entrenched politicians, spending many years (and even decades) in

their region without any further option of advancement beyond the position of the governor¹ and thus rather fitting the picture of a stationary bandit. In mid-2000s president Vladimir Putin abolished the public elections of the governors, replacing them by appointment by the center. During the first years he had been rather cautious leaving most of the old governors in power. Over time, however, especially under Putin's successor in 2008-2012, Dmitriy Medvedev, the central re-appointment strategies became more aggressive. In the late 2000s, a new breed of regional governors came into existence: unlike their predecessors often recruited from regional elites, the new appointees usually came from high-ranked positions in the federal administration; for them position in the region was likely to be merely one additional step in their career advancement. While for the 'old' governors there was almost no outside option to their position, 'new' governors typically had an outside option. Thus, it is reasonable to assume that the new governors ought to be more likely to exhibit the behavior consistent with the roving bandit hypothesis.

Since the change from the 'old' to the 'new' generation of governors did not happen overnight, we consider a period when both old and new regional leaders co-existed in different parts of Russia. We investigate the period of 2007-2009. In particular, we look at the governors with *substantial federal connections* and study the extent of their predatory behavior compared to other governors. It is reasonable to conjecture that governors with federal connections have stronger outside option. Since the period of 2007-2009 is too short for the analysis of the economic growth implications of new appointments, we look at a more subtle aspect of the behavior of the regional governors – their influence on the tax collection in the regions under their control. While officially tax authorities in Russia are part of a federal ministry, unofficially there often exist strong ties between regional governors and federal bureaucrats working in their regions. Combining the data of the Russian official statistics and of the Federal Tax Service with a unique dataset on the performance of Russian courts, we are able to reach a number of interesting observations. Our findings show not only that the tax agencies that operate in jurisdictions ruled by governors with federal connections *ceteris paribus* uncover more tax violations than in other regions, but also that criminal prosecution for tax fraud is more repressive in these regions. However, contrary to what one would expect, the same tax agencies collect less revenue per tax audit than their counterparts in jurisdictions which are headed by governors without federal connections. This paradoxical situation gives rise to the

¹ Unlike China, US or Germany, in Russia until recently there has been almost no evidence of regional governors successfully turning into federal politicians. For a typical regional bureaucrat in Russia the position of a governor constitutes the highest point of one's career.

following interpretation: governors with close relationships to the political center use the persecution of tax violations as a tool to exercise control and demand loyalty from regional business groups. At the same time this control is not used to generate official revenue for the regional budget; governors are not interested in providing public goods and services (due to their short time horizon) and rather prefer using other instruments of rent-extraction ensuring that the rents are entirely captured by the bureaucrats themselves (e.g. corruption and side-payments). This is exactly the type of behavior one would expect from a ‘roving bandit’: increased rent-extraction combined with low provision of public goods.

This paper contributes to several literatures. First, as mentioned, it provides further evidence regarding the presence of a ‘roving bandit’ behavior using a different tool of differentiating ‘stationary’ from ‘roving’ bandits. Second, a number of studies investigate a related question: how the presence of possible punishments affects the behavior of autocrats (Escriba-Folch 2007); Torger and Frey (2012) look at the role of political killings in this context. Third, the paper contributes to the discussion of the advantages and disadvantages of centralization and possible consequences of changing incentives for regional governors (Weingast 2009) if the central control is imperfect (Myerson 2010). Fourth, the paper adds to the discussion of the blackmail state pioneered by Darden (2008). The idea of the blackmail state is that government issues laws and regulations which are contradictory and make tax compliance nearly impossible, forcing the agents to evade taxes, and then uses this evasion to blackmail and pressure local elites ensuring their support.

This paper is organized as follows. In section 2 we provide a brief description of the Russian federalism, regional governors and tax investigations. Section 3 describes the methodology, data and key variables. The empirical results and the main robustness checks are presented in sections 4 and 5. The last section concludes.

II. RUSSIAN FEDERALISM, REGIONAL GOVERNORS AND TAX INVESTIGATIONS

1. The advancement of a new breed of governors

Although the Russian Federation inherited a centralized system of intergovernmental relations from the Soviet period, under its first president Boris Yeltsin (1991-1999) it experienced strong decentralization of political and fiscal authority to the regions (Shleifer and Treisman 2000). As a result, without interventions from the center, multiple governors were able to create powerful political machines typically based on patronage relations between regional leaders and protected business groups (Gel'man 1999; Slinko et al. 2005; Sonin 2010).² Putin (2000-2008 and 2012-onwards) from the very beginning of his term focused on reducing the power of these influential regional barons, consequently removing various tools of control available at their disposal earlier through both political (Mitin 2008) and fiscal reforms (de Silva et al 2009). The abovementioned abolishment of elections of governors in autumn 2004 became a culmination of these reforms. It opened the gates for new breed of regional governors, coming from the *federal* bureaucracy, which we will focus at in this paper.

The presence of some sort of support from the federal center is almost an unavoidable requirement for being appointed a governor in the Russian system: the candidate should be known to the federal administration in order to be considered for office in the first place.³ However, there exists a strong variation in the logic of appointments: sometimes the political connections on the central level played the crucial role, and sometimes the specifics of the regional politics and elites or ethnic balance (like in the Volga region and Northern Caucasus) had a greater influence on the decisions. Thus, although all governors are appointed now, some of them are closer to the federal center than the rest. The true extent of this proximity is rather difficult to measure in the intransparent Russian system (where personal friendships and relations are decisive);⁴ however, to some ex-

² Prominent examples are governors with long tenures in their offices like the former mayor of Moscow Yury Luzkov (1992-2010), and the governors of Bashkortostan Murtaza Rakhimov (1993-2010), Tatarstan Mintimer Shaimiev (1991-2010), and Rostov Vladimir Chub (1991-2010).

³ This is very different from the times of the elected governors; that period actually featured a number of cases when candidate supported by the federal center lost to the alternative contestants, sometimes even with extremely bad standing in the eyes of the federal government (to provide an extreme example, the former vice president of Russia, Alexander Ruzkoi, a direct political enemy of Yeltsin and one of the leaders of the parliamentary opposition suppressed by force in 1993, was elected the governor of the Kursk region in 1996).

⁴ We have attempted to capture these informal links, creating a dummy for governors, who have worked in St. Petersburg during the period Putin worked there; it is known that Putin was relatively more likely to appoint people he had

tent, the power of political connections of a governor can be established by looking at his former career paths.⁵ Specifically, it is reasonable to assume that federal connections have been characteristic for the governors, who have (before their appointments) worked at *federal administration institutions*. A governor of this group is more likely to regard his appointment in the region as temporary commitment and development stage for his future political career. She is aware that she will stay for a maximum of two office periods (a practice more rigorously enforced by Medvedev than by his predecessors) and expects to return to a (prestigious) position in a federal institution afterwards. On the opposite, governors without federal ties do not anticipate to be rewarded with a federal position and therefore will try to extend their tenure period as much as possible. Thus, in this paper we define ‘federal connections’ as previous experience of work in federal institutions (under the administration of Putin and Medvedev, i.e. after 2000).⁶ Details of the definition and examples are reported in *Appendix A*.

For our analysis, it is important to point out that different expectation about the tenure duration and future career prospects should influence the way how governors interact with regional firms. Governors without federal ties are more dependent on the loyalty and support of regional business and therefore should be more inclined to provide administrative and financial support to regional enterprises in return for social development and new jobs; in this case one can expect informal coalitions of governors and regional firms to form (Yakovlev 2011). However, governors who expect to leave the region after one or two periods, knowing that they will not be evaluated according to the economic performance of their region,⁷ might reveal a less cooperative attitude towards regional firms and hence show a much higher level of predation.

connections to at the early stage of his career. However, in our sample we find only 4 observations of this type; three of them belong to the governor of St. Petersburg Valentina Matvienko (who has also worked in federal administration anyway). Thus, on the one hand, these observations do not drive our results as described below and, on the other hand, are insufficient for proper statistical analysis.

⁵ Detailed information on the career paths of incumbent governors is publicly available on the websites of the regional administrations. In addition, several governors use private websites and blogs which contain detailed biographies.

⁶ Work under Yeltsin does not necessarily translate into the support of the current political leadership of Russia; for Putin and Medvedev, however, the continuity of elites was almost complete.

⁷ The patterns of appointment in Russia have been investigated by a number of papers (Zhuravskaya 2010; Reuter and Robertson 2011; Reisinger and Moraski 2011), which all seem to conclude that economic performance does not matter for the political career – the central government is more likely to reward loyalty and to focus on political rationales (e.g. results of federal parliamentary and presidential elections) than to take the economic outcomes into account. Thus, there also seems to be no incentive for the regional governor to restrict her redistributive appetites to increase the chances of re-appointment (see further Chebankova 2006; Goode 2007; Sharafutdinova 2010; Blakkisrud 2011). Russia is ex-

2. Tax evasion and the blackmail state

As mentioned, we attempt to understand the extent of predatory behavior of the Russian regional governors by looking at the tax administration in Russian regions. The choice of this variable is reasonable due to three considerations. First, tax evasion in the post-Communist world is very widespread (Uslaner 2007; Hug and Sporri 2011), so the organization of tax collection matters a lot for regional business.⁸ Second, although tax collection in Russia is a federal affair, regional administrations play an important role in this process, either directly influencing tax collecting agencies or indirectly providing support to their actions (or withdrawing it). In the first half of the 2000s Putin invested substantial effort in cutting these ties. However, while the connections between the old regional governors and the federal bureaucrats were partly severed, the newly appointed governors, themselves originally bureaucrats in federal agencies, are likely to develop ties to the federal agencies in their region anew.⁹ Third, the behavior of tax authorities and courts in Russia is in many cases strategic, i.e. the choice of effort in the monitoring and collecting taxes in Russia is highly selective (see e.g. Yakovlev 2000).

While in the 1990s high level of tax evasion have been regarded as the result of a weak central state, during the 2000s the proliferation of tax fraud is ironically interpreted as the consequence of a particularly strong central state. The political leadership often seems to resign from the hopeless battle against tax fraud and rather use its knowledge about low tax compliance as a tool of blackmail to demand political loyalty and extract rents from business groups (e.g. through corruption or direct control over companies) in return for ‘closing the eyes’ on tax violations. Central and regional government can enforce such an informal contract by threatening with rigorous investigations by tax agencies. Russian tax agencies are often willing to manipulate legal proceedings in order to charge firms with unjustified tax claims or to ignore the tax violation for political reasons. The history of government-business relations in Russia is full with examples when tax claims have been used as a tool of political pressure, with the CEO of *Yukos*, Mikhail Khodorkovsky, being

tremely different from China in this respect, where growth is a key parameter taken into account by appointing regional leaders. On government-business relations in China see Du and Girma 2010.

⁸ Throughout the 2000s Russian government put substantial effort in combating tax evasion, including tax reforms (Jones Luong and Weinthal 2004; Ivanova *et al.* 2005; Gorodnichenko *et al.* 2009), improvements in tax administration and monitoring and even nationalization (Chernykh 2011), but the problem persists.

⁹ In fact, the results of this paper may be, as it will be shown below, interpreted as evidence of the better ability of governors with federal connections to restore ties to other federal agencies in the region – an example of how actions of

probably the most prominent. However, regional governors often use similar tools (McMann 2006). *Appendix H* provides a description of the tax auditing process in Russia, incentives of tax collectors and some examples of manipulation practices.

In the same way, regional governments usually have a strong influence on the decisions of regional courts.¹⁰ Courts are involved in tax collection procedures either in case of administrative disputes between the tax collectors and the companies and individuals, or in case of criminal prosecution. The latter is used only for relatively high volume of tax evasion, punishable by large fines and, in extreme case, imprisonment. Prison sentence is likely to be an issue only for very large tax evasion cases; hence, imprisonment is typically associated with high-profile incidents subject to a lot of public and media attention. Since it is well known that people over-estimate the risks associated with tax evasion, the influence of high-profile cases on the overall behavior of taxpayers is large, not necessarily leading to higher overall compliance (which should remain, given manipulative practices of the tax agencies, rather low, cf. Feld and Tyran 2002; Feld and Frey 2002), but possibly making tax evaders more submissive to the specific demands of the governors.

For us a further instance is more important: in case a prison sentence is under consideration, Russian courts actually have certain discretion in the way the sentence is served. They may decide either on actual imprisonment, or on the conditional release of the accused. In the case of a conditional release the convicted prison sentence is suspended on condition of probation.¹¹ Given the adverse conditions in the Russian prisons and massive violations of human rights in the penal system (Bobrik et al 2005), the conditional release is even more valuable in Russia than in many other countries. The decision of the court in this matter is expected to take the personality of the accused into account (e.g. characteristics from previous employers, family status and children, health status, behavior before and after the crime was committed), as well as the threat the accused constitutes for the society. Overall, it is safe to say that the discretion of the courts in this area is very large: the

the federal government aiming to increase control over region actually create larger informal opportunities for coalitions of bureaucrats at the regional level.

¹⁰ This influence could in fact be associated with the links between Russian governors and the prosecutors representing the government in courts in criminal and sometimes administrative matters. Russian courts are known to follow the suggestions made by prosecutors almost to the letter, what manifests itself in a very low share of acquittals. For the purpose of this paper, it is sufficient to conclude that governors control courts, regardless of the channels used for this control.

¹¹ In other words, during the period of conditional release the behavior of the convicted is monitored and in the case of further law violations the convicted will be imprisoned.

same offense by similar people could result in different sentences. Of course, the public reaction to prison sentences and conditional releases differs greatly (the former constitute a much higher threat for an evader): thus, it is also likely to be abused by governors given their control over courts.

III. DATA AND ECONOMETRIC STRATEGY

In a nutshell, the paper regresses the characteristics of regional tax law enforcement on a set of governor-specific and region-specific variables. We use an unbalanced panel of roughly 67 Russian regions observed throughout three fiscal years (2007, 2008, and 2009).¹² We have to exclude a number of regions for the following three reasons. First, we follow the standard procedure in empirical studies on Russian regions and exclude Chechnya and the so-called autonomous okrugs for which no consistent and reliable data exists. Second, we exclude 10 regions for which data on tax investigations was not available: Altai Republic, Ingushetia, Kaliningrad, Kaluga, Region of Moscow, North Ossetia-Alania, Novgorod, Smolensk, Tatarstan, and Udmurtia. From a spatial, political, and economic perspective there seems no systematic pattern in this set of regions; it includes rich and poor, ethnically Russian and non-Russian, industrial and agricultural regions. Finally, we exclude Moscow City, which we have identified as clear outlier. The reason is that almost all large Russian companies are registered in the Russian capital. Therefore, on the one hand, data for Moscow is systematically ‘contaminated’ by containing transactions, which have actually happened in other regions. On the other hand, the largest Russian companies are partly monitored by a special extra-territorial division of the Russian tax authority and not included in statistics of the regional offices. Thus, we cannot clearly interpret the information obtained for this region.

Our key **explanatory variable** is, as mentioned, a dummy for governors with federal connections which is equal to one for all governors who have worked in a federal institution before their inauguration and zero if otherwise. Using official statistics of the tax service we derive three **dependent variables** to describe tax auditing in Russia. First, in order to capture the ‘success rate’ of tax audits (henceforth ‘*effectiveness*’) we use the share of tax investigations which have uncovered law violations in the total number of tax investigations.¹³ The number of violations uncovered depends not only on the effort of the tax administration, but also on the extent of tax evasion, how-

¹² The Russian fiscal year coincides with the calendar year. For 2007, 2008, and 2009 we have data on 67, 64, and 67 regions respectively.

ever, given the widespread tax evasion in Russia, it is reasonable to argue that a large part of the actual violations remains uncovered and hence the variation is more likely to be caused by the activity of the tax authority. The second dependent variable illustrates the willingness of the tax agencies to implement the maximum penalty and thus the *credibility* of the threat of the government to use tax evasion investigations to the fullest extent possible to punish the supposed violators. For this purpose we measure the share of prison penalties in the total number of prison penalties and conditional releases in the region. In some sense, the variable measures the extent of ‘repressiveness’ of the tax law implementation.¹⁴ The third dependent variable measures the main purposes of tax audits, the monetary value of tax repayments (one could call it ‘*profitability*’, recognizing though that the term is not entirely accurate). If an investigation was successful in uncovering a tax fraud the convicted party has to pay fines and repay the evaded taxes. We will measure the profitability of tax investigations by calculating the additional revenues for the federal budget per tax audit.

In order to capture the time and region-specific unobserved heterogeneity, all regressions are estimated using two-way fixed effects. Thus, we control for specifics of individual regions and idiosyncratic shocks, e.g. through changes of the federal policy (affecting all regions). Both the within-variation and between-variation of this variable is large (standard deviation of 0.163 and 0.238 respectively), and therefore one can apply the two-way fixed-effects without facing the problem of almost time-invariant variables in panel data settings. Applying time fixed effects is crucial to capture overall changes in the Russian fiscal system over the time of investigation, which could coincide with the timing of appointment of new governors. In the allocation of governors to the yearly tax audit data we faced the problem that in some regions governors were replaced during the year. In such cases we allocate the year to the governor with the longest duration in office in the respective year (more than 6 months). Thus if the replacement happened in June, we allocated the year to the newly appointed governor since she ruled for more than six months.¹⁵ This allocation methodol-

¹³ Investigation henceforth refers to a field audit, i.e. a case when federal agents visit a company and inspect the records on site (or confiscate them for further analysis).

¹⁴ A possible criticism against our approach is that this variable could reflect the outcomes of a long-term judicial process rather than the decisions of the current governors. However, given the Russian practices, it is also reasonable to expect that courts change their attitude to the already running legal procedures if the political situation changes.

¹⁵ Gubernatorial appointments in the middle of the year are the exception. In fact, most commonly governors are replaced at the end (December) or in the beginning (January) of a year.

ogy is reasonable since the number of tax audits is relatively equally distributed throughout the year.¹⁶

Apart from the federal connection dummy we use the following sets of control variables encompassing region-specific and tax investigation-related variables. First, we control for regional characteristics including regional income per capita, population and urban population. These characteristics could reflect the presence of large and successful enterprises, which could attract the eyes of tax agencies. Second, we control the total number of tax field audits and the share of investigations involving (often heavily armed) police. The participation of police can be requested by tax agencies and is not only an effective tool for attracting public attention, but can also serve as a strong signal to tax evaders. Third, we control for two asymmetric characteristics of the Russian fiscal federalism: fiscal transfers (measured by the share of federal transfers in total regional expenditures) and retention rates (the share of collected taxes at the regions disposal that do not have to be remitted to the central government), which can influence the regional government's decision to enforce tax laws.¹⁷ Fourth, we control for various measures of repressiveness of justice system in the region in general and of the tax law in particular: the number of convictions for tax crimes, the number of overall convictions and the overall repressiveness of the criminal law (including crimes against individuals, economic crimes, crimes against the social order, crimes against the state, and crimes against life and health). Some of the variables mentioned may be endogenous, so we add them to the regressions one-by-one investigating the influence on the estimations.

In addition, we control for several governor-specific characteristics. First, we have to control for the *local origin* of the regional governors, i.e. whether they come from the region they currently rule or are outsiders. Once again, the number of governors without local origin has increased over time as part of the process of centralization. However, while for the governors with federal connections we can reasonably expect the presence of the outside option, it is much less clear for the governors without local origin;¹⁸ and both sets only partially coincide. Second, we check for two further

¹⁶ Consider the example of the Mordovia region. According to the tax agency statistics there were 172 tax audits in the first half of 2009, while in the second half of the same year 161 audits were recorded.

¹⁷ In Russia almost all tax rates and bases are set at the federal level, and regions are financed through split taxes.

¹⁸ On the one hand, governors without local origin have personal experience of working in several regions; if they extrapolate this experience on their future career, one could believe they expect the outside option to be available for them. On the other hand, unlike governors with federal connections, governors without local origin often have limited access to the federal administration, which ultimately decides over appointments. While they have been (for some reasons) chosen once, there is no guarantee they will ever be chosen again for the governor's office. We discuss an exam-

variables, which could affect the availability of exit options and thus the roving versus stationary bandit behavior. One is the age of the governors: the Russian governors vary a lot from this point of view (our sample includes governors in mid-thirties and in early seventies), and it could be correlated with the federal connections (if one assumes that the new appointees under Medvedev have been usually somewhat younger than their predecessors). In addition, exit into another high-ranked position in the public service is not necessarily the only option for Russian governors. Another alternative could be exit into business activity. Hence, we have created a dummy equal to 1 for all governors with strong background as entrepreneurs or managers (see *Appendix A* for definition). This background could, however, also have other effects on the behavior of regional governors. To avoid the impact of outliers, we used logarithmic transformation of several variables (urban population, population, income per capita, total number of tax investigations, and additional income per tax audit). Detailed description of the variables is provided in *Appendix A*.

IV. RESULTS

The effectiveness of tax investigations: In *Table 1* we have estimated the impact of federal connections on the effectiveness of tax investigations in terms of uncovered violations of the tax law. We start by controlling only for general characteristics of the regions, and then add further control variables one by one. However, regardless of the set of controls, we find a robust result: the federal connection dummy has a positive and significant impact on the rate of successful tax audits. Hence, *regions governed by governors with a past record in federal institutions report significantly more successful tax audits than regions where close ties to the central administrations are absent*. The effect may be caused by higher effort of tax administrators allied with the governors of the new generation, but also by the better coordination of regional and federal agencies. Among further variables, population seems to reduce the success rate of the tax authorities – probably because more populated areas are also more advanced in terms of legal culture and knowledge of tax law, which makes the arbitrary behavior of tax authorities more difficult and the practices of tax evasion more sophisticated. Involvement of police forces is positively correlated with the success of tax audits

ple of governor lacking both federal connections and local origin and give precise definition of this variable in *Appendix A*.

(but we would be cautious here with respect to statements regarding causality). Business exit option has no significant effect.

Table 1: Impact of federal connections on the success of tax audits, 2007-2009, dep. var.: share of tax audits, where a violation of the tax law was found, two-way FE (unbalanced panel)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--|---------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Federal connections | 0.022** (0.011) | 0.023** (0.011) | 0.023** (0.011) | 0.023** (0.011) | 0.023** (0.011) | 0.030** (0.012) | 0.031** (0.012) | 0.031** (0.012) | 0.034** (0.013) |
| Log income per capita | 0.041 (0.039) | 0.037 (0.036) | 0.033 (0.035) | 0.036 (0.035) | 0.036 (0.035) | 0.036 (0.035) | 0.034 (0.034) | 0.037 (0.035) | 0.040 (0.035) |
| Log urban population | 0.483 (0.417) | 0.502 (0.386) | 0.481 (0.376) | 0.470 (0.383) | 0.465 (0.385) | 0.493 (0.389) | 0.469 (0.376) | 0.465 (0.371) | 0.434 (0.368) |
| Log population | -1.001* (0.514) | -1.050** (0.492) | -1.047** (0.486) | -1.038** (0.492) | -1.033** (0.492) | -1.121** (0.506) | -1.142** (0.498) | -1.176** (0.495) | -1.244** (0.507) |
| Log total number of investigations | | -0.020 (0.019) | -0.020 (0.019) | -0.020 (0.019) | -0.020 (0.019) | -0.024 (0.018) | -0.023 (0.018) | -0.023 (0.018) | -0.02 (0.019) |
| Share of investigations involving police | | | 0.023*** (0.005) | 0.023*** (0.005) | 0.023*** (0.005) | 0.024*** (0.005) | 0.022*** (0.006) | 0.022*** (0.005) | 0.022*** (0.005) |
| Federal transfers | | | | -0.003 (0.012) | -0.004 (0.012) | -0.002 (0.013) | -0.001 (0.013) | -0.002 (0.013) | -0.001 (0.013) |
| Retention rate | | | | | 0.005 (0.015) | 0.002 (0.015) | 0.001 (0.014) | 0.001 (0.015) | 0.005 (0.015) |
| Local origin | | | | | | 0.011 (0.008) | 0.006 (0.011) | 0.006 (0.011) | 0.012 (0.013) |
| Age | | | | | | | 0.001 (0.001) | 0.001 (0.001) | 0.000 (0.001) |
| Repressiveness in all areas of the criminal law | | | | | | | | -0.015 (0.033) | -0.018 (0.033) |
| Business exit option | | | | | | | | | 0.020 (0.022) |
| Constant | 8.074 (5.511) | 8.663 (5.506) | 8.936 (5.524) | 8.939 (5.514) | 8.922 (5.539) | 9.802 (5.978) | 10.404* (5.973) | 10.929* (6.066) | 12.242* (6.306) |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 |
| Regions | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| R² | 0.351 | 0.364 | 0.377 | 0.377 | 0.378 | 0.389 | 0.394 | 0.394 | 0.400 |

Note: robust standard errors in parentheses; *** 1% significance level; ** 5% significance level; * 10% significance level. Significant results marked bold.

The credibility of tax investigations: *Table 2* estimates the credibility with which tax violations are punished by looking at the effect of the federal connection dummy on the share of prison penalties in the total number of prison penalties and conditional releases. We find that governors with federal connection not only report higher success rates of tax violation, but also ‘suit the action to the word’ by putting more convicted tax evaders in prison. The result is robust throughout *Table 2* (in this case we control not only merely for the overall repressiveness of regional courts, but also for the number of convictions in all areas of criminal justice and in the tax matters individually,

which could affect the sentence passed by the judge; we include these variables one by one as they are closely linked to each other). In terms of other robust findings, we show that once police forces are involved in tax investigation more convicted receive a prison sentence (what is not surprising). Interestingly, however, we find that governors with a ‘business exit’ option are *less* repressive in the matters of tax policy. It seems to be quite reasonable if one assumes that the businessmen’s accession to power is primarily to protect their assets; our results suggest that they do it by making tax law application generally less repressive. It may also result from the more favorable attitude of a businessman governor to other businessmen.¹⁹

The ‘profitability’ of tax investigations: In *Table 3* we investigate into the effect of federal connections on the money collected for the budget per tax audit. However, contrary to what one could have expected given the previous results, the federal connection dummy is *negative*. Although regions governed by bureaucrats with federal ties are more active in uncovering tax crimes and putting convicted behind bars they neglect budget revenues, the fundamental reason for tax investigations. This seems to be a puzzle, which, nevertheless, can be easily interpreted through the lens of the strategic behavior of the tax authorities in the Russian region. If one expects the pressure of the tax authorities to serve as a tool of control over companies, higher repressions and success rate indicate that tax authorities manage to establish this control much better in the regions ruled by governors with federal connections. However, the control can be used for various objectives. It can either be directed towards receiving larger budget revenue, or serve as a tool to extract rents from which the regional bureaucrats benefit directly. A typical example is an extra-budgetary fund established by the regional governor for supposedly charity purposes. Organizations of this type exist in many Russian regions. While officially contributions to these funds are entirely voluntarily, it is well known that companies refusing to contribute to this ‘charity’ encounter serious problems with the regional authorities. The extra-budgetary funds provide a much larger opportunity for personal enrichment and rent-seeking than the official budget, which still should be used for production of public goods at the regional level and which is regulated by the existing budget law. Our results allow us to conjecture that the regional governors with federal connections are more likely to use their pressure on the companies to extract this type of additional revenue, eventually leading to the depletion of regional budget. If the effect of this type of governors on tax revenue is negative, the

¹⁹ Since in a large number of regions there were no tax crimes recorded which warrant prison penalty (as mentioned, it is an exceptional accusation), we also re-run regressions excluding these regions in *Appendix C*, and confirm our results.

interpretation is straightforward, but it is also forthcoming if there is no effect at all – in this case it would merely mean that the governors are cautious by ensuring the ‘average’ repayment, but use their above-average effort and repressiveness for other purposes. This is, however, exactly the behavior one would expect from a roving bandit: appropriating rents to the highest possible extent instead of producing public goods.

A further interesting observation to be made based on *Table 3* is that the effect of the business exit option is significant and *positive*: it means that businessmen, although less repressive than other governors and equal to other governors in terms of the success of tax investigations, generate larger income per audit for the regional budget. This result possibly indicates that businessmen, unlike former federal officials, are less dependent upon rent-seeking in the regions they administer, and hence, do not behave like roving bandits. Instead, they pursue other goals. One of them, as mentioned, could be protection of the business and assets; another explanation could be that businessmen are able to improve the effectiveness of public administration of the region because of their superior managerial skills (assuming, of course, that skills need to successfully run a private company and a bureaucracy are the same – a point of intensive debate in public finance). Yet another argument could be that businessmen are more likely to be driven by image considerations while moving into politics, and hence more concerned about how regional *population* will perceive their administration. In this case, increasing revenue from taxation to be spent for public goods in the region is also a reasonable strategy.

Does central government care? Our results so far suggested that appointing a governor with federal connections in a region could in fact be a problem for federal administration in terms of tax revenue. As we have mentioned, tax revenue is not the most important characteristic federal government looks at while appointing regional governors: political loyalty matters more. Nevertheless, is there a trade-off associated with appointing politically loyal but predatory governors with federal connections in the eyes of the federal government? In order to check this option we calculated the total additional revenue of the national government from the tax audits and regressed it on federal connections dummy. The coefficient of the federal connections variable is negative, but insignificant (this is also the case if we take the logarithm of the dependent variable). Thus, governors with and without federal connections do not differ in terms of the *total* additional revenue they gen-

erate for the federal budget: still, the increasing effort for investigations and repressiveness of governors with federal connections do not lead to higher total additional tax revenue as well.²⁰

²⁰ As a further robustness check, we attempted to estimate the share of the federal government in the total additional tax revenue. Unfortunately, this information is not reported: as an approximation we multiply the additional tax revenue with the retention rate, which is, however, reported only for the regular taxation and not for additional revenue from audits. The results do not change if we use this variable.

Roving Bandits in Action: Outside Option and Governmental Predation in Autocracies

Table 2: Impact of federal connections on the repressiveness in tax justice, 2007-2009, dep.var.: share of prison penalties in the total number of prison penalties and conditional releases, two-way FE (unbalanced panel)

| | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
|--|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|
| Federal connections | 0.051** (0.021) | 0.051** (0.021) | 0.050** (0.021) | 0.052** (0.022) | 0.052** (0.022) | 0.055** (0.025) | 0.053** (0.026) | 0.055** (0.024) | 0.056* (0.030) | 0.053** (0.026) | 0.043* (0.023) |
| Log income per capita | 0.000 (0.107) | 0.002 (0.104) | -0.009 (0.106) | 0.019 (0.129) | 0.020 (0.129) | 0.020 (0.130) | 0.024 (0.130) | 0.014 (0.136) | 0.031 (0.132) | 0.014 (0.149) | 0.003 (0.134) |
| Log urban population | 5.198*** (1.222) | 5.190*** (1.237) | 5.121*** (1.265) | 5.008*** (1.267) | 4.982*** (1.271) | 4.996*** (1.286) | 5.041*** (1.272) | 5.115*** (1.282) | 5.157*** (1.253) | 5.057*** (1.237) | 5.272*** (1.299) |
| Log population | -1.897 (1.449) | -1.877 (1.476) | -1.865 (1.504) | -1.777 (1.510) | -1.748 (1.537) | -1.792 (1.624) | -1.754 (1.639) | -1.769 (1.610) | -1.939 (1.600) | -1.636 (1.772) | -1.432 (1.615) |
| Log total number of investigations | | 0.008 (0.078) | 0.007 (0.078) | 0.009 (0.079) | 0.010 (0.081) | 0.008 (0.084) | 0.006 (0.086) | -0.002 (0.087) | 0.006 (0.086) | 0.006 (0.086) | -0.018 (0.089) |
| Share of investigations involving police | | | 0.075** (0.034) | 0.077** (0.033) | 0.077** (0.033) | 0.077** (0.033) | 0.080** (0.035) | 0.079** (0.035) | 0.085** (0.036) | 0.082** (0.037) | 0.079** (0.034) |
| Federal transfers | | | | -0.036 (0.096) | -0.037 (0.097) | -0.036 (0.098) | -0.037 (0.099) | -0.049 (0.098) | -0.040 (0.099) | -0.034 (0.104) | -0.055 (0.098) |
| Retention rate | | | | | 0.027 (0.091) | 0.025 (0.094) | 0.026 (0.094) | 0.027 (0.092) | 0.019 (0.100) | 0.026 (0.094) | 0.005 (0.094) |
| Local origin | | | | | | 0.006 (0.028) | 0.015 (0.026) | 0.017 (0.025) | 0.016 (0.027) | 0.016 (0.027) | -0.015 (0.021) |
| Age | | | | | | | -0.001 (0.002) | -0.001 (0.002) | -0.001 (0.002) | -0.001 (0.002) | -0.000 (0.001) |
| Number of overall criminal convictions | | | | | | | | 0.000 (0.000) | | | 0.000 (0.000) |
| Number of criminal convictions in tax crimes | | | | | | | | | 0.001 (0.001) | | |
| Repressiveness in all areas of the criminal law | | | | | | | | | | 0.051 (0.209) | |
| Business exit option | | | | | | | | | | | -0.114*** (0.040) |
| Constant | -44.296** (17.948) | -44.539** (17.854) | -43.644** (18.114) | -43.616** (18.232) | -43.705** (18.258) | -43.265** (18.893) | -44.384** (19.397) | -45.039** (19.413) | -43.439** (17.987) | -46.197** (19.554) | -51.680** (20.465) |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 |
| Regions | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| R² | 0.079 | 0.079 | 0.086 | 0.087 | 0.088 | 0.088 | 0.089 | 0.091 | 0.101 | 0.089 | 0.100 |

Note: see Table 1.

Table 3: Impact of federal connections on the money collected for the due to tax audits, 2007-2009, dep.var.: additional revenue of the Russian budget per tax audit in the region, two-way FE (unbalanced panel)

| | (21) | (22) | (23) | (24) | (25) | (26) | (27) | (28) |
|--|---------------------------|---------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|---------------------------|
| Federal connections | -0.209* (0.120) | -0.209* (0.121) | -0.210* (0.124) | -0.216* (0.124) | -0.347** (0.151) | -0.340** (0.151) | -0.339** (0.151) | -0.271* (0.142) |
| Log income per capita | 0.917 (0.633) | 0.921 (0.625) | 0.901 (0.695) | 0.888 (0.706) | 0.866 (0.688) | 0.852 (0.692) | 0.858 (0.749) | 0.914 (0.755) |
| Log urban population | 14.332 (8.953) | 14.364 (8.978) | 14.448 (8.969) | 14.88 (9.028) | 14.455 (8.909) | 14.324 (8.898) | 14.314 (8.891) | 13.634 (8.695) |
| Log population | -10.587 (8.621) | -10.593 (8.657) | -10.657 (8.658) | -11.112 (8.816) | -9.639 (8.752) | -9.789 (8.705) | -9.860 (8.887) | -11.992 (8.875) |
| Share of investigations involving police | | -0.033 (0.233) | -0.035 (0.230) | -0.027 (0.232) | -0.038 (0.234) | -0.046 (0.234) | -0.048 (0.227) | -0.047 (0.231) |
| Federal transfers | | | 0.027 (0.342) | 0.048 (0.344) | 0.018 (0.344) | 0.023 (0.347) | 0.021 (0.355) | 0.058 (0.355) |
| Retention rate | | | | -0.476 (0.731) | -0.425 (0.741) | -0.429 (0.742) | -0.429 (0.744) | -0.334 (0.761) |
| Local origin | | | | | -0.219** (0.104) | -0.248* (0.142) | -0.248* (0.141) | -0.082 (0.102) |
| Age | | | | | | 0.003 (0.007) | 0.003 (0.007) | 0.000 (0.005) |
| Repressiveness in all areas of the criminal law | | | | | | | -0.031 (0.657) | -0.127 (0.671) |
| Business exit option | | | | | | | | 0.552** (0.212) |
| Constant | -48.066 (114.530) | -48.450 (114.250) | -48.520 (114.440) | -47.532 (113.261) | -62.058 (109.084) | -58.180 (109.010) | -57.099 (108.887) | -18.453 (115.232) |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 |
| Regions | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| R² | 0.179 | 0.179 | 0.179 | 0.186 | 0.199 | 0.200 | 0.200 | 0.213 |

Note: see Table 1

V. DISCUSSION AND ROBUSTNESS CHECKS

1. Interpretation of results

We should acknowledge the existence of several alternative explanations to our findings, which we attempt to refute in what follows.

1. In Russia a large share of regional tax revenue is funneled to the federal budget. Hence the practice of using extra-budgetary funds could be interpreted as a benevolent attempt to keep the money in the region instead of giving it to the federal center. This assumption would speak against interpretation of our results as evidence of predation and rather let us interpret them as evidence of a policy fostering regional welfare. However, regions headed by governors with federal connections should also benefit from the federal budget through the fiscal redistribution system. Since a large portion of financial flows depend on the central governments' discretion (officially or unofficially) and the regional governments with federal connections are better in lobbying federal support (see e.g. Schultz and Libman 2011), for this group importance of regional tax remittances to the center and the need for extra-budgetary funds should be less pronounced. Yet it is exactly this group for which we find the reported effect; thus, roving bandit interpretation seems to be more plausible.

2. As we have mentioned above, typically old generation of governors maintained its power through strong connections to individual companies, which were therefore protected from tax authorities. Possibly, the new governors are not predatory, but are less likely to protect these privileged companies and therefore tax authorities receive larger opportunities to attack them. In this case, still the combination of high success of investigations, high repressiveness and low budget revenue is likely to be associated with rent-seeking – however, rent-seeking by tax authorities, and not by governors. The problem with this interpretation is that in this case the effects described should be observed not only in regions where governors have federal connections, but also in all other regions where a newly appointed governor came to power. We have created a dummy equal to 1 for regions, where the new governor without experience in federal institutions was appointed,²¹ and added it to the regressions reported above: the coefficient of federal connections dummy mostly stays significant and keeps its sign, while this new dummy is never significant.

²¹ So, it is equal to 1 in the first year of rule of the governor and zero in the subsequent years.

3. Even then it is possible that these are particularly *governors with federal connections* who are unwilling to protect business from the predatory behavior of tax authorities. In this case the logic is as follows: it is often claimed that federal bureaucrats are trained to be more adherent to instructions and regulations and to show little initiative, if possible; one could claim that as opposed to the old governors, who typically ascended to the high positions through political campaigns, new governors behave more like bureaucrats than like politicians and prefer not to intervene in the actions of other federal agencies if the latter are predatory, as long as the public outcry is small enough. This result is, however, consistent with the main story of the paper. One could claim that the main public good produced by stationary bandits in the Russian environment is *protection from other predatory bureaucrats*; federal connections, which make new governors less interested in continuing their career in the region, also reduce their willingness to produce this public good. However, the assumption that the tax authorities are likely to ignore the revenue they can generate for federal budget is more difficult to sustain than that governors behave in this way: while governors are *not* evaluated based on economic fundamentals, for tax authorities, as shown in *Appendix H*, tax revenue generated is among the main characteristics for evaluation. Although the informal mechanisms giving larger opportunities for rent-seeking could compensate for the worse performance according to evaluation criteria, the hands of tax agencies officials operating alone are tied to a greater extent than if they operate in alliance with regional governors, who, in turn, are also likely to extract rents from this coalition.

4. The effects obtained could be linked to the fact that governors with federal connections are less qualified to run the regions, as opposed to bureaucrats with other career paths. Assume that there is a self-selection of least qualified bureaucrats into the federal civil service going on (for example, because of lower career chances or salaries or bribing opportunities) or that federal bureaucrats lack specific skills needed to successfully run a region. As a result, after the appointment these governors could attempt to increase the tax collection by making tax authorities and courts more aggressive, but ultimately fail to achieve their goal: thus, while the success rate of investigations and share of prison penalties increase, the revenue of the budget stagnates or even goes down. Clearly, knowledge of the governors is very difficult to operationalize or to measure. However, we attempt to do it looking at two variables. First, the ability to run a region could be associated with experience: governors who have held their position for a longer period of time may be better

equipped to ensure higher tax collection.²² This experience can be captured by the length of tenure of the governor (in years).²³ Indeed, tenure of the governors with federal connections is on average almost three times shorter (what is hardly surprising given the Russian institutional evolution described above). Controlling for tenure we, however, still obtain a significant and positive effect of the federal connections on the success rate and negative and significant effect on the additional revenue.²⁴ We find no significant effect of federal connections controlling for tenure for the repressiveness, this is, however, driven entirely by a handful of governors with extremely long tenure of 17-18 years. These are indeed very well-entrenched governors, who came to power in the early 1990s and survived throughout the first two terms of Putin presidency typically establishing very strong connections to the regional business. If we exclude these governors, and re-run the regression (both controlling and not controlling for tenure), federal connection dummy is significant.

The quality of human capital of public officials could be associated with other characteristics than tenure. For this purpose, in the *Appendix G*, we look at a set of covariates potentially applicable as measures of human capital. To start with, we look at the education of public officials. We apply two rankings of universities – one created by a Russian institution and one by an international organization, described in the *Appendix A*, to create a dummy for governors who have studied at top universities in Russia. It goes without saying that rankings could perform poorly as quality measures (Frey 2007; Frey and Rost 2010),²⁵ so we augment these variables by two other proxies specific for Russia. Russian educational system is characterized by a highly hierarchical structure: the best universities (in terms of education, prestige and access to social networks) are in the capital cities of Moscow and St. Petersburg (Latova and Latov 2012). Traditionally, the best students from the Russian regions move to the universities in Moscow and St. Petersburg, while the worst, in most cases, study in their home region. Thus, we create two further dummies: one for people studying in Moscow and St. Petersburg and one for people studying in their home region (that there are no regional governors with education outside Russia and the former USSR). Finally, Russia is character-

²² Recall that we already control for the pre-appointment experience of the governors looking at the local origin dummy.

²³ Tenure is measured from the point of inauguration of governor as the head of the region. It creates problems for some of the governors in our sample: head of Bashkortostan was first head of the regional Supreme Soviet in the early post-Soviet period and only later became head of the region, when the respective position was introduced in 1993. However, if we transform the variable for this observation, results do not change.

²⁴ Throughout the robustness checks, if not stated otherwise, we use the full set of controls listed above.

²⁵ Especially so in the Russian case, where there was a large shift in quality and reputation of individual fields between the Soviet times, when most governors received their education, and the modern times

ized by very low mobility of population: thus, it is possible to conjecture that the risk attitude and the quality of public official could be captured by her mobility (i.e. number of regions she worked in). In *Appendix G* we compare governors with and without federal connections with respect to these characteristics. What we find is, actually, that governors with federal connections are more likely to study in Moscow and St. Petersburg, less likely to study in their home region and more mobile (probably an inherent consequence of and requirement for working in the federal administration). Controlling for these additional characteristics does not affect our results.

5. Finally, according to Paneyakh (2011), the ratio of prison penalties in the total number of penalties and conditional releases can be interpreted differently to what we have done. Consider a case when regional law enforcement system increases its pressure on the entrepreneurs and individuals, either as a tool of extortion, or in order to satisfy the bureaucratic logic elaborated in *Appendix H*. As mentioned, in the Russian court system, as mentioned, the existing incentives almost entirely preclude the judge from making a decision contradicting the position of the state prosecutor: so, releasing the accused (even if the legal evidence is very weak) is not an option. However, an honest judge could use conditional release as a substitute, both somewhat protecting the (unjustly) accused and satisfying the logic of the system. Hence, increase of conditional releases could in fact indicate that judges in the region try to behave in an honest way dealing with increasing pressure of law enforcement on the entrepreneurs. If that is true than the results reported in the regressions above receive a different interpretation: governors with federal connections are *less* repressive, and thus only truly existing tax crimes reach the court level and, as a consequence, the judges have to pass less conditional release sentences. In order to deal with this interpretation, we control for the *sum of prison sentences and conditional releases* in the tax affairs, i.e. the denominator of our repressiveness variable (instead of total number of criminal convictions). If the alternative logic were driving the results, inclusion of this additional control would render the federal connections dummy insignificant, because the entire change of the dependent variable were due to the shift of the denominator. This is, however, not the case: our results remain entirely robust. If we control separately for the number of prison sentences or conditional releases instead, again, dummy federal connections remains robust. Hence, we can reaffirm our interpretation of the variable.²⁶

²⁶ Besides, Paneyakh's interpretation is based on the examination of criminal justice, where the main 'output characteristics' of the police and prosecutors is indeed the number of convictions. In case of taxation, as discussed in *Appendix H*, these characteristics are not considered.

2. Dependent variable, control variables and sample

We implemented a number of robustness checks to validate our results. To start with, it is possible that the ‘repressions’ against companies’ managers and owners are implemented through other channels than merely tax law. For this purpose we looked at the extent of repressions for another area relevant in the context: the so-called ‘**illicit entrepreneurship**’.²⁷ The key elements of the models remain the same, with one exception: while we control for the same covariates as previously we further add the number of convictions in illicit entrepreneurship. The results are presented in *Appendix B* and show that also in cases of illicit entrepreneurship governors with federal ties mostly have a positive and significant impact on repressiveness; the result is not robust to exclusion of regions with zero cases of prison penalties and conditional releases though. Furthermore, since in a number of regressions we have the dependent variable bounded between 0 and 1, we re-estimate our regressions transforming dependent variables (if necessary) to **log-odd ratios**. The results are reported in *Appendix D* and confirm our findings. In addition, there is one more region in our sample where the headquarters of some large corporations are located and the same problems as in case of the City of Moscow can occur – **St. Petersburg** (for instance, the headquarter of the Russian gas giant *Gazprom* is in this city). The effect is much smaller than for Moscow, but we still re-estimated all regressions excluding St. Petersburg and confirm our results. Furthermore, since in the main regressions the urbanization was defined as the size of the total urban population and may be correlated with another explanatory variable (population), we have replaced it by the **share of urban population** in the total regional population: the effects of federal connections remain unchanged.

An obvious problem of our data is that of the **outliers**. *Appendix A* reports the kernel density estimates for three dependent variables of our investigation. While for the income per tax audits the distribution seems to be balanced, for two other variables it is characterized by very long tails. Thus, first, we re-run regressions for the credibility of punishments, excluding regions with zero repressiveness indicator, as well as regions with repressiveness above 0.2, and for the share of success of tax audits, excluding all regions where the share of success of tax audits is below 0.98 (i.e. almost the entire tail of the distributions). We still confirm our results in both instances. In a further robustness check we adjust the definition of federal connections. In the main specification federal

²⁷ According to the Russian criminal code individuals can be prosecuted with charges of illicit entrepreneurship when they operate without legal registration (license), or cause losses or harm to other citizens or the state. Potential penalties vary from fines (up to 500 thousand rubles) to prison penalty (e.g. up to 5 years for gang crime).

connections did not include managers of large **federal state-owned enterprises**. This is, of course, possibly a very problematic assumption for the Russian case: in many cases top managerial positions in Russian companies owned by the federal center are even more carefully selected and allocated than those of federal officials and imply very strong ties to the federal government and to president or prime minister themselves (in fact, the appointment is typically made by these two key figures). Thus, we extended the federal connections dummy to cover also former top managers of state owned enterprises. We have only two governors of this group in our sample; after re-defining federal connections, results of the regressions did not change, again proving robustness of our findings. We also control for two further variables possibly affecting our results. One is the share of **foreign trade** in the gross regional product: international transactions are associated with possible value added tax issues, which are typically under substantial scrutiny of Russian tax authorities and result in permanent disputes with taxpayers. Another variable is the log **total tax revenue** (i.e. tax payments made before audits) generated from the territory of the region: it might affect especially the additional revenue from tax audits. Since these variables might be correlated with income per capita, we estimate all regressions including and excluding income, but still entirely confirm our results.

Finally, we test for yet another characteristic of Russian politics, which may affect the chances of gubernatorial appointments and federal career prospects: we look at the **ethnic identity** of governors. The reason is that Russian federalism also includes regions based on ethnic principle (assigned to the so-called ‘titular nationalities’). Especially in the Northern Caucasus and Volga regions, the Russian government explicitly selects governors with local ethnicities to achieve higher acceptance by the region’s population and its elites. At the same time, members of some of these ethnic groups are less likely to continue their career elsewhere at a position comparable to that they occupy in their region. In other words, ethnic affiliation may have a positive effect on the gubernatorial appointment decisions and negative effect on the career prospects outside the region in a federal institution.²⁸ Furthermore, Jews were also traditionally discriminated in the Russian bureaucracy, though this trend seems to have weakened up in the last two decade. Based on this data we have created a dummy equal to 1 for ‘discriminated ethnicities’; the exact definition is reported in *Appendix A*. We cannot simply add this variable to our panel data estimations, since there is no variation over time. However, we still checked the impact of this variable by splitting the sample

into two groups: regions ruled by ‘discriminated ethnicities’ and other regions. If we look at the second sample, we find a significant and positive effect of the federal connections on the representativeness and share of success of tax investigations; there is no influence on the income per tax audit. For the first sample, there is only a positive influence on the share of success; for two other dependent variables we have insignificant results. Overall, it is likely that our results are to a greater extent driven by the regions ruled by ‘not discriminated ethnicities’, what is once again in line with the roving bandit argument.

3. Placebo tests and instrumental variables

While the two-way fixed effects estimations should rule out the omitted variable bias, **reverse causality** still remains a source of possible endogeneity. It is possible that the governors were appointed to the regions where tax collection did have particular characteristics already. In order to check for these effects, we use two tools. First, we attempt to identify the causality by using the **placebo** test often applied in difference-in-difference approach. Specifically, we replace the dummy federal connections by one of the following dummies: (1) dummy equal to one for the regions where *in the next year* a governor with federal connections will be appointed (e.g., if in a certain region the governor with federal connections was appointed in 2008, the dummy is equal to 1 in 2007; pre-treatment dummy) and (2) dummy equal to one for the first year after appointment of the governor (in the example described – 1 in 2008; first year post-treatment dummy); we do not consider further years as the set of observations is rather small. Then we replicated our regressions inserting these variables one-by-one. The results are as follows: for the pre-treatment dummy we find *no significant effects* and for the first year post-treatment dummy we find *a significant effect* consistent with those presented above. This is entirely in line with the main story of this paper: in the pre-treatment year there are no anticipatory effects; once the governor is appointed, she starts using tax collection to establish control over assets.

In the next step, we look exclusively on the regions where **at least for one year** the governor had federal connections. The reason is that we have multiple regions in our sample, where governors with federal connections never have been present; possibly, there are structural differences

²⁸ The North Caucasian federal district is an excellent example for this observation. It includes six regions with titular nationalities: each of them is ruled by a governor which belongs to the respective indigenous ethnic group.

between these regions and the regions where federal officials were appointed as governors, which make these two groups not comparable. Given the size of this sub-sample, we restrict ourselves to simple mean comparison in this case. The results are reported in *Appendix E* and largely support our previous findings. Not only the share of uncovered tax violation increased, but also the repressiveness in the areas of tax law and illegal entrepreneurship increased significantly after the appointment of a governor with federal connections. The difference in means of the variable ‘revenue per audit’ is insignificant.

Finally, we run fixed-effects instrumental variable estimations reported in *Appendix F*. As the instrument we use the *average federal connections level in the so-called federal districts*, groups of regions established by the Putin in 2000. There have been seven federal districts in Russia throughout most of the time of our investigation (in 2010 one of them was split into two). The districts were created in 2000 and differed quite substantially from the old system of the so-called economic districts (*ekonomicheskii rayon*) used already by the Soviet planning authorities to group regions together, as well as from the popular self-perception of the regions (in fact, federal districts rather reflected the system of the military districts used by the Russian army). Each district received a presidential plenipotentiary representative in charge with monitoring the activity of regional governors. For us, it is particularly important that until mid-2009 the representatives (in many cases bureaucrats with military or security background and part of the presidential administration) had a vital role in appointment of the regional governors: they had to present to the president a list of candidates for the gubernatorial position from which the president had to select one. Thus, it is plausible to assume that the patterns of appointment have been district-specific. On the other hand, representatives did not have a direct power over regional or federal agencies operating in their district; they merely had to oversee the actions of the governors, which could support the exclusion restriction. The results of the FE IV estimations entirely confirm our findings for the efficiency and credibility of the tax administration. We find no effect for the revenue from tax audits; however; nevertheless, the findings still indicate that regional governors with federal connections, in spite of higher success rate of monitoring and repressiveness of tax law, are unable to generate larger revenue for the federal budget – a result again consistent with the roving bandit interpretation. We acknowledge that the instruments chosen could be debatable, so that the IV results should be treated with caution; however, they provide at least limited evidence in favor of our argument.

VI. CONCLUSION

The aim of the paper was to investigate whether ‘roving bandits’ among autocrats are more likely to exhibit higher level of predatory behavior than ‘stationary bandits’. Unlike the previous literature looking primarily at political instability and age as factors turning autocrat into a roving bandit, this paper investigated a different source of this behavior – the presence of an outside option, i.e. of opportunity to rule somewhere else outside the current jurisdiction in the future. For this purpose, we had to focus our attention on sub-national rulers, and therefore investigated the behavior of regional governors in Russia. While in the past Russian regions were often ruled by well-entrenched politicians considering the governor’s position as the ‘crowning achievement’ of their career, in the late 2000s a new type of governors emerged: bureaucrats from federal agencies and institutions considering the appointment in the region merely a short-term assignment and expecting to continue their career someplace else. We have studied the predatory behavior of these governors as opposed to other regional rulers focusing on their influence on the performance of regional tax collection agencies. We find that regional governors with federal connections indeed behave in a way consistent with what one expects from the roving bandit: they are more likely to use tax pressure to achieve control over private companies, but at the same time channel the revenue from this control outside the public budget (which is – at least partially – used to finance public goods in the regions) towards extra-budgetary funds (or, possibly, attempting to directly acquire shares in threatened companies into their personal possession). Overall, the presence of the outside option seems to be a factor strongly contributing to the increase of predation in autocratic regimes.

REFERENCES

- Acemoglu, D., and J. Robinson (2006): *Economic Origins of Dictatorship and Democracy*. Cambridge: Cambridge University Press
- Alesina, A., Ozler, S., Roubini, N., and P. Swagel (1996): Political Instability and Economic Growth. *Journal of Economic Growth* 1:189-211
- Azam, J.P., Bates, R., and B. Biais (2009): Political Predation and Economic Development. *Economics and Politics* 21:255-277
- Besley, T., and R. Burgess (2002): The Political Economy of Government Responsiveness: Theory and Evidence from India. *Quarterly Journal of Economics* 117:1415-1451
- Blakkisrud, H. (2011): Medvedev's New Governors. *Europe-Asia Studies* 63:367-395
- Bobrik, A., Danishevski, K., Eroshina, K., and M. McKee (2005): Prison Health in Russia: A Larger Picture. *Journal of Public Health Policy* 26:30-59
- Campos, N.F., and J.B. Nugent (2002): Who Is Afraid of Political Instability. *Journal of Development Economics* 67:157-172
- Chaturvedi, A., and J. Muenster (2005): Long Live the King? On Dictatorship and Development. Mimeo
- Chebankova, E. (2006): The Unintended Consequences of Gubernatorial Appointments in Russia, 2005-06. *Journal of Communist Studies and Transition Politics* 22:457-84
- Chernykh, L. (2011): Profit or Politics? Understanding Renationalization in Russia. *Journal of Corporate Finance* 17:1237-1253
- Clague, C., Keefer, P., Knack, S., and M. Olson (1996): Property and Contract Rights in Autocracies and Democracies. *Journal of Economic Growth* 1:243-276
- Dalgic, E., and N. Van Long (2006): Corrupt Local Governments as Resource Farmers: The Helping Hand and the Grabbing Hand. *European Journal of Political Economy* 22:115-138
- Darden, K. (2008): The Integrity of Corrupt States: Graft as an Informal Political Institution. *Politics and Society* 36:35-59
- De Silva, M.O., Kurlyandskaya, G. Andreeva, E., and N. Golovanova (2009): Intergovernmental Reforms in the Russian Federation: One Step Forward, Two Steps Back? Washington: The World Bank
- Du, J., and S. Girma (2010): Red Capitalists: Political Connections and Firm Performance in China. *Kyklos* 63:530-545
- Escriba-Folch, A. (2007): Economic Growth and Potential Punishment under Dictatorship. *Kyklos* 60:187-210
- Feld, L.P., and B.S. Frey (2002): Trust Breeds Trust: How Taxpayers are Treated. *Economics of Governance* 3: 87-99

- Feld, L.P., and B.S. Frey (2007): Tax Compliance as the Result of a Psychological Tax Contract: The Role of Incentives and Responsive Regulation. *Law and Policy* 29:102-120
- Feld, L.P., and J.-R. Tyran (2002): Tax Evasion and Voting: An Experimental Analysis. *Kyklos* 55:197-222
- Fosu, A.K. (2002): Political Instability and Economic Growth: Implications of Coup Events in Sub-Saharan Africa. *American Journal of Economics and Sociology* 61:329-348
- Frey, B.S. (2007): The Rankings and Evaluations Mania: In Baake, P., and R. Borck (eds): *Public Economics and Public Choice*. Berlin: Springer
- Frey, B.S., and K. Rost (2010): Do Rankings Reflect Research Quality? *Journal of Applied Economics* 13:1-38
- Gandhi, J. and A. Przeworski (2006): Cooperation, Cooptation and Rebellion under Dictatorship. *Economics and Politics* 18:1-26
- Gehlbach, S., Sonin, K., and E. Zhuravskaya (2010): Businessman Candidates. *American Journal of Political Science* 54:718-736
- Gel'man, V. (1999): Regime Transition, Uncertainty, and Prospects for Democratization: The Politics of Russia's Regions in a Comparative Perspective. *Europe-Asia Studies* 51:939-956
- Gel'n, V. (2010): The Dynamics of Sub-National Authoritarianism: Russia in Comparative Perspective, in Gel'man, Vladimir, and Cameron Ross (eds) *The Politics of Subnational Authoritarianism in Russia*, Ashgate
- Gervasoni, C. (2010): A Rentier Theory of Subnational Regimes: Fiscal Federalism, Democracy, and Authoritarianism in the Argentine Provinces. *World Politics* 62:302-340
- Gibson, E.L. (2005): Boundary Control: Subnational Authoritarianism in Democratic Countries. *World Politics* 58:101-132
- Goldsmith, A.A. (1987): Does Political Stability Hinder Economic Development? *Comparative Politics* 19:471-480
- Goode, J.P. (2007): The Puzzle of Putin's Gubernatorial Appointments. *Europe-Asia Studies* 59:365-99
- Gorodnichenko, Y., Martinez-Vazquez, J. and K. Sabirianova Peter (2009): Myth and Reality of Flat Tax Reform: Micro Estimates of Tax Evasion Response and Welfare Effects in Russia, *Journal of Political Economy* 117:504-554
- Green, A. (2011): Institutions Matter, but in Surprising Ways: New Evidence on Institutions in Africa. *Kyklos* 64:87-105
- Hug, S., and F. Sporri (2011): Referendums, Trust and Tax Evasion. *European Journal of Political Economy* 27:120-131
- Ivanova, A., Keen, M., and A. Klemm (2005): The Russian Flat Tax Reform. *Economic Policy* 20:397-444

- Jones Luong, P., and E. Weintal (2004): Contra Coercion: Russian Tax Reform, Exogenous Shocks, and Negotiated Institutional Change. *American Political Science Review* 98:139-152
- Jong-A-Pin, R., and J.O.Mireau (2011): No Country for Old Men: Aging Dictators and Economic Growth. KOF Working Paper No. 289
- Kurrild-Klitgaard, P., and G.T.Svendsen (2003): Rational Bandits: Plunder, Public Goods and the Vikings. *Public Choice* 117:255-272
- Latova, N., and Y.Latov (2012): 'Stolitsecentrism' kak Prichina Social'nogo Neravenstva v Rossiyskoy Sisteme Vysshego Obrazovaniya. *Obshchestvennye Nauki i Sovremennost* (2):21-37
- McGuire, M.C., and M.Olson (1996): The Economics of Autocracy and Majority Rule: The Invisible Hand and the Use of Force. *Journal of Economic Literature* 34:72-96
- McMann, K.M. (2006): *Economic Autonomy and Democracy: Hybrid Regimes in Russia and Kyrgyzstan*. Cambridge University Press, Cambridge
- Mitin, D. (2008): From Rebellion to Submission: The Evolution of Russian Federalism under Putin. *Problems of Post-Communism* 55:49-61
- Myerson, R.B. (2010): Moral Hazard in High Office and the Dynamics of Aristocracy. Mimeo
- Olson, M. (1993): Dictatorship, Democracy, and Development. *American Political Science Review* 87:567-576
- Overland, J., Simons, K., and M.Spagat (2005): Political Instability and Growth in Dictatorships. *Public Choice* 25:445-470
- Paltseva, E. (2008): Autocracy, Devolution and Growth. Mimeo
- Paneyakh, E. (2008): *Pravila Igry dlya Rossiyskogo Predprinimatelya*. Moscow: Kolibri
- Paneyakh, E. (2011): Transaktsionnye Effekty Plotnogo Regulirovaniya na Stykhakh Organizatsiy. *Politiya* (2):38-59
- Pitlik, H. (2008): The Impact of Growth Performance and Political Regime Type on Economic Policy Liberalization. *Kyklos* 61:258-278
- Polishchuk, L., and G. Syunyaev (2011): Taming the (Not So) Stationary Bandit: Turnover of Ruling Elites and Protection of Property Rights. Mimeo
- Reisinger, W.M., and B.J. Moraski (2011): Skill or Loyalty? The Fate of Russia's Governors under Presidential Control. Mimeo
- Reuter, O.J., and G.Robertson (2011): Sub-National Appointments in Authoritarian Regimes: Evidence from Russian Gubernatorial Appointments. Mimeo

- Schultz, A., and A. Libman (2011): Is There a Local Knowledge Advantage in the Federations? Evidence from a Natural Experiment. Mimeo
- Sharafutdinova, G. (2010): Subnational Governance in Russia: How Putin Changed the Contract with His Agents and the Problems It Created for Medvedev. *Publius: The Journal of Federalism* 40:672-696
- Shen, L. (2007): When Will a Dictator be Good? *Economic Theory* 31:343-366
- Slinko, I., Yakovlev, E., and E. Zhuravskaya (2005): Laws for Sale: Evidence from Russia. *American Law and Economics Review* 7:284-318
- Sonin, K. (2010): Provincial Protectionism. *Journal of Comparative Economics* 38:111-122
- Torgler, B., and B. S. Frey (2012): Politicians: Be Killed or Survive. *Public Choice*, forthcoming
- Tullock, G. (2002): Undemocratic Governments. *Kyklos* 55(1):247-264
- Uslaner, E.M. (2007): Tax Evasion, Corruption, and the Social Contract in Transition. Mimeo
- Weede, E. (2011): Long-Run Economic Performance in the European Periphery: Russia and Turkey. *Kyklos* 64:138-156
- Weingast, B.R. (2009): Second Generation Fiscal Federalism: The Implications of Fiscal Incentives. *Journal of Urban Economics* 65:279-293
- Wilke, T. (2002): The Investment Theory of War: Belligerent Dictators in the McGuire/North /Model of Autocracy. *Public Choice* 112:319-333
- Wintrobe, R. (1990): The Tinpot and the Totalitarian: An Economic Theory of Dictatorship. *American Political Science Review* 84:849-872
- Yakovlev, A. (2000): Pochemu v Rossii Vozmozhen Bezriskovi Ukhod ot Nalogov. *Voproy Ekonomiki* (11):134-152
- Yakovlev, A. (2011): State-Business Relations in Russia in the 2000s: From the Capture Model to a Variety of Exchange Models. BOFIT Discussion Paper No. 11
- Zhuravskaya, E. (2010): Federalism in Russia, in Aslund, A., Guriev, S., and A. Kuchins (eds): Russia after the Global Economic Crisis. Institute for International Economics

Appendix A: Data

Table A1: Summary statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|--|-----|-----------|-----------|---------|-----------|
| Age | 195 | 54.882 | 8.562 | 34.000 | 75.000 |
| Business exit option | 195 | 0.113 | 0.317 | 0.000 | 1.000 |
| Education in home region | 195 | 0.426 | 0.496 | 0.000 | 1.000 |
| Education in Moscow and St. Petersburg | 195 | 0.282 | 0.451 | 0.000 | 1.000 |
| Federal connections | 195 | 0.092 | 0.290 | 0.000 | 1.000 |
| Federal transfers | 195 | 0.334 | 0.156 | 0.002 | 0.802 |
| Foreign trade | 195 | 0.254 | 0.210 | 0.008 | 1.314 |
| Local origin | 195 | 0.774 | 0.419 | 0.000 | 1.000 |
| Log additional tax revenue per audit | 195 | 7.526 | 0.659 | 5.798 | 9.191 |
| Log income per capita | 195 | 9.359 | 0.345 | 8.404 | 10.465 |
| Log population | 195 | 14.046 | 0.854 | 10.810 | 15.453 |
| Log total number of investigations | 195 | 6.715 | 0.838 | 3.219 | 8.398 |
| Log urbanization | 195 | 13.658 | 0.907 | 10.401 | 15.338 |
| Mobility | 195 | 1.969 | 1.005 | 1.000 | 8.000 |
| Number of convictions (illicit entrepreneurship) | 195 | 10.031 | 10.851 | 0.000 | 56.000 |
| Number of convictions (tax evasion) | 195 | 26.349 | 25.656 | 0.000 | 151.000 |
| Number of overall convictions | 195 | 11244.160 | 8118.531 | 366.000 | 37542.000 |
| Repressiveness (illicit entrepreneurship) | 195 | 0.103 | 0.237 | 0.000 | 1.000 |
| Repressiveness (tax evasion) | 195 | 0.061 | 0.127 | 0.000 | 1.000 |
| Repressiveness in all areas of criminal law | 195 | 0.443 | 0.099 | 0.204 | 0.959 |
| Retention rate | 195 | 0.738 | 0.182 | 0.087 | 1.150 |
| Share of investigations involving police | 195 | 0.100 | 0.110 | 0.000 | 1.451 |
| Share of successful audits | 195 | 0.984 | 0.026 | 0.819 | 1.000 |
| Tenure | 195 | 7.226 | 5.345 | 0.000 | 18.000 |
| Total tax revenue | 195 | 10.325 | 1.165 | 7.544 | 14.335 |
| Top 30 university (HSE) | 195 | 0.174 | 0.380 | 0.000 | 1.000 |
| Top 30 university (Web of World Universities) | 195 | 0.128 | 0.335 | 0.000 | 1.000 |

Table A2: Description of data

| Variable | Description | Source |
|--|--|--|
| Additional tax revenue per audit | Revenue of the budget obtained per investigation of the tax authority, '000 Rubles | Regional branches of the Federal Tax Service |
| Age | Age of the governor, years | Official websites of the regional governors, media sources |
| Business exit option | 1 if the governor has been an owner, CEO or top manager of a large company prior to his appointment | Official websites of the regional governors, media sources |
| Education in home region | 1 if the governor received university education in the region he was born, 0 otherwise | Official websites of the regional governors, media sources |
| Education in Moscow and St. Petersburg | 1 if the governor received university education in Moscow or St. Petersburg (at any university or comparable institution and not only Moscow State and St. Petersburg State Universities), 0 otherwise | Official websites of the regional governors, media sources |
| Federal connections | 1 if the governor in the region has served in a federal agency or institution since 2000 (including this year), 0 otherwise | Various media sources |
| Federal transfers | Total federal transfers to the regional budget / Total expenditures of the regional budget (including budgets of municipalities) | Federal Treasury |
| Foreign trade | (Export + Import) / Gross regional product; gross regional product is measured in million RUR; trade measured in million RUR, using the | Rosstat, Russian Central Bank |

| Variable | Description | Source |
|--|--|--|
| | average annual exchange rate of the Russian Central Bank | |
| Income per capita | Income per capita in the region, Rubles per month | Rosstat |
| Local origin | 1 if the governor in the region spent the majority of the pre-office life in the region, 0 otherwise | Various media sources |
| Mobility | Number of regions the governor worked in prior to his appointment as the governor; region of education not counted (as captured by another proxy); region where governor currently works is included in the count; if the governor returned to a certain region several times, it counts as one region; employment abroad is counted as one region | Official websites of the regional governors, media sources |
| Number of convictions (illicit entrepreneurship) | Number of convictions for illicit entrepreneurship in the region | Federal Supreme Court |
| Number of convictions (tax evasion) | Number of convictions for tax evasion in the region | Federal Supreme Court |
| Number of overall convictions | Total number of criminal convictions | Federal Supreme Court |
| Population | Total population of the region, mln. people | Rosstat |
| Repressiveness (illicit entrepreneurship) | Number of convictions for illicit entrepreneurship sentenced to prison / Number of convictions for illicit entrepreneurship sentenced to prison and to conditional release; if both numerator and denominator are zero, repressiveness is set to be equal to zero | Federal Supreme Court |
| Repressiveness (tax evasion) | Number of convictions for tax evasion sentenced to prison / Number of convictions for tax evasion sentenced to prison and to conditional release; if both numerator and denominator are zero, repressiveness is set to be equal to zero | Federal Supreme Court |
| Repressiveness in all areas of criminal law | Number of convictions sentenced to prison / Number of convictions sentenced to prison and to conditional release (all areas of criminal justice) | Federal Supreme Court |
| Retention rate | Share of tax revenue of the consolidated regional budget (regions and municipalities) in the overall tax revenue from the region's territory | Rosstat, Federal Treasury |
| Share of investigations involving police | Share of tax audits investigated with the support of police | Local branches of the Federal Tax Service |
| Share of successful audits | Share of tax audits uncovering a tax violation | Local branches of the Federal Tax Service |
| Tenure | Tenure of the governor, years | Official websites of the regional governors, media sources |
| Top 30 university (HSE) | 1 if the governor studied at one of top 30 universities included in the HSE university ranking, 0 otherwise | Official websites of the regional governors, media sources |
| Top 30 university (Web of World Universities) | 1 if the governor studied at one of top 30 Russian universities included in the Web of World Universities university ranking, 0 otherwise | Official websites of the regional governors, media sources |
| Total number of investigations | Number of all tax audits in the region | Local branches of the Federal Tax Service |
| Total tax revenue | Log total tax revenue from the regional territory, mln. RUR | Rosstat |
| Urban population | Urban population of the region, people | Rosstat |

Notes: (1) Rosstat stands for the Russian Statistical Agency; (2) HSE university ranking stands for the ranking carried out by the Higher School of Economics (Moscow) jointly with *Forbes* based primarily on the average grade of the high school examination of the new students admitted to the university in 2010. The rating is currently very influential in Russia and therefore is used in this paper. The average grade of high school examination seems to be a good proxy for the competition over the study places and hence reputation of school. Since we do not want to over-estimate the importance of individual ranking positions (given the restrictions mentioned above), we include only a dummy for the top-30 universities in the list; (3) Web of World Universities ranking is used for the following reasons: in almost all international rankings Russian universities (with the exception of Moscow and St. Petersburg State Universities, where almost

none of the governors of our sample has studied) are absent. Web of World Universities is an exception, including several Russian universities based on their web presence: visibility of and attention to their websites and their scholars in the Internet (again, as a possible proxy for reputation of the school). For the reasons mentioned above, we again restrict our attention to a dummy equal to 1 for the top 30 universities from the list; (4) In the Russian case retention rate is in some rare circumstances larger than 1. Usually it is associated with the VAT repayment transactions between different levels of the fiscal system.

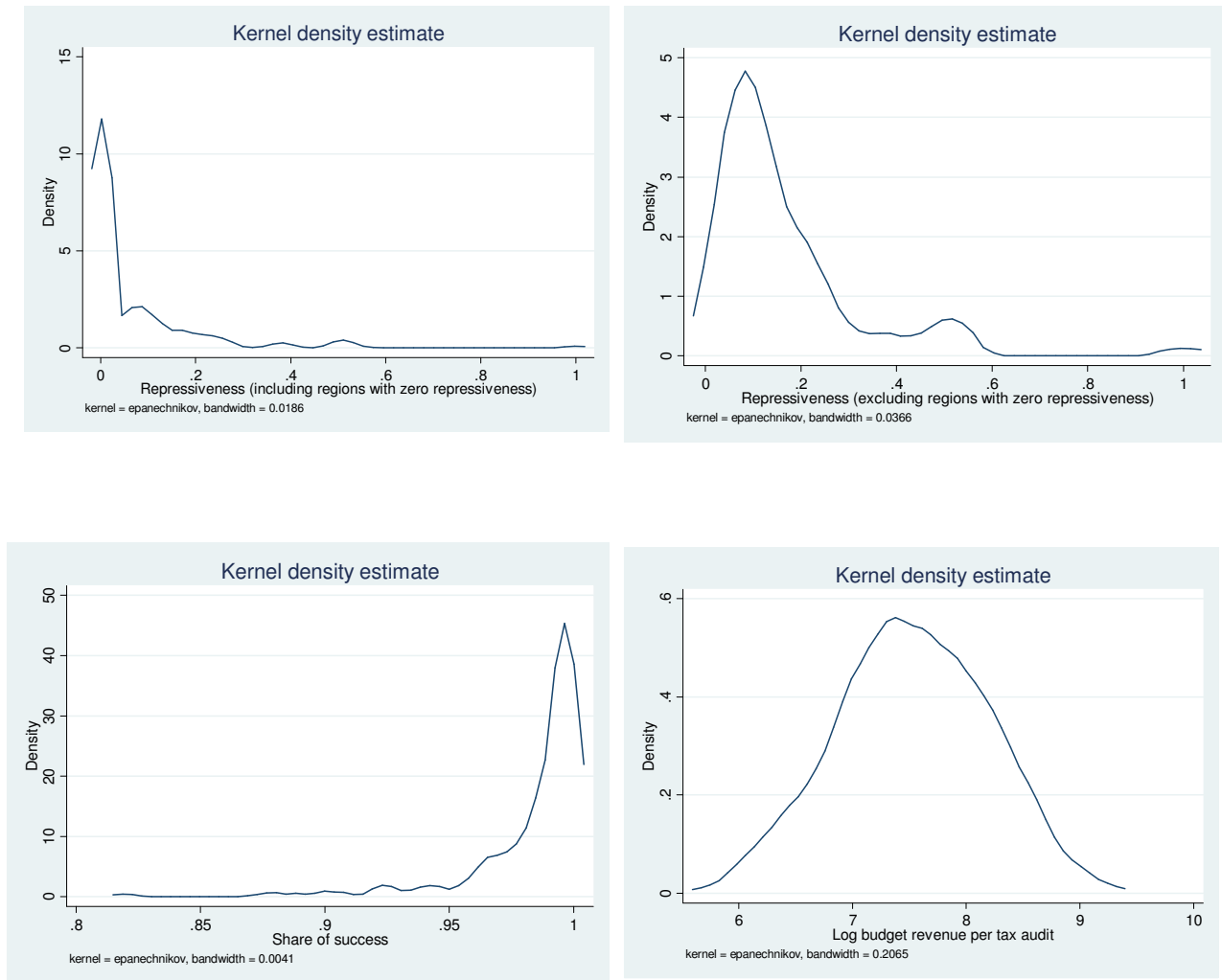


Figure A1: Kernel density plots of the key dependent variables of the study

Definitions of selected variables

Federal connections

Definition: The dummy is assigned to be equal to one to officials who have occupied at least one of the following positions after 2000: high positions in the presidential administration (e.g. head of administration, adviser), in ministries (e.g. minister, vice-minister), in offices of the plenipotentiary envoys of the president to individual regions (e.g. representative to a federal district, regional representatives), or other highly-ranked bureaucrats (e.g. constitutional judge). Members of the parliament (State Duma, Council of Federation) do not count as bureaucrats with federal connections, as the link to the executive (which makes the key decisions in Russia) may be absent.

Example: The governor of the Altai Krai region, Alexander Karlin worked from 2000-2004 in the Ministry of Justice (from 2002 as first deputy minister) and from 2004-2005 in the Administration of the President, before being appointed governor in 2005. In a similar fashion, Alexander Kozlov, the governor of Oryol region, served as deputy head of the Administration of the President in 1999-2004 followed by a term as deputy minister of agriculture (2004-2009), before eventually being appointed governor in 2009. In the late 2000s the federal center increasingly appointed bureaucrats with federal connections to regional governors. While in 2007 only 6 governors had close ties to federal institutions, by 2009 already 13 regions were headed by politicians with connections to Moscow. In 2010 this trend continued with already 17 regions governed by bureaucrats with federal relationships.

Business connections

Definition: In terms of business connections, several cases should be differentiated. Some of the governors acquire assets and control over business during their tenure (actually, probably, most of the Russian governors behave that way). In this case exit can also be associated with loss of control over the assets, which are typically expropriated by the new generation of politicians or simply lose competitiveness without strong support of the governors. Another opportunity is associated with the advancement of the governors, who have been successful businessmen before their appointment. There have been multiple cases when Russian businessmen attempted to acquire position of the governors during the period of free elections before 2004 (Gehlbach et al 2010). After 2004 businessmen were also occasionally appointed as regional governors. As federal officials, businessmen can usually return to their companies after the end of their tenure as governors. While the Russian law requires the governors to abstain from direct management of their companies, they can still keep shares in companies, and, more importantly, almost always maintain informal connections to their formal businesses, so that they can easily go back after their position as governors is terminated. However, one could question insofar rent-seeking is indeed relevant for wealthy businessmen, who usually have access to other sources of income. There may in fact be other factors supporting the political activity of businessmen: if the credibility of commitments from the politicians is low, businessmen could attempt to acquire positions as governors to protect their property and business interests from expropriation.

Therefore, using the same sources as for the federal connection, we create a dummy equal to one for governors who have prior to the start of their political career been either (1) owners of large companies (e.g. Abramovich, Kanokov) (2) top managers (e.g. Khloponin, Artyakov), or (3) extremely wealthy individuals (e.g. Ilyumzhinov, Darkin) prior to their appointment as governors. Since the Russian business often lacks transparency in terms of property structure, we cannot be sure that the information we acquired is complete, but it should at least allow us to identify the governors with really significant business history in the past – i.e. those who are more likely to consider business as a reasonable exit option.

Example: Probably the most famous example of a businessman who became governor is Roman Abramovich the governor of the distant Chukotka region. Abramovich governed Chukotka for two legislative periods (2000-2008) of which the last two years fall within our sample. Abramovich was elected governor in 2000, reappointed in 2005 by Putin and voluntarily resigned in 2008. Since he was replaced by Roman Kopin in the end of July we allocate the year 2008 to tenure of Abramovich. In 2007 and 2008 he was ranked among one of the three richest Russians (with an estimated fortune of 19 billion dollars for 2007). Before he came to Chukotka he already controlled one of the largest Russian oil companies. Moreover, during his tenure he did not restrain from business activities and performed a number of large scale corporate establishments and acquisitions leaving no doubt that he has planned to return to business after his tenure (allegedly he wanted to resign after his first term, however Putin insisted on a second term of Abramovich of governor of Chukotka).

Local origin

Definition: In order to measure the local origin, we have again scrutinized the biographies and determined the relative time a governor has spent in his region of office before inauguration. Specifically we have determined the regions in which the governors were born, raised, educated, and worked before assuming office. The result is a dummy which equals one if the governor has spend at least a couple of years of his life in his region of office prior to his appointment, while it is zero if the governors came only recently before his appointment to the region.

Examples: The governor of Archangelsk region Ilya Mikhalechuk, graduated in Magadan region (Far East) and spends his professional career in Sakha region (Far East) while he moved to Archangelsk region (North West) only shortly before his appointment in 2008. We consider him to be an outsider to his region. On the opposite, Vladimir Torlopov, the past governor of Komi region (2002-2010) was born, studied and worked in Komi region before becoming governor in 2002. This is an example of an insider.

Relation to federal connections dummy: The set of governors without local origin and governors with federal connections does not necessarily coincide. For example, the federal government could increase the number of governors without local origin by appointing lower-ranked regional politicians and bureaucrats as governors to other regions, e.g. it has been done with several key members of the staff of the mayor of Moscow in the second half of the 2000s, supposedly to weaken the power potential of the latter. On the contrary, while selecting a possible appointee to the region from the set of those with federal connections the federal government could possibly prefer a person coming from this region and thus having a better understanding of the regional specifics. The variable 'local origin' is significantly correlated with the federal connections dummy: the Spearman correlation coefficient is -0.125 significant at 10%, the t-test on the means of federal connections for groups with and without local origin reveals that in the second group the average level of federal connections is significantly smaller (0.073 versus 0.159, p-value 0.0414).

One of the best examples for a governor without local origin and federal connection is the again Mikhalechuk. Before appointment as a governor of Arkhangelsk, he served as a mayor of Yakutsk. In 2012 he was dismissed by President Medvedev and disappeared from the political arena for good.

Discriminated ethnicity

Definition: To capture this effect we control for two specific minorities. First, we control for governors who belong to 'discriminated ethnicities' which are a sub-group of previously discussed titular nationalities. This group includes all

governors with a North Caucasian, Volga Muslim, and Siberian ethnic background which are considered to be particularly discriminated, because due to their appearance and names they can be easily identified as ‘non-Russians’. According to this classification the governors of our sample with Mordva, Chuvash, and Komi ethnic background are not considered to be discriminated ethnicities (as well as Ukrainians and Belorussians). Second, we account for Jewish origin (there are few of them in our sample). Since ethnic affiliation is an important issue for regional politicians in Russia, governors explicitly mention their ethnicity in official biographies. There were only two cases in which the ethnicity of the governor was not explicitly mentioned, but instead the ethnic background of the parents. There was one difficult case in our sample, when parents of the governor belong to different ethnicities. Aman Tuleev’s (governor of the Kemerovo region) father was Kazakh and mother Tatar; we assigned dummy ‘discriminated ethnicity’ to be equal to 1 in this case.

Appendix B: Repressiveness in matters of illegal entrepreneurship

Table B1: Impact of federal connections on the repressiveness in the matters of illegal entrepreneurship, 2007-2009, dep.var.: share of prison penalties in the total number of prison penalties and conditional releases, two-way FE (unbalanced panel)

| | (B1) | (B2) | (B3) | (B4) | (B5) | (B6) | (B7) | (B8) | (B9) | (B10) | (B11) |
|--|--------------------------|---------------------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Federal connections | 0.203* (0.121) | 0.209* (0.124) | 0.208* (0.124) | 0.209* (0.124) | 0.212* (0.124) | 0.184* (0.108) | 0.174* (0.103) | 0.174* (0.104) | 0.153 (0.104) | 0.169* (0.096) | 0.183* (0.102) |
| Log income per capita | 0.258 (0.309) | 0.236 (0.315) | 0.225 (0.315) | 0.249 (0.335) | 0.260 (0.319) | 0.260 (0.319) | 0.278 (0.319) | 0.278 (0.325) | 0.229 (0.321) | 0.184 (0.336) | 0.286 (0.327) |
| Log urbanization | 3.226 (2.352) | 3.338 (2.416) | 3.275 (2.435) | 3.177 (2.457) | 2.910 (2.451) | 2.798 (2.421) | 3.012 (2.445) | 3.011 (2.480) | 2.747 (2.467) | 3.172 (2.428) | 2.894 (2.526) |
| Log population | -8.643 (5.269) | -8.922* (5.266) | -8.912* (5.288) | -8.835 (5.367) | -8.538 (5.263) | -8.181 (5.368) | -7.997 (5.506) | -7.996 (5.515) | -7.455 (5.501) | -6.825 (5.500) | -8.246 (5.762) |
| Log total number of investigations | | -0.115 (0.121) | -0.116 (0.121) | -0.114 (0.121) | -0.102 (0.121) | -0.085 (0.125) | -0.096 (0.129) | -0.096 (0.130) | -0.097 (0.127) | -0.093 (0.127) | -0.084 (0.140) |
| Share of investigations involving police | | | 0.069 (0.057) | 0.071 (0.058) | 0.066 (0.057) | 0.063 (0.058) | 0.075 (0.061) | 0.075 (0.061) | 0.112* (0.063) | 0.096 (0.063) | 0.076 (0.061) |
| Federal transfers | | | | -0.031 (0.145) | -0.045 (0.144) | -0.053 (0.145) | -0.058 (0.146) | -0.058 (0.152) | -0.059 (0.146) | -0.025 (0.148) | -0.053 (0.156) |
| Retention rate | | | | | 0.278 (0.227) | 0.291 (0.230) | 0.296 (0.236) | 0.296 (0.238) | 0.300 (0.242) | 0.292 (0.232) | 0.312 (0.244) |
| Local origin | | | | | | -0.046 (0.060) | -0.002 (0.061) | -0.002 (0.061) | 0.002 (0.058) | 0.012 (0.057) | 0.022 (0.071) |
| Age | | | | | | | -0.005 (0.004) | -0.005 (0.004) | -0.006 (0.004) | -0.006 (0.005) | -0.005 (0.004) |
| Number of overall criminal convictions | | | | | | | | 0.000 (0.000) | | | 0.000 (0.000) |
| Number of criminal convictions in matters of illicit entrepreneurship | | | | | | | | | 0.007 (0.005) | | |
| Repressiveness in all areas of the criminal law | | | | | | | | | | 0.504 (0.624) | |
| Business exit option | | | | | | | | | | | 0.084 (0.129) |
| Constant | 74.936 (74.688) | 78.306 (74.251) | 79.126 (74.646) | 79.150 (74.952) | 78.224 (73.277) | 74.664 (74.628) | 69.284 (77.710) | 69.294 (78.270) | 65.727 (77.932) | 51.345 (73.987) | 74.218 (83.738) |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 195 |
| Regions | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| R² (within) | 0.074 | 0.078 | 0.079 | 0.079 | 0.086 | 0.088 | 0.091 | 0.091 | 0.105 | 0.098 | 0.092 |

Note: see Table 1

Table B2: Impact of federal connections on the repressiveness in the matters of illegal entrepreneurship, 2007-2009, dep.var.: share of prison penalties in the total number of prison penalties and conditional releases, two-way FE (unbalanced panel), *only regions where the sum of the number of arrests and conditional releases is different from zero*

| | (B12) | (B13) | (B14) | (B15) | (B16) | (B17) | (B18) | (B19) | (B20) | (B21) | (B22) |
|--|----------------------|----------------------|----------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|
| Federal connections | 0.242 (0.187) | 0.241 (0.192) | 0.239 (0.192) | 0.240 (0.194) | 0.254 (0.194) | 0.246 (0.169) | 0.243 (0.165) | 0.246 (0.165) | 0.245 (0.172) | 0.175 (0.129) | 0.258 (0.162) |
| Log income per capita | 0.565 (0.423) | 0.566 (0.414) | 0.554 (0.415) | 0.561 (0.493) | 0.600 (0.471) | 0.603 (0.470) | 0.610 (0.471) | 0.618 (0.468) | 0.611 (0.470) | 0.417 (0.453) | 0.683 (0.471) |
| Log urbanization | -3.120 (9.045) | -3.147 (9.082) | -3.410 (9.185) | -3.402 (9.213) | -4.591 (9.092) | -4.484 (9.150) | -3.980 (9.301) | -3.594 (9.378) | -4.021 (9.517) | -2.190 (8.514) | -3.664 (9.361) |
| Log population | -8.768 (8.862) | -8.728 (8.944) | -8.591 (9.018) | -8.604 (9.079) | -8.171 (9.025) | -8.140 (9.069) | -8.528 (9.286) | -8.925 (9.524) | -8.501 (9.480) | -4.070 (9.870) | -9.189 (9.534) |
| Log total number of investigations | | 0.011 (0.178) | 0.008 (0.178) | 0.008 (0.180) | -0.016 (0.180) | -0.011 (0.184) | -0.039 (0.189) | -0.056 (0.200) | -0.038 (0.188) | 0.023 (0.178) | -0.003 (0.222) |
| Share of investigations involving police | | | 0.106** (0.053) | 0.106* (0.057) | 0.098* (0.054) | 0.096* (0.056) | 0.129** (0.063) | 0.129** (0.063) | 0.128* (0.073) | 0.196*** (0.066) | 0.126* (0.063) |
| Federal transfers | | | | -0.010 (0.244) | -0.052 (0.243) | -0.057 (0.251) | -0.071 (0.254) | -0.104 (0.283) | -0.070 (0.265) | -0.053 (0.281) | -0.107 (0.281) |
| Retention rate | | | | | 0.396 (0.435) | 0.400 (0.443) | 0.460 (0.459) | 0.473 (0.465) | 0.458 (0.465) | 0.444 (0.466) | 0.475 (0.467) |
| Local origin | | | | | | -0.016 (0.097) | 0.129 (0.129) | 0.133 (0.128) | 0.129 (0.129) | 0.156 (0.106) | 0.160 (0.132) |
| Age | | | | | | | -0.009* (0.005) | -0.009* (0.004) | -0.009* (0.005) | 0.015*** (0.005) | -0.008* (0.004) |
| Number of overall criminal convictions | | | | | | | | 0.000 (0.000) | | | 0.000 (0.000) |
| Number of criminal convictions in matters of illicit entrepreneurship | | | | | | | | | 0.000 (0.006) | | |
| Repressiveness in all areas of the criminal law | | | | | | | | | | 2.123** (0.822) | |
| Business exit option | | | | | | | | | | | 0.193 (0.151) |
| Constant | 162.800* (82.907) | 162.514* (83.411) | 164.339* (83.970) | 164.338* (84.379) | 174.154** (83.928) | 172.170* (86.729) | 171.211* (87.390) | 171.555* (87.762) | 171.378* (87.325) | 83.709 (68.558) | 175.252** (87.237) |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 151 | 151 | 151 | 151 | 151 | 151 | 151 | 151 | 151 | 151 | 151 |
| Regions | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| R² (within) | 0.178 | 0.178 | 0.181 | 0.181 | 0.19 | 0.191 | 0.197 | 0.198 | 0.197 | 0.273 | 0.201 |

Note: see Table 1

Appendix C: Effects of zero observations on the estimations for repressiveness in tax matters

Table C1: Impact of federal connections on the repressiveness in tax justice, 2007-2009, dep.var.: share of prison penalties in the total number of prison penalties and conditional releases, two-way FE (unbalanced panel), only regions where the sum of the number of arrests and conditional releases is different from zeroNote: see Table 1

| | (C1) | (C2) | (C3) | (C4) | (C5) | (C6) | (C7) | (C8) | (C9) | (C10) | (C11) |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Federal connections | 0.062** (0.025) | 0.061** (0.025) | 0.060** (0.025) | 0.057** (0.026) | 0.057** (0.026) | 0.058** (0.026) | 0.058** (0.027) | 0.060** (0.025) | 0.060** (0.030) | 0.058** (0.028) | 0.050** (0.025) |
| Log income per capita | -0.021 (0.117) | -0.019 (0.115) | -0.030 (0.117) | -0.083 (0.123) | -0.084 (0.122) | -0.084 (0.122) | -0.084 (0.122) | -0.087 (0.124) | -0.082 (0.122) | -0.116 (0.128) | -0.121 (0.125) |
| Log urbanization | 4.722*** (1.240) | 4.693*** (1.258) | 4.609*** (1.293) | 4.721*** (1.333) | 4.726*** (1.343) | 4.726*** (1.346) | 4.727*** (1.349) | 4.788*** (1.358) | 4.858*** (1.323) | 4.701*** (1.269) | 4.827*** (1.397) |
| Log population | -1.538 (1.531) | -1.495 (1.549) | -1.463 (1.589) | -1.547 (1.641) | -1.549 (1.661) | -1.558 (1.769) | -1.557 (1.774) | -1.583 (1.751) | -1.720 (1.705) | -0.878 (1.911) | -1.373 (1.767) |
| Log total number of investigations | | 0.018 (0.082) | 0.018 (0.083) | 0.018 (0.083) | 0.018 (0.084) | 0.017 (0.087) | 0.017 (0.088) | 0.010 (0.090) | 0.017 (0.088) | 0.019 (0.088) | -0.013 (0.096) |
| Share of investigations involving police | | | 0.089*** (0.025) | 0.087*** (0.025) | 0.087*** (0.025) | 0.087*** (0.025) | 0.087*** (0.027) | 0.086*** (0.027) | 0.092*** (0.027) | 0.100*** (0.031) | 0.090*** (0.029) |
| Federal transfers | | | | 0.057 (0.077) | 0.057 (0.080) | 0.057 (0.083) | 0.057 (0.083) | 0.044 (0.087) | 0.056 (0.083) | 0.059 (0.085) | 0.0470 (0.086) |
| Retention rate | | | | | -0.004 (0.124) | -0.004 (0.125) | -0.003 (0.128) | 0.002 (0.129) | -0.010 (0.136) | -0.010 (0.124) | -0.005 (0.130) |
| Local origin | | | | | | 0.001 (0.030) | 0.003 (0.030) | 0.004 (0.030) | 0.004 (0.030) | 0.006 (0.032) | -0.008 (0.025) |
| Age | | | | | | | -0.000 (0.002) | -0.000 (0.002) | -0.001 (0.002) | -0.001 (0.002) | -0.000 (0.002) |
| Number of overall criminal convictions | | | | | | | | 0.000 (0.000) | | | 0.000 (0.000) |
| Number of criminal convictions in tax crimes | | | | | | | | | 0.001 (0.001) | | |
| Repressiveness in all areas of the criminal law | | | | | | | | | | 0.336 (0.316) | |
| Business exit option | | | | | | | | | | | -0.140** (0.056) |
| Constant | -42.971** (18.769) | -43.335** (18.729) | -42.524** (19.027) | -42.394** (19.135) | -42.425** (19.015) | -42.300** (20.249) | -42.301** (20.315) | -42.704** (20.283) | -41.841** (18.774) | -51.354** (21.209) | -45.691** (20.650) |
| Time FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| Regions | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 68 |
| R² | 0.103 | 0.103 | 0.114 | 0.117 | 0.117 | 0.117 | 0.117 | 0.119 | 0.128 | 0.127 | 0.128 |

Appendix D: Log-odds transformation

Table D1: Log-odds transformation of the dependent variables bound between 0 and 1, 2007-2009, two-way FE (unbalanced panel)

| | (D1) FE | (D2) FE | (D3) FE |
|-----------------------|--------------------------------|---|---|
| Dep. var. | Repressiveness, tax justice | Repressiveness, illegal entrepreneurship | Share of successful tax investigations |
| Federal connections | 1.436*** (0.464) | 0.047 (0.322) | 0.974** (0.441) |
| Log income per capita | -3.830 (2.380) | 11.123*** (3.224) | 0.822 (1.561) |
| Log urbanization | 36.105* (21.257) | -30.207 (48.742) | 89.351*** (24.337) |
| Log population | 90.354*** (30.297) | -58.656 (57.815) | -86.251*** (31.884) |
| Constant | -1,777.270*** (485.413) | 1,180.362*** (330.124) | -12.657 (318.005) |
| Time FE | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes |
| Observations | 70 | 42 | 162 |
| Regions | 43 | 30 | 66 |
| R ² | 0.489 | 0.457 | 0.458 |

Note: all regions, where the number of arrests in tax justice (D1) and illegal entrepreneurship (D2) is equal to zero, as well as all regions where no arrests or conditional releases in respective crimes were documented, as well as all regions with 100% successful tax investigations (D3) are excluded, as in this case it is difficult to correctly calculate the log-odds ratio (due to the fact that log is undetermined at zero). Log-odds ratio defined as: $\text{Log}(\text{Variable} / (1 - \text{Variable}))$

Appendix E: Mean comparison of key variables for regions where at least for one year the governor had federal connections

Table E1: Mean comparison between various parameters of tax collection activity in *the regions where at least for one year the governor had federal connections only*

| Variable | Federal connections = 0 | Federal connections = 1 | Difference |
|--|----------------------------|-------------------------|---|
| Share of successful audits | 0.955 | 0.984 | -0.029***; p-val (difference < 0): 0.0068 |
| Repressiveness of the tax law | 0.011 | 0.067 | -0.056***; p-val (difference < 0): 0.0179 |
| Repressiveness in the area of illicit entrepreneurship | 0.006 | 0.215 | -0.209**; p-val (difference < 0): 0.0143 |
| Log revenue per audit | 7.422 | 7.547 | -0.125; p-val (difference unequal 0): 0.615 |

Note: see Table 1

Appendix F: Instrumental variable estimations

Table F1: Impact of federal connections, instrumental variable estimations, 2007-2009

| | (IV1) FE instrumental variables | (IV2) FE instrumental variables | (IV3) FE instrumental variables |
|-----------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Dep. var. | Repressiveness, tax justice | Success of tax investigations | Additional budgetary revenue |
| Federal connections | 0.346** (0.146) | 0.087** (0.037) | -0.363 (0.393) |
| Log income per capita | 0.052 (0.174) | 0.052 (0.042) | 0.890 (0.604) |
| Log urbanization | 5.133*** (1.361) | 0.468 (0.464) | 14.366* (8.054) |
| Log population | -0.974 (1.762) | -0.799 (0.488) | -11.069 (8.257) |
| Observations | 194 | 194 | 194 |
| Regions | 67 | 67 | 67 |
| Time FE | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes |
| First-stage F-stat | 10.65*** | 10.65*** | 10.65*** |

Note: see Table 1. Instrumented variable is 'Federal connections', instrument used are average federal connections in the particular federal district in a particular year

Appendix G: Robustness to education and mobility of governors

Table G1: Comparison of governors with and without federal connections

| Characteristics | Without federal connections | With federal connections | Difference |
|---|--------------------------------|-----------------------------|------------------|
| Education in Moscow and St. Petersburg | 0.254 | 0.556 | -0.301*** |
| Top 30 university (HSE ranking) | 0.175 | 0.167 | 0.008 |
| Top 30 university (Web of World Universities) | 0.141 | 0.000 | 0.141* |
| Education in the home region | 0.458 | 0.111 | 0.347*** |
| Mobility | 1.898 | 2.667 | -0.769*** |

Note: see Table 1

Table G2: Marginal effect of federal connections, controlling for intelligence proxies

| Additional control variable | Dep. var.: effectiveness (all other controls as in specification 9) | Dep. var.: representativeness (all other controls as in specification 20) | Dep. var.: profitability (all other controls as in specification 28) |
|---|--|---|--|
| Education in Moscow and St. Petersburg | 0.035*** (0.010) | 0.042* (0.022) | -0.270* (0.139) |
| Top 30 university (HSE ranking) | 0.034** (0.013) | 0.043* (0.023) | -0.271* (0.142) |
| Top 30 university (Web of World Universities) | 0.034** (0.014) | 0.054** (0.024) | -0.269* (0.155) |
| Education in the home region | 0.034** (0.014) | 0.047* (0.024) | -0.267* (0.141) |
| Mobility | 0.037*** (0.013) | 0.042* (0.024) | -0.269* (0.143) |

Note: see Table 1. Detailed estimations are available at request

Appendix H: Operation of Russian tax authorities

H1. Formal procedure

In Russia the tax collection is done by a federal agency, which, however, mostly operates through its branches in individual regions. In principle, tax agencies can conduct either desk or field investigations to uncover tax fraud and to ensure tax repayment. Field audits are applied to entrepreneurs and legal entities only; field audits of individuals in Russia almost do not exist. There are limits on how often field audit can be implemented (at most two times a year and at most one time a year for a particular tax), so manipulating the number of tax audits is more difficult than their outcomes. While the number of field audits has decreased over the past years, the total amount of tax repayments per field audit increased by 23 times in 2000-2009 (from 188 thousand to 4200 thousand Rubles). Before tax investigators visit a company they will have checked its books and identified suspicious behavior. If tax inspectors return with insufficient tax-repayments they will be disciplined; informally there are standards of how much tax fraud should be uncovered. Therefore many tax audits have *ex ante* financial goals and operate according to the principle: once we do a field audit, we will not return with empty pockets (see Vedomosti, 2011, 18 May). Once tax violations have been uncovered, the behavior of the tax agency differs depending on whether legal entities or individuals have been investigated. For individuals (here, as mentioned, investigations are rarely based on field audits), the tax agency has to file a claim with the court, which then issues a warrant providing the agency with the right to collect the tax debt. For companies taxes are collected without the decision of the court (with several exceptions); but if the company files a complaint (what is very often done), the court still has to decide upon the validity of the claim of the tax agency. If the claim is accepted as legitimate, tax agency has the right to impose fines on the taxpayer.

If the tax claim exceeds certain amount (1.5 mln. Rubles or between 0.5 and 1.5 mln. Rubles if this sum exceeds 10% of the taxes to be paid within a three year period), the tax authority is also empowered to initiate the criminal prosecution against the taxpayer (individual) or CEO (legal entity). The sanctions range from fines to arrest and imprisonment. Depending on the size of the tax fraud the agency can charge fines from 100 up to 500 thousand Rubles (for general tax evasion penalties of 100-300 thousand Rubles are allowed; in cases of large scale tax evasion the penalties are set from 200-500 thousand Rubles). The prison sentence, depending upon the

size of the tax arrears uncovered, may reach up to six years. More specifically, the Russian law allows for up to 3 years of prison sentence for ‘ordinary individuals and up to 6 years individuals in responsible positions in companies. The prosecution is initiated by the police based on the conclusion of tax agency (which reports the act of possible crime to the police). The mere amount of tax evasion is not sufficient to initiate the prosecution: one also requires to prove that the tax violation was done consciously (guilt); e.g. if the taxpayers have repaid their obligations to other companies, but not to the government, it can be considered evidence of guilt. For more details on penalties for tax evasion see Russian Criminal Code Article 198 (for individuals) and Article 199 (for organizations). (see also *Arsenal Predprinimatel'ya*, <http://www.delo-press.ru/articles.php?n=7515>, accessed May 2, 2012, and *Prakticheskoe Nalogovoe Planirovanie*, <http://www.1nalog.ru/about/articles/pnp260207.html>, accessed May 2, 2012). For more details on penalties for illegal entrepreneurship see Russian Criminal Code Article 171.

A widespread feature of Russian bureaucracy, which became especially prominent in the last decade, is that bureaucrats are subject to regular evaluations based on quantitative indicators. The employment protection of bureaucrats in Russia is very weak; if they do not satisfy the quantitative requirements, they could easily be fired or most certainly will not receive a bonus (which constitutes a very large part of the wages). During 2007-2009, tax agency bureaucrats were evaluated according to following criteria (with relative weights of their importance in brackets): overall amount of taxes collected (18%), share of positive decisions of the courts in the disputes between tax agencies and taxpayers (16%), share of decisions of tax agencies nullified by the court (16%), reduction of tax arrears (12%), increase of positive evaluations of the functioning of tax agency by taxpayers (6%), number of taxpayers receiving information on legal entities registered by tax agencies over Internet (6%), share of taxpayers receiving information about their tax obligations via Internet (11%) and share of disputes with taxpayers resolved without involving the court (15%). Thus, extracting more taxes from taxpayers is an issue clearly favored for tax agencies. It is important to notice that criminal prosecution of taxpayers in case of tax violations (e.g. number of cases submitted to the police) is not among the goals of tax agency which its bureaucrats are incentivized upon.

H2. Informal practices

In practice, to start with, tax agencies in Russia are very often requesting tax debt, which is either unjustified or legally unsupported. There are several popular ways to do it. One is to issue a relatively small claim, so that the marginal costs of disputing the claim in court or by higher-ranked tax agency for the taxpayer are smaller than the costs of repaying the supposed tax debt. Another is informal contracts with taxpayers. Paneyakh (2008) describes the following mechanism: the taxpayer evades taxes on a very large scale, but at the same time consciously makes a number of small mistakes in his tax reporting. Tax audit uncovers these mistakes, which are then not disputed by taxpayer: thus, tax agencies can report a successful investigation, without actually reacting on the huge tax violation. A tax return without mistakes can be perceived by the tax agency as an attempt to break this informal contract and result in excessive auditing. In exchange for agreeing to this informal contract, tax collectors can receive bribes or (in case of larger companies) regional governments or other public institutions allied with tax agencies can establish control over the local enterprises using different tools described in the paper. In this case, however, these organizations have to compensate the tax collectors for the lost tax gain (and, hence, lower results according to some criteria described above) in an informal way. This informal relations spread throughout the entire Russian bureaucracy.

Hence on the one hand, tax collectors have incentives to increase the amount of tax revenue generated and the success of tax audits, since they are evaluated according to these criteria. On the other hand, there are

many informal ways how they can partially achieve this goal, at the same time allowing for ample opportunities for rent-seeking for the tax agencies and allied governmental agencies; this rent-seeking is likely to compensate for under-fulfillment of individual goals tax collectors had to implement according to the legal requirements. The widespread evidence suggests that in reality there is a lot of discretion as to how bonus payments are made in terms of application of the goals, which often depend on personal relations within tax administration (see e.g. <http://blogfiscal.ru/?p=5548> <http://blogfiscal.ru/?p=3997>, accessed May 2, 2012). Furthermore, as with any composite criteria, tax agencies can exchange their success according to some criteria versus lower results in other criteria: more developed Internet technologies can compensate for poor performance in courts etc. These opportunities for rent-seeking, however, strongly increase if tax agencies operate in an alliance with regional governors and other agencies in the region. First, they can mount a coordinated attack against a taxpayer (e.g. when tax agency, health authorities, fire department etc. all accuse the taxpayer of violations at the same time; cooperation of courts is also vital), and the governor is in a natural position to coordinate this cooperation (it especially applied to governors, who have served in federal institutions before, and thus often keep substantial network of contacts with other federal bureaucrats), and second, regional governors have more tools of rent-seeking at their disposal (e.g. informal extra-budgetary funds described above), which tax agency officials themselves cannot use.

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