

**Business Deserts Politics under Weak Institutions:  
Evidence from Russia, 2003–2010**

Ivan S. Grigoriev<sup>1</sup> and Kirill Zhirkov<sup>2</sup>

<sup>1</sup> King's College London

<sup>2</sup> University of Virginia

[Draft. Please don't cite or circulate]

## **Abstract**

Using an original dataset from Russia in 2003–2010, we explore the quality of authoritarian political institutions by documenting changes in political connections of the richest businesspeople within the institutional environment of a fledgling autocracy. We show that, first, as the government was modifying political institutions in the 2000s in an attempt to consolidate its power, there were no returns on businesspeople’s investment in political connectedness; and that, second, during that period, the businesspeople actually retreated from politics by abandoning their political connections. The businesspeople’s political disengagement reveals their insider assessment of the quality of Russian political institutions, indicating that as autocracy consolidated in Russia, its political institutional structure was actually in decay. This finding contributes to our understanding of authoritarian institutions, suggesting that even though autocracies nowadays might be institutionalized to a much higher degree, in the short run autocracy is still detrimental to institutionalization.

*Keywords:* authoritarian institutions, Russia, politically connected businesspeople

Extensive literature suggests that the businesspeople political engagement occurs primarily under conditions of poor institutionalization of rule of law and property rights protection (e.g. Li, Meng and Zhang, 2006; Gehlbach, Sonin and Zhuravskaya, 2010): Not being able to achieve their goals through institutional means, the businesspeople turn to politics to protect their property rights and gain competitive edge.

The literature does not ask what happens if the political institutions mobilized by the businesspeople are equally poor, as is the case under electoral authoritarianism—a type of political regime “that permits certain institutions normally associated with democracy, such as elections and political parties, to exist, while remaining authoritarian in the basic patterns of power distribution and reproduction” (Golosov, 2013, p. 618). As follows from this definition, the formal political institutions (that serve as an avenue for businesses to exert political influence), albeit nominally present under electoral autocracy, are at the same time effectively reduced to a mere façade only disguising the actual way the regime works, and virtually inconsequential on their own (Schedler, 2006, p. 3).

This poor state of political institutions should make it less rewarding for the businesses to engage in politics for the sake of protecting their property, even where no proper economic institutions to achieve such protection exist. Strikingly, although the poor quality of economic institutions should push businesses to invest in political engagement, when paired with the equally poor quality of political institutions, it would result in businesses retracting from politics altogether.

In this paper we observe and register this curious phenomenon by focusing on the case of Russia. The property rights protection in Russia has remained rather problematic throughout the 1990s and early 2000s (Frye, 2006). It was furthermore dealt a heavy blow with the Yukos affair,

when in 2003–2004 the state attacked, bankrupted, and nationalized Russia’s largest private company and sent its owners and managers to prison or in exile (Tompson, 2005). Far from being an isolated event, it was followed by a number of other high-profile nationalizations and sometimes even raider attacks by the state (Hanson, 2009, pp. 15–17; Tompson, 2010, pp. 69–71), which by the late 2000s led analysts to rate protection of private property rights in Russia rather low.<sup>1</sup>

The poor state of property rights protection was matched in the 2000s with a steady decay in Russia’s political institutions as the country slid into autocracy (Gel’man, 2015, pp. 40–42), a development we discuss in more detail below. We hypothesize that following this process, the existent political institutions gradually lost their efficacy, and as a result the efficiency of political engagement as a private mechanism of property rights protection (and the return on investment in such engagement) should have decreased quite significantly over the 2000s. This in turn must have pushed the Russian businesspeople, rather active politically in the early 2000s (Faccio, 2006, p. 373), out of politics (and possibly into other forms of property rights protection, see Sharafutdinova and Dawisha, 2017; Earle *et al.*, 2022), even though the institutions of property rights protection and the rule of law did not improve.

To test this hypothesis, we assemble and analyze a unique dataset on political connectedness of the richest Russians for years 2003–2010, the period when Russian political regime admittedly shifted from defective democracy to electoral authoritarianism (Goloso, 2011). We contribute to literature on businesspeople political connections by describing and

---

<sup>1</sup> For instance, the Heritage Foundation property rights score for Russia has been 30 out of 100 throughout most of the 2000s and then dropped to 25 in 2009, and to 20 in 2015. In the index’s own terms this means to say Russia went from the state where expropriation was “possible” to where it is “common.” Similarly, the rule of law indicators, such as those compiled as part of the Worldwide Governance Indicators project, remained persistently low throughout the 2000s (see Kaufmann, Kraay and Mastruzzi, 2011).

analyzing a case of complete institutional failure whereby both economic institutions (those securing property rights protection as a public good) and political institutions (allowing the businesses to acquire political connections privately if they need to) are rendered ineffectual over time as autocracy consolidates.

The paper starts by theorizing businesspeople political engagement under poor institutions. We then follow by describing the business-state relations in Russia in the 2000s in the context of decay in Russian political institutions. We present our data and the results of our analysis that show the businesspeople retreat from politics during the observed period. Methodologically, our analysis also provides for an approach to treat the issues related to problems of observing the effects of institutions where these cannot be taken for granted or inferred from the mere fact of the institutions' existence, as is the case under electoral autocracy. We return to this point in the conclusion.

### **Paradox of businesspeople political departicipation under poor institutions**

In this article we provide an empirical illustration to a phenomenon of businesspeople's retreat from politics under conditions of poor institutionalization. We focus on those institutions that allow for access to power (e.g., legislatures, elected and non-elected executives) and observe temporal dynamics of their mobilization by the businesspeople. Following the existent literature on businesspeople political engagement (Li, Meng and Zhang, 2006; Gehlbach, Sonin and Zhuravskaya, 2010; Markus, 2015; Earle *et al.*, 2022) we assume that under conditions of poor protection of property rights the businesspeople will in principle be interested in using these institutions. But we only expect that to be the case to the extent they are effective as a means of property rights protection.

The richest businesspeople stand out as a research object for three reasons. First, their lives (including political engagement; but see Page, Seawright and Lacombe, 2019) are relatively well reported, both in terms of quality of the information and the number of observations available (we further elaborate on that in the Data section below). Secondly, the richest businesspeople can be assumed to have reliable private information about the value of the political institutions they are engaged with or might contemplate mobilizing. This partly stems from their belonging to the establishment, thus having insider knowledge about the actual state of politics. But more importantly, even if they have no insider access to observe the state of political institutions directly, they should be able to infer it indirectly from the returns they and their competitors get on investment in political connectedness in the short run.

Thirdly, the richest businesspeople can be expected to actually want and be able to engage in politics as a matter of non-market business strategy (Baron, 1995; Faccio, 2006; Szakonyi, 2020, pp. 6–9, 30–78). This is especially the case in poorly institutionalized environments with no reliable institutions of rule of law. Indeed, a vast body of research into business strategies in under-institutionalized contexts documents this phenomenon (Li, Meng and Zhang, 2006; Gehlbach, Sonin and Zhuravskaya, 2010) and shows this strategy actually pays off: where economic institutions do not protect property rights, political connections do (Khwaja and Mian, 2005; Li *et al.*, 2008; Su and Fung, 2013; Özcan and Gündüz, 2015).

This literature treats being politically connected as a substitute for using courts and other formal mechanisms of property rights protection.<sup>2</sup> The key distinction between the two is that, whereas formal institutions (such as courts, and the rule of law generally) function as a *public*

---

<sup>2</sup> Sharafutdinova (2021) usefully distinguishes between “institutions responsible for the security of property rights” and those responsible for “government accountability.” Acemoglu and Robinson (2008) simply call these the economic and political institutions, respectively.

mechanism of property rights protection, political engagement allows to obtain such protection *privately* (Sonin, 2003). It would seem, as a corollary, that whenever the former is present, it should crowd out the latter: political engagement as a substitute should only arise when the institutional environment is dysfunctional. This, however, is not the case, and even with the functioning institutions of property rights protection a firm might be interested in gaining a competitive edge over other firms on the market by engaging in politics. Indeed, research into business-state relations in well institutionalized environments supports this proposition (Acemoglu *et al.*, 2016), showing that businesses might use political connectedness simply as a non-market strategy (Baron, 1995).

Note, however, that regardless of the quality of economic institutions, going political to protect one's property rights is conditioned by the very existence of an opportunity to do so. Whether such option exists in turn depends on the quality of political institutions. Indeed, just as the firms might not be supplied with public mechanisms of property rights protection, so, too, there can prove to be no institutional structure allowing businesses to develop political connectedness despite all aspiration to do so.

One particular institutional setting where this effect should prove especially visible is electoral authoritarianism—a type of political regime “that permits certain institutions normally associated with democracy, such as elections and political parties, to exist, while remaining authoritarian in the basic patterns of power distribution and reproduction” (Goloso, 2013, p. 618). As follows from this definition, the formal political institutions (that could potentially serve as an avenue for businesses to exert political influence), albeit nominally present under electoral autocracy, are at the same time effectively reduced to a mere facade disguising the actual way the regime works, and virtually inconsequential on their own (Schedler, 2006, p. 3).

As the regime transitions towards electoral authoritarianism, the existent formal political institutions gradually lose their potency. This in turn should make it less rewarding for the businesses to participate in these political institutions for the sake of protecting their property, even where no proper economic institutions to achieve such protection exist. Strikingly, although the poor quality of economic institutions should push businesses to invest in political engagement, when paired with the equally poor quality of political institutions, it would result in businesses retracting from politics altogether.

The implication that we are testing in this paper is therefore as follows: If the general trend under autocracy is towards reducing the institutions to their semblance while preserving the institutional facade, then the businesses would be able either to observe that latent incremental institutional decay directly (through their insider access to information), or to infer that change from diminishing returns on investment they made into political connectedness earlier. As political engagement becomes less attractive as a non-market strategy, the businesspeople will start retreating from politics. We would then observe a decrease in the businesspeople political participation, and could conclude that if political institutions are demobilized by the groups that have access to reliable information about their real quality, this should serve a signal of institutional decay, even if the institutional façade remains intact nominally.

Here lies the paradox: under conditions of institutional deficiency businesspeople should invest in political connections to compensate for that, but they do not. To the contrary, as the case of Russia in the 2000s illustrates, as the institutional environment got sparser, businesspeople got even more disengaged from politics. That happened, because it was not only the institutions of property rights protection that deteriorated, but also the political institutions one would need to mobilize to engage in politics.

## Political Institutional Dynamics in Russia in the 2000s

Conventional history of business–state relations in post-Soviet Russia invokes the metaphor of a pendulum swinging between the two extremes of the *business capture*, when the government dominates the private business, and *state capture*, when the businesspeople gain control over the government (Yakovlev, 2006; Gel'man, 2010). The 1990s are characterized as a period when, as the state weakened, the business expanded its control over the operations of government while also managing to escape its regulation at all levels (both by establishing close informal relations with the high-level government officials, and by corrupting street-level bureaucrats, see Hellman, 1998). The pinnacle of this process was a brief period in the late 1990s. After providing the much needed financial and media support to Russia's unpopular incumbent Boris Yeltsin during the 1996 presidential elections, the richest businesspeople (colloquially referred to as the “oligarchs,” see Hoffman, 2011) got the upper hand. They managed to establish a stronger influence over state policies, secured access to the most lucrative state-owned assets, and even briefly held some important positions in the government.

In the early 2000s the oligarchs started losing their influence—a development attributed to the new president Vladimir Putin's successful attempts at restoring state autonomy and, generally, strengthening Russian state (Easter, 2008; cf. Taylor, 2011). With respect to the oligarchs this new policy took the form of their so-called “equidistancing.” It was informally sealed during their meeting with the president in 2000 when, in return for the government pledging not to revise the 1990s privatization, which made the oligarchs rich, the government demanded that they stay out of politics (an arrangement known afterwards as the “*Shashlik* agreement” due to allegedly being negotiated over a barbeque). The government took some steps to demonstrate its good will. It significantly simplified the tax system (Ivanova, Keen and

Klemm, 2005), while at the same time making the legislation more business-friendly (Dekalchuk, 2017; Grigoriev, 2017). A new streamlined taxation scheme was further developed specifically for the oil extracting sector (Jones Luong and Weinthal, 2004).

All of these measures were supposed to establish a more balanced business–state relationship, but in 2003 the largest private company of Russia, *Yukos*, was bankrupted and nationalized, its owners and top management sent to prison. Another big oil company, *Sibneft*, was nationalized almost immediately afterwards, and by the late 2000s the pendulum has clearly swung back. The Yukos affair thus marked the beginning of a period of business capture in business–state relationship that, judging by the growing share of state ownership in Russia’s economy, lasts to date (Åslund, 2014; Barsukova, 2019; Matveev, 2019).

Note that as the government sought to limit and regulate the businesspeople’s political involvement, this need not have resulted in their complete (or even systematic) withdrawal from politics. First, the policy of equidistancing only targeted the oligarchs—the extra rich businesspeople whose fortunes were big enough to allow them to substantially derange the functioning of the government or undermine the ruling group’s authority. This policy was not supposed to apply to the smaller businesses, apparently deemed less dangerous for the government since their political engagement would probably even not be noticeable for the Kremlin. Second, as was already clear from the Yukos affair, the oligarchs’ political engagement was only punishable on a case-by-case basis. Some of those extra rich businesspeople who were part to the Shashlik agreement were allowed, if not encouraged, to engage in political activity, as

long as such engagement was approved by the Kremlin.<sup>3</sup> The decisive point was therefore not political engagement as such, but rather the motivation behind it: as long as the businessperson's political engagement was not considered detrimental to the federal government's vital interests, they could invest in political connectedness if they needed to.

The new policy thus did not mean to completely eliminate the businesspeople's *demand* for political connectedness, but rather to regulate it informally. Furthermore, since the quality of property rights protection and other economic institutional features stayed the same (and with the abovementioned reservation of limiting the oligarchs' direct involvement on a case-by-case basis), the demand for political connectedness must have remained high. At the same time, what changes significantly during this period are the *supply-side* factors—in particular, the quality of those political institutions that the businesspeople could mobilize to build up their political connectedness.<sup>4</sup> This change manifests itself most visibly in the series of political reforms conducted in 2001–2005 and aiming at shifting the balance of power (both in terms of its vertical and horizontal separation) in favor of the federal executive.

In the vertical dimension, the reforms started as early as in 2000 when president Putin complemented the existent regional division of Russia into 89 federal units (which by the late 1990s were typically under the firm control of their governors—the heads of the regional

---

<sup>3</sup> Examples of Russia's richest businesspeople seeking elected office throughout the 2000s include Roman Abramovich who was elected governor of the Chukotka region, and Aleksandr Khloponin, the governor of Krasnoyarsk Krai. Abramovich was elected as Chukotka's governor in 2000, re-nominated by the president in 2005, and resigned in 2008—but remained the region's speaker of the house, the post he held until 2013. Aleksandr Khloponin, one of the richest Russians at the time, was first elected the governor of Taymyr Okrug in 2001, then governor of Krasnoyarsk Krai in 2002, and held the post until 2010 when he was promoted to the deputy prime-minister of Russia.

<sup>4</sup> Curiously, the quality of political institutions is typically not even included as a factor in the two-actor models of business-state relations, where the actual relationship between the business and government is conditioned by their structural features only, such as state capacity and consolidation and cohesiveness of the business community (e.g., Kang, 2002).

executive, see Golosov, 2011). The reform created a new superstructure of seven federal districts, each headed by a so-called *polpred*—the president’s envoy responsible for ensuring that the policies enacted by the federal center are implemented uniformly in her respective district, and that the governor does not meddle with the selection and placement of the federal agency personnel in their region (Ross, 2005, p. 356). The governors’ powers were further reduced as they lost their seats at the Federation Council (the upper house of the Russian parliament) as of 2002, and thus lost the direct political influence they had in the matters of national policymaking. Finally, the governors were dealt a particularly heavy blow as the gubernatorial elections were abolished in favor of the governors’ nomination by the president. Legal requirement for a regional legislature’s consent proved to be formal: the president could both depose a governor and nominate a new one as he pleased. As a corollary, this quite obviously reduced the post’s attractiveness for a businessperson seeking to invest in political connection, since such investment could be easily nullified if the president dismissed the governor.

In parallel with these developments the balance was also shifting in the executive-legislative relationship at the federal level (Remington, 2008). The political opportunity structure began getting sparser as the Kremlin first micro-managed the creation of a party of power, the United Russia, that became a majority party in late 2001 (Grigoriev and Dekalchuk, 2017), and obtained a two-third majority after the 2003 State Duma (lower chamber of Russia’s Federal Assembly) election by negotiating with independent candidates running in the single member districts (Golosov, 2005). The Kremlin further launched a campaign to reduce the number of officially registered parties, and between 2003 and 2009 this number collapsed from 46 to just six parties formally allowed to run their lists in legislative elections. The few parties that persisted were put under informal control of the presidential administration (Gel’man, 2008), so

even if a businessperson would consider running on one of these parties' tickets she would still have to be informally vetted by the Kremlin and the safety of her Duma seat would further depend on it. An opportunity remained to get elected by plurality vote in a single member district since half of the Duma seats were still filled this way. Winning in these districts was not as much a matter of negotiating with the parties as one of the candidate's personal effort, which granted such candidates bigger autonomy and security of their posts (Kunicova and Remington, 2008). However, in 2005 the electoral system was reformed, and as of 2007 the elections were conducted by pure proportional representation. The opportunities to become a Duma *deputy* (member) therefore shrank, both in terms of all seats now being distributed by the parties, the registered parties' very number being reduced very significantly, and their being controlled directly by the Kremlin.<sup>5</sup>

Thus, as the government succeeded at weakening all alternative centers of power and extending its control over them, and as autocracy consolidated in Russia throughout the 2000s, the opportunities political institutions could effectively provide businesspeople with grew poorer. We hypothesize that as a result of this change in the political opportunity structure the businesspeople would gradually become less inclined to invest into such formal political connectedness simply because it would not pay off, thus testifying to the formal institutions' decay over time. To do that we first test the hypothesis that *there was no economic return from political connections during the studied period* (H1). After testing it we can move on to test our second hypothesis that *businesspeople's propensity to possess political connections decreased through the studied period* (H2). However, as we describe above this might have been a nuanced

---

<sup>5</sup> Before the 2016 Duma elections all of these reforms (probably except for the latter) were reversed: the number of officially registered parties increased quite significantly and the mixed electoral system allowing independent candidates to run in single member districts was restored.

process. In particular, *the decrease in political connectedness was more pronounced among the richer businesspeople* (H3). Indeed, it is our expectation that in this new state of things the oligarchs would rather deal directly (and informally) with the Kremlin and the presidential administration because securing formal political engagement with the federal government, the parliament or the regional governments would at best imply idle costs, and at worst would bring additional existential risks.

## **Data**

To test these hypotheses, we put together an original dataset containing various information about the richest Russians. It consisted of three basic units. The first one contained information on the fortunes of these people and was compiled from the annual rankings published by the *Finans* magazine between 2004 and 2011, when the magazine went out of business. Rankings were published yearly in February containing information on each preceding year, so our dataset covers years 2003–2010. The magazine's methodology was to invite experts to assess the value of the industrial assets and the real estate that the participants own, as well as their other incomes. On average each of *Finans*'s annual rankings included 500 businesspeople, most of them also present in the next years' rankings (the panel, however, is not entirely balanced due to occasional drop-outs). The panel data thus collected also provided for a significantly broader individual coverage as compared to the other reputable ranking compiled by the *Forbes* magazine (only providing data on 100 richest Russians annually). *Forbes*' ranking furthermore was only launched somewhat later: its coverage starts with 2004 thus missing the important pre-Yukos affair data completely.

*Aktion-media*, the publisher of *Finans*, mostly deals in specialized professional and business journals: their portfolio includes such titles as *Glavbukh* (Accountant general),

*Kadrovoie Delo* (The HR), *Finansovyi Direktor* (CFO), and *General'nyi Direktor* (CEO). Unlike *Forbes*, a household name in Russia, these titles are known mostly within the business community. However, because of this narrow specialization, as well as embeddedness in the business community and the expertise they command, *Aktion-media* is considered one of the most reputable business publishers in Russia. Still, to double-check the reliability of the asset data they provide, we ran several comparisons between *Finans* and *Forbes* estimates. Results indicated a rather strong comparability between the two sources. First, the percentage overlap between the *Forbes* list and the top 100 businesspeople on the *Finans* ranking ranged between 70% and 88% across years. Second, correlations between the two estimates of assets (log-transformed) were .85 on the level of observations (person–years) and .82 on the level of persons.<sup>6</sup>

The second unit in our dataset was the information on the industries that the participants of the ranking were active in. This information was coded into a categorical variable covering twelve industries: retail trade, petroleum and gas extraction, construction and development, finances, engineering, agriculture, metallurgy and mining, chemical industry and perfumery, transport, food industry, IT and telecommunications, and the energy sector. The data on these sectors was also made available by the *Finans* magazine for 2008–2011. The years 2004–2007 were thus coded manually with the information collected from various sources (such as, for instance, the factbook compiled by the *Kommersant*, one of Russia's most respected daily newspapers). For the participants present in the ranking both in 2008 or later, and in the years

---

<sup>6</sup> Similar data on the businesspeople's wealth is used in other studies of businesspeople behaviour in the post-Soviet states (see e.g. Treisman, 2016; Markus and Charnysh, 2017; Lamberova and Sonin, 2018; Earle *et al.*, 2022).

before that, the manual coding was checked for consistency with the coding by *Finans*, with the priority given to the information supplied by *Finans* as of 2008.

The third unit contained information on the participants' ties with government officials and members of legislatures. Political connectedness was coded as a set of dummy variables in four distinct categories: one for the Duma deputies and members of the Federation Council; one for the members of regional legislatures; and two for either high-ranking officials in the federal or in the regional executive (which includes federal and regional ministers, deputy ministers, heads of all kinds of executive agencies and services, governors, and city mayors). Overall, 437 out of 3,497 person–year observations (or 12.5% of the sample) were coded as having a political connection.

There was no single source where the information on such ties would all be conveniently collected, so we relied on a variety of sources, including the *Kommersant* factbook for the more official information and the *Compromat.ru* website for the rumors about the informal ties. (Note that most of the time *Compromat.ru* only reposts information from other sources—normally, respectable and trustworthy newspapers. The information available through *Compromat.ru* was used whenever the source it referenced was deemed trustworthy.) Another valuable source of information was Russia's largest news aggregator run by *Yandex* that automatically aggregates information from various sources, including the regional and local media (which was particularly useful for revealing ties to the regional government, the mayors, etc.).

A special effort was made to find out about the businesspeople's possible informal connections to high-ranking officials (both federal and regional, executive and legislative). Informal connections were defined as either being a close relative (which includes spouses, children, parents, and siblings), or being reported as a close friend of an official where such

friendship dates back before the official assumed their position. We assumed that, although the connection itself might have been working to the businessperson’s benefit, neither having such informal connection, nor losing one could normally be considered a strategic choice for a businessperson, at least not in the short run. All such informally connected businesspeople (188 observations, 5.1% of the sample) were therefore excluded from the analysis.<sup>7</sup>

## Results

We start from estimating returns on political connections over the 2003–2010 period and testing the corresponding hypothesis (H1). To do so, we simply regress businesspeople’s fortunes (log-transformed to account for decreasing marginal utility) on time contrasting them by the connection status, i.e. those who have a connection to those who do not. Table 1 presents the key results. We find strong support for H1. Specifically, estimated differences in both estimated asset level in 2003 and growth from 2003 to 2010 between connected and unconnected businesspeople are not significant. In other words, having a political connection (that likely incurs both material and non-material costs for businesspeople) is not found to provide any tangible economic benefits (cf. Grigoriev and Zhirkov, 2020).

**Table 1.** Estimated returns on political connections

	2003	Change
No connection	4.69*** (0.12)	1.61*** (0.06)
Connection	5.11*** (0.21)	1.47*** (0.23)
Difference	0.42* (0.18)	−0.14 (0.24)

*Note.* Clustered standard errors in parentheses. Control variables: age and industry. See Table S1 in the Supplementary Material for full results

<sup>7</sup> Over the ten years that passed between the last year covered in the analysis, and the last wave in the data collection effort (August 2020), additional information regarding informal connectedness resurfaced, allowing for more confidence in not having miscoded any of the informally connected businesspeople as not having connections.

Evidence presented above has important implications for businesspeople's strategies with respect to investing in political connectedness. We find that, throughout the studied period, returns on connections were effectively absent—if not negative. Therefore, those contemplating making such investments should in hindsight have preferred to not invest in new political connections or abandon existing ones. But even not having the benefit of hindsight, businesspeople could still anticipate such development from the ongoing institutional changes. To the degree that they expected such changes to weaken the institutions they considered investing in, this should have resulted in their gradual retraction from politics. Following this lead, we turn to exploring whether and to what extent businesspeople's propensity to invest in political connections has actually decreased in response to the institutional changes.

To test this hypothesis (H2), we run a model that predicts probability of a businessperson's political participation in the studied period (2003–2010). For our analysis the most interesting factor is time since we seek to establish if the businesspeople's formal political engagement decreased between 2003 and 2010. To control for the fact that those businesspeople already having connections in the previous year are likelier to have such connections in any given year, we introduce an element of autocorrelation (the dependent variable is added as predictor with a one-year lag). Other control variables are businessperson's fortune and industry.

Table 2 presents results from four panel logistic regression models that differ in specifications as well as in terms of included observations. Models 1, 2, and 3 use random-effects estimator. Specifically, Model 1, which can be seen as the baseline, simply includes all observations across the studied time period. Model 2 attempts to account for the fact that the numbers of observations differ across years and includes only first 400 observations for each year. Model 3 includes all available observations but also introduces indicator variables for years

2003, 2005, and 2008 to account for imbalances in terms of sample sizes.<sup>8</sup> Model 4 uses fixed-effects estimator and, therefore, includes only individuals for whom actual change in political connections is observed within the analyzed time period. Across models, explanatory variables are normalized to range from 0 (smallest observed value) to 1 (greatest observed value). Log fortune variable is also centered around its observed mean. All four models give a consistent result in favor of H2: over time, as the negative and significant time trend shows, businesspeople gradually retreat from politics. Moreover, this effect is observed in the sample as a whole (random-effects models) as well as for specific individuals (fixed-effect model).

**Table 2.** Logistic regression results predicting having a political connection

	Model 1 (RE)	Model 2 (RE)	Model 3 (RE)	Model 4 (FE)
Time trend	-2.17*** (0.596)	-1.93** (0.593)	-2.56*** (0.75)	-2.45** (0.912)
Connection previous year	9.19*** (0.93)	8.89*** (0.89)	9.33*** (1.016)	3.80*** (0.65)
Log fortune	1.65 (1.18)	1.38 (1.31)	2.32 (1.25)	3.69* (1.56)
Industry	yes	yes	yes	no
<i>N</i> observations	3,501	2,790	3,501	242
<i>N</i> individuals	997	771	997	42

*Note.* RE = random effects. FE = fixed effects. Standard errors in parentheses. Industry varies only on the level of individuals. See Table S3 in the Supplementary Material for full results

Since estimated coefficients from logistic regressions are difficult to interpret in substantive terms, here we also present the results translated into the key quantity of interest—probability of having a political connection. Respective estimates are presented in Table 3 as

<sup>8</sup> The average number of observations per year is approximately 436. However, there are only 137 observations in year 2003, 378 observations in 2008, and as many as 686 observations in 2005. We estimate a model with fixed effects for these years to account for the possibility that exclusion or inclusion of cases may be non-random with respect to political connections. See Table S2 in the Supplementary Material for the distribution of observations across years.

probabilities of losing (or abandoning) a connection for each year given that such a connection was present in the previous year. Specifically, for a businessperson with a political connection in year 2002 the probability of having the same connection in year 2003 is approximately 91.2%. The corresponding estimate for years 2009 and 2010 is only 74.7%. In other words, businesspeople’s propensity to lose or abandon political connections accelerates with time. This is an additional piece of evidence in favor of H2.

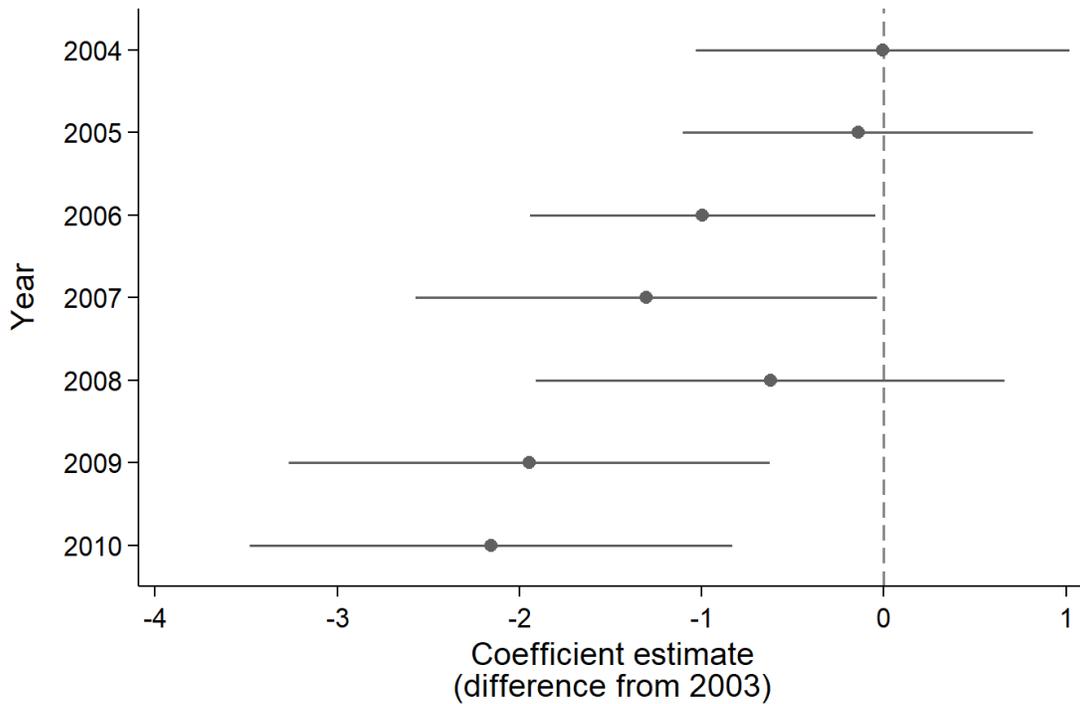
**Table 3.** Predicted probabilities of keeping a political connection by year

	Estimate	95% CI
2002 → 2003	0.912	0.859, 0.964
2003 → 2004	0.895	0.839, 0.951
2004 → 2005	0.876	0.817, 0.935
2005 → 2006	0.855	0.790, 0.919
2006 → 2007	0.831	0.759, 0.903
2007 → 2008	0.806	0.723, 0.888
2008 → 2009	0.777	0.681, 0.873
2009 → 2010	0.747	0.634, 0.860

*Note.* CI = confidence interval. Estimates based on Model 1 in Table 2

We also investigate to what extent the estimated time trend may be driven by the specific years included in the study. Figure 1 plots estimated yearly differences in political connections using 2003 as the baseline. It can be seen that, after staying on the same level in 2004 and 2005, businesspeople’s propensity to have connections decreases in 2006 and 2007. Then, there is an increase in connections in year 2008. Its sources are not entirely clear. For instance, it might have happened as businesspeople’s response to the financial crisis and search for state protection at the times of hardship. Still, by 2010 their propensity to have political connection decreases again to the lowest levels observed. It is necessary to note that the 2008 observation works against our finding in favor of H2—making it even more important that we are able to establish a significant negative trend. At the same time, it highlights possibly the main limitation of our analysis: the

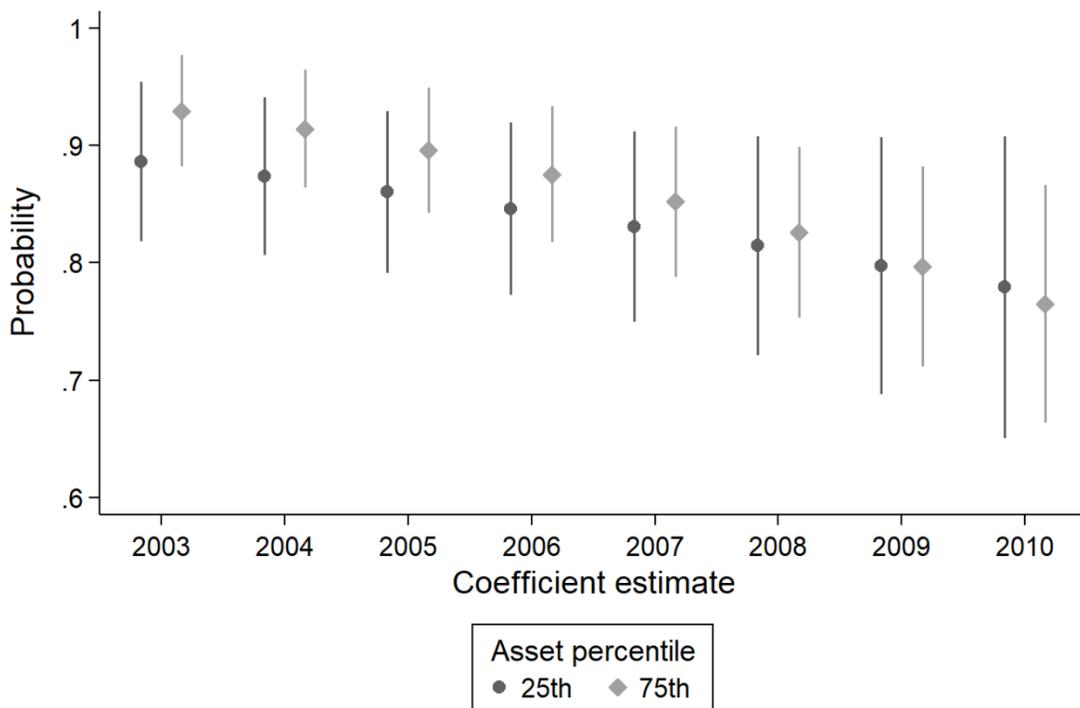
fact that the studied database ends in 2010. Seeing whether businesspeople’s retreat from politics continues into the 2010s remains an avenue for future research.



**Figure 1.** Year indicator variables’ effects on propensity to have a political connection  
*Note.* See Table S4 in the Supplementary Material for full results

Finally, we explore whether the gradual withdrawal of businesspeople from politics in 2003–2010 has been largely driven by the richest ones induced to cut their political engagement in response to the government’s equidistancing policies after the Shashlik agreement and, especially, the Yukos affair (H3). To test this hypothesis, we estimate an interactive effect of time and assets on probability to have political connections in order to see whether the retreat from politics was stronger among the wealthier businesspeople. The interaction coefficient is negative as expected—but not significant on the 95% confidence level. In other words, we do not find support for H3 as the richer businesspeople do not seem to abandon their political connections significantly faster than the rest during the studied period.

Following the guidelines on the presentation of interactive effects (Brambor, Clark and Golder, 2006), we show ours graphically in Figure 2. Numbers on the y axis have the same substantive interpretation as estimates from Table 3: they are estimated probabilities of having a political connection in a designated year given presence of a connection previous year. It can be seen that more affluent businesspeople start with slightly higher probabilities to keep connections but, as time goes, lose their connections at a somewhat higher rate. None of these differences, however, are statistically significant. Again, it would be interesting to see whether divergence in trends persists, potentially leading to a significant difference by late 2010s.



**Figure 2.** Predicted probabilities of having a political connection by year for businesspeople having connection previous year

*Note.* Estimates based on regression model in Table S5 in the Supplementary Material

This result is important for our theoretical argument. One alternative explanation for businesspeople’s gradual loss of political connections in 2003–2010 is conscious efforts by the

government to limit their political participation. However, such efforts should have been directed first and foremost against the richest and the most influential businesspeople—the so-called oligarchs. The absence of a significant difference between more and less affluent businesspeople suggests that it could not have been the primary reason why they have been gradually leaving politics. We believe that the reason this happened has been the decline in profitability of political connectedness over time conditioned by weakening of Russia's political institutions. The businesspeople's strategies only reflect this process: as political institutions get less efficient in allowing them to achieve their interests, they retreat from politics.

### **Discussion and Conclusion**

In this paper, we have attempted to trace the institutional decay in the context of a consolidating autocracy using Russia in 2003–2010 as the case study. We have focused on a particular aspect of institutions' effectiveness: their ability to protect the interests of the richest businesspeople bypassing public political process. Our empirical strategy has been based on a conjecture that, as insiders, the most affluent members of the business community have knowledge or relatively good prognostic capabilities with respect to institutions' economic value. Therefore, their actions can be seen as an indicator of institutions' quality in cases when it cannot be readily inferred. Specifically, we have hypothesized that a consolidating autocracy leads to weakening of formal institutions and, as a result, to businesspeople abandoning political connections as they would do with any other ineffective investment.

In our empirical analysis, we have reported three essential findings. First, having political connections in 2003–2010 was not associated with increased asset growth among Russia's richest businesspeople, indicating low efficiency of institutions in advancing economic interests. Second, businesspeople were gradually abandoning their political connections over the same

time period—likely, in response to low returns on investments in political institutional connections. Third, political withdrawal was happening with largely similar rates for businesspeople with different wealth levels, thus suggesting that this process was not primarily caused by government’s crackdown on political ambitions of the oligarchs. Altogether, we have confirmed the methodological value of relying on insiders’ actions as an indicator of institutions’ value when such value cannot be taken for granted. We have also demonstrated that consolidating autocracies have negative consequences for capabilities of political institutions—even when they continue to formally exist.

Our research also poses new questions related to businesspeople’s political engagement strategies. When faced with low level of property rights protection through the rule of law and, at the same time, unable to compensate for that by acquiring political standing within the existent formal political opportunity structure (which as we show was the case in Russia in the 2000s), where do the businesspeople go? Part of the answer to that question might lie with the richest businesspeople externalizing justice and enforcement through relocating into a more secure jurisdiction or choosing external courts for arbitration with each other (Sharafutdinova and Dawisha, 2017). To the extent such externalization of justice is not an option for the poorer strata within the business community, they can engage with the formal institutions of property rights protection where possible: for instance, go to the generally less corrupt and more independent commercial courts. Going political should also probably remain a feasible option (Szakonyi, 2018), as long as other businesspeople do the same, although in light of the results of this research one should expect it to grow overall less efficient and therefore less attractive in the longer run.

Importantly, from the perspective of institutional dynamics under fledgling autocracy this

possibility is not an issue since it does not impact our principal findings: as autocracy consolidates in Russia, the quasi-democratic institutions it retains are gradually robbed of their meaning. Social groups that should in principle be interested in mobilizing these institutions prefer to disengage from them, thus signaling their increasing irrelevance and impotence. This suggests a correction to the current discussion on autocratic institutions that seems to place too much of an emphasis on the existence of quasi-democratic institutions in the post-third-wave autocracies and the role they play in these autocracies' political development. It may be an important macro-historical trend that autocracies nowadays are institutionalized to a much higher degree than previously (Brownlee, 2007; Brooker, 2013). On a meso-historical level, however, autocracy is still detrimental to institutionalization.

### References

- Acemoglu, D. *et al.* (2016) 'The value of connections in turbulent times: Evidence from the United States', *Journal of Financial Economics*, 121(2), pp. 368–391. Available at: <https://doi.org/10.1016/j.jfineco.2015.10.001>.
- Acemoglu, D. and Robinson, J.A. (2008) 'Persistence of Power, Elites, and Institutions', *The American Economic Review*, 98(1), pp. 267–293.
- Åslund, A. (2014) 'Russia: The Arduous Transition to a Market Economy', in S. Djankov and A. Åslund (eds) *The Great Rebirth: Lessons from the Victory of Capitalism over Communism*. Washington, DC: Peterson Institute for International Economics, pp. 89–112.
- Baron, D.P. (1995) 'Integrated Strategy: Market and Nonmarket Components', *California Management Review*, 37(2), pp. 47–65. Available at: <https://doi.org/10.2307/41165788>.

- Barsukova, S. (2019) 'Informal Practices of Big Business in the Post-Soviet Period: From Oligarchs To "Kings of State Orders"', *Demokratizatsiya: The Journal of Post-Soviet Democratization*, 27(1), pp. 31–49.
- Brambor, T., Clark, W.R. and Golder, M. (2006) 'Understanding Interaction Models: Improving Empirical Analyses', *Political Analysis*, 14(1), pp. 63–82.
- Brooker, P. (2013) *Non-democratic regimes*. London: Palgrave Macmillan.
- Brownlee, J. (2007) *Authoritarianism in an Age of Democratization*. Cambridge: Cambridge University Press.
- Dekalchuk, A.A. (2017) 'Choosing between Bureaucracy and the Reformers: The Russian Pension Reform of 2001 as a Compromise Squared', in V. Gel'man (ed.) *Authoritarian Modernization in Russia: Ideas, Institutions, and Policies*. Abingdon: Routledge, pp. 180–190.
- Earle, J.S. *et al.* (2022) 'The Oligarch Vanishes: Defensive Ownership, Property Rights, and Political Connections', *Quarterly Journal of Political Science*, 17(4), pp. 513–546.  
Available at: <https://doi.org/10.1561/100.00020228>.
- Easter, G.M. (2008) 'The Russian state in the time of Putin', *Post-Soviet Affairs*, 24(3), pp. 199–230.
- Faccio, M. (2006) 'Politically Connected Firms', *The American Economic Review*, 96(1), pp. 369–386.
- Frye, T. (2006) 'Original Sin, Good Works, and Property Rights in Russia', *World Politics*, 58(4), pp. 479–504. Available at: <https://doi.org/10.1353/wp.2007.0007>.

- Gehlbach, S., Sonin, K. and Zhuravskaya, E. (2010) 'Businessman Candidates', *American Journal of Political Science*, 54(3), pp. 718–736. Available at: <https://doi.org/10.1111/j.1540-5907.2010.00456.x>.
- Gel'man, V. (2008) 'Party politics in Russia: from competition to hierarchy', *Europe-Asia Studies*, 60(6), pp. 913–930.
- Gel'man, V. (2010) 'The Logic of Crony Capitalism: Big Oil, Big Politics, and Big Business in Russia', in O. Marganiya and V. Gel'man (eds) *Resource Curse and Post-Soviet Eurasia: Oil, Gas, and Modernization*. Lanham, MD: Lexington Books.
- Gel'man, V. (2015) *Authoritarian Russia: Analyzing Post-Soviet Regime Changes*. Pittsburgh, PA: University of Pittsburgh Press.
- Goloso, G. V. (2005) 'Sfabrikovannoe bol'shinstvo: konversiya golosov v mesta na dumskikh vyborakh 2003 goda [Fabricated majority: Conversion of votes into seats in the 2003 Duma elections],' *POLIS: Politicheskie Issledovaniya*, 15(1), pp. 108–119.
- Goloso, G.V. (2011) 'The Regional Roots of Electoral Authoritarianism in Russia', *Europe-Asia Studies*, 63(4), pp. 623–639.
- Goloso, G.V. (2013) 'Authoritarian party systems: Patterns of emergence, sustainability and survival', *Comparative Sociology*, 12(5), pp. 617–644.
- Grigoriev, I.S. (2017) 'Labour Reform in Putin's Russia: Could Modernization Be Democratic?', in *Authoritarian Modernization in Russia: Ideas, Institutions, and Policies*. Ashgate Publishing Group Ltd., pp. 183–199.
- Grigoriev, I.S. and Dekalchuk, A.A. (2017) 'Collective learning and regime dynamics under uncertainty: labour reform and the way to autocracy in Russia', *Democratization*, 24(3), pp. 481–497. Available at: <https://doi.org/10.1080/13510347.2016.1223629>.

- Grigoriev, I.S. and Zhirkov, K. (2020) 'Do political connections make businesspeople richer? Evidence from Russia, 2003–2010', *Research & Politics*, 7(4), pp. 1–6. Available at: <https://doi.org/10.1177/2053168020979434>.
- Hanson, P. (2009) 'The resistible rise of state control in the Russian oil industry', *Eurasian Geography and Economics*, 50(1), pp. 14–27.
- Hellman, J. (1998) 'Winners take all: The politics of partial reform in postcommunist transitions', *World Politics*, 50(2), pp. 203–234.
- Hoffman, D.E. (2011) *The oligarchs: Wealth and power in the new Russia*. New York: PublicAffairs.
- Ivanova, A., Keen, M. and Klemm, A. (2005) 'The Russian "flat tax" reform', *Economic Policy*, 20(43), pp. 397–444. Available at: <https://doi.org/10.1111/j.1468-0327.2005.00143.x>.
- Jones Luong, P. and Weinthal, E. (2004) 'Contra Coercion: Russian Tax Reform, Exogenous Shocks, and Negotiated Institutional Change', *American Political Science Review*, 98(1), pp. 139–152. Available at: <https://doi.org/10.1017/S0003055404001054>.
- Kang, D.C. (2002) *Crony Capitalism: Corruption and Development in South Korea and the Philippines*. New York: Cambridge University Press.
- Kaufmann, D., Kraay, A. and Mastruzzi, M. (2011) 'The Worldwide Governance Indicators: Methodology and Analytical Issues', *Hague Journal on the Rule of Law*, 3(02), pp. 220–246. Available at: <https://doi.org/10.1017/S1876404511200046>.
- Khwaja, A. and Mian, A. (2005) 'Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market', *The Quarterly Journal of Economics*, 120(4), pp. 1371–1411.

- Kunicova, J. and Remington, T.F. (2008) 'Mandates, Parties and Dissent Effect of Electoral Rules on Parliamentary Party Cohesion in the Russian State Duma, 1994—2003', *Party Politics*, 14(5), pp. 555–574. Available at: <https://doi.org/10.1177/1354068808093390>.
- Lamberova, N. and Sonin, K. (2018) 'Economic transition and the rise of alternative institutions', *Economics of Transition and Institutional Change*, 26(4), pp. 615–648. Available at: <https://doi.org/10.1111/ecot.12167>.
- Li, H. *et al.* (2008) 'Political connections, financing and firm performance: Evidence from Chinese private firms', *Journal of Development Economics*, 87(2), pp. 283–299. Available at: <https://doi.org/10.1016/j.jdeveco.2007.03.001>.
- Li, H., Meng, L. and Zhang, J. (2006) 'Why Do Entrepreneurs Enter Politics? Evidence from China', *Economic Inquiry*, 44(3), pp. 559–578. Available at: <https://doi.org/10.1093/ei/cbj031>.
- Markus, S. (2015) *Property, Predation, and Protection: Piranha Capitalism in Russia and Ukraine*. New York: Cambridge University Press.
- Markus, S. and Charnysh, V. (2017) 'The Flexible Few: Oligarchs and Wealth Defense in Developing Democracies', *Comparative Political Studies*, 50(12), pp. 1632–1665. Available at: <https://doi.org/10.1177/0010414016688000>.
- Matveev, I. (2019) 'Big Business in Putin's Russia: Structural and Instrumental Power', *Demokratizatsiya: The Journal of Post-Soviet Democratization*, 27(4), pp. 401–422.
- Özcan, G.B. and Gündüz, U. (2015) 'Political connectedness and business performance: evidence from Turkish industry rankings', *Business & Politics*, 17(1), pp. 41–73. Available at: <https://doi.org/10.1515/bap-2013-0037>.

Page, B.I., Seawright, J. and Lacombe, M.J. (2019) *Billionaires and Stealth Politics*. Chicago and London: University of Chicago Press.

Remington, T.F. (2008) 'Patronage and the Party of Power: President–Parliament Relations Under Vladimir Putin', *Europe-Asia Studies*, 60(6), pp. 959–987. Available at: <https://doi.org/10.1080/09668130802161215>.

Ross, C. (2005) 'Federalism and Electoral Authoritarianism under Putin', *Demokratizatsiya*, 13(3), pp. 347–371.

Schedler, A. (2006) 'The Logic of Electoral Authoritarianism', in A. Schedler (ed.) *Electoral Authoritarianism: The Dynamics of Unfree Competition*. Boulder: Lynne Rienner Publishers, pp. 2–35.

Sharafutdinova, G. (2021) 'Domestic and Global Dimensions of Post-Communist Institution-Building', *Comparative Politics*, 53(2), pp. 357–373.

Sharafutdinova, G. and Dawisha, K. (2017) 'The Escape from Institution-Building in a Globalized World: Lessons from Russia', *Perspectives on Politics*, 15(2), pp. 361–378. Available at: <https://doi.org/10.1017/S1537592717000068>.

Sonin, K. (2003) 'Why the rich may favor poor protection of property rights', *Journal of Comparative Economics*, 31(4), pp. 715–731. Available at: <https://doi.org/10.1016/j.jce.2003.09.005>.

Su, Z. and Fung, H.-G. (2013) 'Political Connections and Firm Performance in Chinese Companies', *Pacific Economic Review*, 18(3), pp. 283–317. Available at: <https://doi.org/10.1111/1468-0106.12025>.

Szakonyi, D. (2018) 'Businesspeople in Elected Office: Identifying Private Benefits from Firm-Level Returns', *American Political Science Review*, 112(2), pp. 322–338. Available at: <https://doi.org/10.1017/S0003055417000600>.

Szakonyi, D. (2020) *Politics for Profit: Business, Elections, and Policymaking in Russia*. Cambridge University Press.

Taylor, B.D. (2011) *State Building in Putin's Russia: Policing and Coercion After Communism*. New York: Cambridge University Press.

Tompson, W. (2005) 'Putting Yukos in perspective', *Post-Soviet Affairs*, 21(2), pp. 159–181.

Tompson, W. (2010) 'Back to the Future? Thoughts on the Political Economy of Expanding State Ownership in Russia', in J. Newton and W. Tompson (eds) *Institutions, Ideas and Leadership in Russian Politics*. London: Palgrave Macmillan (St Antony's Series), pp. 67–87. Available at: [https://doi.org/10.1057/9780230282940\\_4](https://doi.org/10.1057/9780230282940_4).

Treisman, D. (2016) 'Russia's Billionaires', *American Economic Review*, 106(5), pp. 236–241. Available at: <https://doi.org/10.1257/aer.p20161068>.

Yakovlev, A. (2006) 'The evolution of business – state interaction in Russia: From state capture to business capture?', *Europe-Asia Studies*, 58(7), pp. 1033–1056. Available at: <https://doi.org/10.1080/09668130600926256>.

## Supplementary Material

**Table S1.** Estimated returns on political connections: Full OLS regression results

	Model 1	Model 2
Assets in 2003		
Connection	4.693*** (0.122)	4.693*** (0.122)
Not connection	5.114*** (0.209)	
Difference		0.421* (0.179)
Asset growth		
Connection	1.612*** (0.063)	1.612*** (0.063)
Not connection	1.472*** (0.225)	
Difference		-0.140 (0.236)
Industry (Finance = ref.)		
Metallurgy	0.662** (0.202)	0.662** (0.202)
Retail	-0.292* (0.134)	-0.292* (0.134)
Construction	-0.440** (0.137)	-0.440** (0.137)
Food	-0.358* (0.143)	-0.358* (0.143)
Petroleum	0.414* (0.198)	0.414* (0.198)
Chemical	0.029 (0.190)	0.029 (0.190)
Communication	-0.502*** (0.151)	-0.502*** (0.151)
Transportation	-0.270 (0.160)	-0.270 (0.160)
Machinery	-0.479** (0.153)	-0.479** (0.153)
Agriculture	-0.471** (0.162)	-0.471** (0.162)
Energy	-0.625 (0.454)	-0.625 (0.454)
Other	-0.747*** (0.173)	-0.747*** (0.173)

**Table S2.** Distribution of observations across years

	Count	Percentage
2003	138	3.94
2004	441	12.60
2005	687	19.62
2006	471	13.45
2007	466	13.31
2008	380	10.85
2009	459	13.11
2010	459	13.11
Total	3,501	100.00

**Table S3.** Full logistic regression results predicting having a political connection

	Model 1 (RE)	Model 2 (RE)	Model 3 (RE)	Model 4 (FE)
Time trend	-2.173*** (0.596)	-1.927** (0.593)	-2.562*** (0.754)	-2.448** (0.912)
Connection previous year	9.189*** (0.930)	8.894*** (0.890)	9.328*** (1.016)	3.795*** (0.649)
Log fortune	1.654 (1.175)	1.375 (1.307)	2.319 (1.247)	3.689* (1.562)
Industry (Finance = ref.)				
Metallurgy	1.152 (0.726)	0.740 (0.733)	1.153 (0.736)	
Retail	0.085 (0.669)	-0.423 (0.682)	0.126 (0.679)	
Construction	0.505 (0.693)	0.033 (0.720)	0.557 (0.709)	
Food	-0.126 (0.630)	-0.031 (0.621)	-0.064 (0.640)	
Petroleum	0.637 (0.833)	0.416 (0.835)	0.650 (0.853)	
Chemical	-0.191 (0.907)	-0.681 (0.917)	-0.143 (0.915)	
Communication	-1.108 (1.294)	-0.921 (1.298)	-1.032 (1.325)	
Transportation	0.426 (1.019)	0.357 (1.047)	0.452 (1.040)	
Machinery	1.899* (0.900)	1.592 (0.919)	2.014* (0.933)	
Agriculture	1.846 (1.154)	1.124 (1.153)	1.989 (1.190)	
Energy	-0.057 (1.133)	0.110 (1.184)	0.121 (1.199)	
Other	1.393 (1.215)	1.129 (1.398)	1.497 (1.227)	
Year fixed effects				
2003			-0.278 (0.533)	
2005			0.344 (0.344)	
2008			0.916 (0.592)	

**Table S4.** Year indicator variables' effects on propensity to have a political connection

	Estimate
Year (2003 = ref.)	
2004	0.008 (0.517)
2005	-0.118 (0.481)
2006	-0.999* (0.475)
2007	-1.297* (0.634)
2008	-0.654 (0.647)
2009	-1.989** (0.687)
2010	-2.137** (0.666)
Connection previous year	9.323*** (1.012)
Log fortune	2.421 (1.313)
Industry fixed effects	included

**Table S5.** Interactive effect of time and assets on having a political connection

	Estimate
Time trend	-1.967*** (0.578)
Log fortune	3.305* (1.671)
Fortune * Time	-3.923 (3.101)
Connection previous year	9.288*** (0.959)
Industry fixed effects	included