STATE CAPTURE AND CONTROLLING OWNERS OF FIRMS[*]

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June 2004

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[*] We thank Christof Ruehl, Sergei Guriev, David Brown, Andrei Rachinsky and other team members that have worked on the World Bank's CEM for Russia in 2004 for sharing their ideas and the data. We also thank Erik Berglof and seminar participants in the WB and CEFIR for helpful comments.
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Abstract:

How does the effect "state capture" depend the identity of the captor? We use a dataset on preferential treatment of selected firms by regional legislature and regulatory agencies in transitional Russia to show that the most effective and the least benign captors are "federal oligarchs" i.e., the firms within groups that have representation in more than two regions. Preferential treatments given to the federal oligarchs bring them higher than average benefits in terms of performance boost. Other firms in the region suffer more from capture by the federal oligarchs than when capture is carried out by other firms. In contrast, firms that are controlled by large regional owners do not have a strong effect of preferential treatments on either their own performance or performance of other regional firms.

JEL classification: P26, P27, D71, D72

I. Introduction

Industrial concentration has an important impact on relationship between governments and firms (see, for instance, Grossman and Helpman, 1994 and 1995; Glaeser, Scheinkman, and Shleifer, 2003; Sonin, 2003 and 2004). In particular, when few private agents have control over a large share of cash flows or employment, it is easier for these agents to lobby, bribe or intimidate government agents in order to influence operation of legal, political and regulatory institutions. Slinko, Yakovlev, and Zhuravskaya (2004) use data on preferential treatments to the largest regional firms in legislation of Russian Federation Subjects to show that 1) regional legislature has been subverted by vested interests in many Russian regions; 2) political influence generates substantial gains to firms-captors; and 3) capture has adverse affect on performance of regional firms that do not exercise political influence. Slinko et al. analyze regional capture without making distinction among firms that have different controlling owners. It is possible, however, that the identity of the controlling owner affects both the propensity to capture government institutions and the effects of this capture. In this paper, we address the question of whether and how regional-level institutional subversion is affected by the identity of the controlling owner. We compare incidences of legislative preferential treatment and effects of preferential treatments for firms with dispersed ownership, firms that are controlled by federal oligarchs (i.e., individuals that have control over large firms in many different regions), regional private investors (private agents that control firms in two or fewer regions), foreign investors, the federal government, and regional governments. There has been some survey evidence (see, for instance, Frye, 2003), that in Russia state-owned firms are engaged in state capture as much as private firms. A possible explanation for this is that state does not have a close

control over state-owned firms; instead managers appropriate both control and cash flows of these firms for their private benefit. In this case, one should not observe a substantial difference between behavior of state-owned firms and firms with private ownership vis-à-vis government institutions since both types of firms are essentially controlled by private parties. There has not been any research, so far, on how state capture is affected by the scope of economic interests of controlling owners: in a large federation, such as Russia, one would expect firms that are under control of agents with federal interests to behave differently from firms that are controlled by agents that have only narrow regional interests. On the one hand, capture by regional interests (unlike capture by federal interests) would not internalize externalities of regulatory policies to neighboring jurisdictions, i.e., lowering tax rates or erecting inter-regional trade barriers in a particular region may serve interests of the largest regional enterprises but impose costs on firms in other regions (Tanzi, 1996; Besley and Coate, 2003; Cai and Treisman, 2003). On the other hand, capture by federal interests (unlike capture by regional interests) may have larger negative effect on performance of other firms in the same region because federal interests have relatively small concern about political incentives of regional governments compared to the regional interests who most probably have lower bargaining power vis-à-vis regional authorities. In this paper, we test these hypotheses.

The paper proceeds as follows. Section II describes the data. Section III presents the identities of controlling owners of firms that get treated preferentially. Section IV addresses the question of how the effect of capture on performance of captors is affected by the type of controlling owner of the firm. Section V sheds light on the question of how the effect of state capture on firms that are not politically connected is affected by the type of captor's owner. Section VI concludes.

II. Data

The analysis presented here is based on the data from intersection of two data sets: 1) the data on preferential treatment of large firms by regional legislation (Slinko, Yakovlev, and Zhuravskaya, 2004) and 2) data on controlling owners of firms from the World Bank data set *"Who owns Russia"* collected for the Russia Country Economic Memorandum (World Bank, 2004).

The sample consists of 301 enterprises in 67 regions of the Russian Federation. Not all firms in the sample have the necessary for the analysis data; therefore, regressions usually have fewer firms. Distributions of firms by region and industry are presented in tables 1 and 2. Dynamics of the average number of preferential treatments per firm is presented in Figure 1.

We use panel data for preferential treatments between 1996 and 2000 and cross-section ownership data for 2003. In the analysis, we run cross-section (between-effects) regressions on averages over these five years. Since the ownership data is for 2003, analysis is possible only under the assumption that ownership has not changed since 1996. This is most probably a wrong assumption and, therefore, results should be interpreted with a lot of caution. Data limitations, however, do not allow us to overcome this problem. Moreover, the sample of 301 firms is very small, which in many cases creates another unsolvable methodological problem: in regressions that look at relationship of capture and performance – we cannot find instruments powerful enough to make any substantiated claims about causality.

III. Who receives preferential treatments?

The first question that we address is how different characteristics of the ultimate controlling owner of a firm affect the firm's likelihood to get preferential treatments in

the regional legislation. We define preferential treatments as the following benefits granted to a particular firm by the regional legislation: tax breaks, investment credits, subsidies, subsidized loans and loans with a regional budget guarantee, official delays in tax payments, subsidized licensing, state property given away for free, or creation of a "Special Open Economic Zone" on the firm's territory.

We define full control by 50% or higher ownership stake.[1] The ultimate controlling owner is defined as the controlling owner that is not fully controlled by any other firm or individual. One question that we are interested in is how the size of the group to which a firm belongs influences frequency of preferential treatments for this firm. The size of the group is defined by the total number of enterprises in the group.[2] Table 3 reports plain averages for firm's number of preferential treatments and their share as a function of the size of the group in which this firm is included. The share (as well as the number) of preferential treatments increases with the size of the group under the control of the ultimate controlling owner of the firm. Regression results presented below confirm this result.

The second question that we address is whether full control over other firms brings better possibilities to obtain political influence. Table 4 presents means of the shares of preferential treatments in firms that are the ultimate controlling owner or a controlling owner (in the middle of the control pyramid) in comparison to preferential treatment shares in other firms. Firms that control other firms have higher shares of preferential treatments. Regression results presented below confirm this result.

[1] There is a caveat: small number of enterprises has ownership stakes divided 50/50, in this case, the controlling party was determined by a random draw. Deleting these enterprises from the sample does not affect the results.

[2] If the size of the group is measured by the total employment of the group, there are no significant results.

The third question that we address in this section is how the presence of controlling owner and the identity of the ultimate controlling owner affect incidences of regional legislative preferential treatments. Each firm in the sample is categorized in to one of the following types according its ultimate controlling owner:

- Controlled by federal private oligarch, if firm's ultimate controlling owner is a non-state firm or individual that has full control over enterprises in more than two regions;
- Controlled by regional private owner, if ultimate controlling owner is a non-state firm or individual that has full control over a group of firms that are located in no more than two regions or has control over just one regional enterprise;
- Controlled by foreign investor, if a foreign investor that has ultimate full control;
- Controlled by the federal government, if ultimate control is in hands of federal ministries, other government agencies, or federally owned-firms such as Gazprom, RAO UES, Rosneft, Transneft, and Transnefteproduct;
- Controlled by regional government, if firm's ultimate controlling owner is the regional government;
- Has dispersed ownership, if there is no party that has full control over the firm.

Table 5 presents means for shares and numbers of preferential treatments by type of firms' ultimate controlling owner. The average size of firm's employment and firm's group are provided in the table because they have an independent direct effect on likelihood of getting preferential treatments. Thus, looking at plain group averages of preferential treatments is misleading. Results come from regression analysis presented below.

A number of federal private oligarchs demonstrated a priory high political influence in the middle of 1990s when they managed to get access to privatization

through loans-for-shares deals with the federal government. We can check whether these oligarchs retained their political influence later on. Table 7 presents means for the share of preferential treatments received by firms that are a part of the group that engaged in loans-for-shares deals. Indeed, these firms have significantly higher share of preferential treatments than other firms or than the other federal oligarchs. Regression analysis presented below confirms this result.

In order to investigate formally what kinds of firms receive preferential treatments, we run between-effects OLS regressions with the following basic specification:

$$\overline{PTs_f} = \alpha_1 Dummy\_Contr_f + \alpha_2 Log(employment)_{ft_0} + \alpha_3 Log(\#\_firms\_in\_group)_f + \varepsilon_f . \quad (1)$$

The average share of firm's preferential treatments received by a particular firm between 1996 and 2000 (taken among their five largest recipients), $\overline{PTs}$, is regressed on dummies that indicate type of the controlling owner of the firm, $Dummy\_Contr$, controlling for the initial employment level, $Log(employment)$, and the size of the group to which the firm belongs, $Log(\#\_firms\_in\_group)$. We take the share of preferential treatments rather than their number because we are measuring institutional subversion that presumes unequal treatment of similar firms by legislation.[3] Henceforth, subscript *f* identifies firms; subscript t_0 denotes the initial year (i.e., 1994); upper bars denote averages over 1996 and 2000. Thus, α_1 reflects the average difference in the shares of preferential treatments received by the firms with a certain controlling owner and other firms in the sample and α_3 indicates the effect of the size of the group. Regression results are provided in table 7.

[3] An extensive discussion of this point is given in Slinko et al., 2003. Shares of preferential treatments are taken among their five largest recipients to make the denominator comparable across regions.

We find that, ceteris paribus, 1) the size of the group that is under the full control by the ultimate controlling owner of a particular firm has positive significant effect on the likelihood that this firm gets preferential treatments; 2) if a firm is the ultimate controlling owner of a group or just has control over another firm, it is significantly more likely to get treated preferentially than other firms; 3) firms ultimately controlled by a regional private owner and foreign direct investor are significantly more likely to get preferential treatments compared to all other firms; 4) firms controlled by a federal private oligarch are less likely to receive regional preferential treatments compared to all other firms; 5) if a firm is a part of group that participated in loans-for-shares deals, it is more likely to get treated preferentially; 6) if a firm has dispersed owners and no-one has controlling stake, it is significantly less likely to receive preferential treatments than all other firms except federal oligarchs. The economic significance of these is as follows: the ultimate controlling owner of a group and firms controlled by foreigners on average receive twice as many preferential treatments as the average firm in the sample; firms with regional private owners are 1.3 times more likely to get treated preferentially than the average firm; firms in groups that engaged in loans-for-shares privatization are 1.2 times more likely to get preferential treatments; whereas firms controlled by federal private oligarchs receive 30% fewer preferential treatments than the average firm in the sample.

IV. Does the relationship between preferential treatments and performance differ by type of controlling owner?

Slinko et al. (2004) show that preferential treatments generate substantial gains to firms both in the long and the short run. Firms that receive preferential treatments exhibit faster growth in sales, market share, profitability, employment, and capital compared to

their counterparts who are not politically connected. In addition, these firms have better bargaining position vis-à-vis their suppliers, employees, and the government – that allows them to maintain higher than average growth of arrears to these parties. Here we investigate whether the effect of capture on captors' performance depends on the ownership type of captor firms.

In order to investigate how the relationship between preferential treatments and performance of captor firms differs by type of controlling owner, we use the following basic OLS between-effects specification:

$$\overline{y_f} = \alpha_1(1 - Dummy\_Contr_f) \bullet \overline{(PTS_f - \sum_f (PTS_f)/n)} + \alpha_2 \overline{PTS_f} + \alpha_3 Dummy\_Contr_f + \alpha_4 y_{ft_0} + \alpha_5 \overline{PTC_f} + \varepsilon_f \quad (2)$$

y stands for the following indicators of firms' performance: net-of-mean-industry log values of sales, employment, fixed assets, labor productivity, profit, arrears to suppliers, wage arrears, arrears to budget. These indicators of performance are regressed on the average share of preferential treatments *(PTS)* and its interaction with dummy indicating firms that are not of a particular controlling owner's type.[4] We control for the initial performance *(y_{t0})*, the direct effect of controlling owner type on performance *(Dummy_Contr)*, and the scale of regional institutional subversion measured by the average preferential treatment concentration (*PTC)*. We use the concentration of preferential treatments across regions as a proxy for *unequal* treatment of similar firms by rules and institutions. As a measure of concentration, we take a sum of squared shares of the numbers of preferential treatments (the Herfindahl-Hirschman Index).[5] Interpretation of coefficients in this case is as follows: α_1 equals to the difference in effects of an

[4] The across-firms average share of preferential treatments is subtracted from the firm's share of preferential treatment to make interpretation of coefficient α_3 easier.

[5] The effect of lobbying on firms-lobbyists may differ in high and low capture environments (Hellman, Jones, and Kaufmann, 2004). A more detailed description of *PTC* variable is given in Slinko et al., 2003.

increase in preferential treatment share on performance for firms with the particular controlling owner (such that $Dummy\_Contr = 1$) and for the other firms in the sample; α_2 is the effect of an increase in preferential treatment share on performance of firms with the particular controlling owner; and α_3 is the direct effect of controlling owner type on performance evaluated at the mean value of PTS. We also report the value of point estimates of α_2 and their standard errors from the adjacent regressions that show the effect of an increase in preferential treatment share on performance of firms that do not have that particular controlling owner type.

The sample used here, unfortunately, is too small and does not allow us to find appropriate instruments for the share of preferential treatments (that can be affected by performance). Thus, we are unable to draw any conclusions about the direction of causality in relationship between performance of firms and preferential treatments by owner type. All references to causal relationships are merely conjectures rather then conclusions. The full set of regression results is presented in Table A1 in Appendix.

The results are as follows: When the controlling owner of a firm is a federal oligarch, the political influence brings tangible benefits in terms of performance and bargaining power vis-à-vis suppliers, employees and government: an increase in preferential treatment share positively significantly increases growth in profitability, sales, fixed capital, and regional market share as well as arrears to workers, suppliers, and the budget. These results are consistent with the average effect of preferential treatments estimated by instrumental variables regressions on the full sample in Slinko et al. 2004. Moreover, the share of preferential treatments has significantly stronger positive effect on net-of-industry-trend growth in profitability and wage arrears (Table 8). The difference in effects of the share of preferential treatments on other performance indicators for firms

not controlled and controlled by oligarchs is also consistently negative but statistically insignificant. The magnitude of the results suggests that a 10% increase in the average share of preferential treatments received by firms that belong to federal oligarchs leads to growth in profitability of 5.4%, in sales of 3.1%, in arrears to suppliers and wage arrears of 2.7%, and in tax arrears of 3.3%. These growth numbers are higher for federal oligarchs than for the average firm in the sample by 4.8, 2.4 (insignificant), 2.8, 2.4, and 3.2 percentage points, respectively. As one would expect, the same results (albeit with smaller significance) are received for firms in groups that engaged in loans-for-shares (see appendix). If we make a very strong assumption that preferential treatment concentration is exogenous in this set up, the result about federal oligarchs is consistent with the story that they make better use of preferential treatments given to them compared to other controlling owners: they gain more in terms of performance boost and in terms of gaining bargaining power. In other words, they are more experienced captors than other firms.

In contrast, when regional-level private owner has ultimate control, we do not find any effect of preferential treatments on performance (the coefficients of preferential treatment shares are essentially zeros and are statistically insignificant). Thus, it either is the case that preferential treatments are given to some in regional enterprises in order to bail them out which would bias our coefficients downwards or it could be the case that regional governments just have better bargaining power in relationships with regional enterprises that are regionally controlled compared to regional enterprises that are controlled by federal oligarchs. As discussed above, we cannot distinguish between the two explanations here. All the differences in effects of preferential treatment share for regional private owners and other firms are insignificant (see appendix). There are also

no significant results for effects of preferential treatments given to firms controlled by the federal government.

When the controlling owner is regional government, the share of preferential treatments has significantly smaller than average effect on the net of industry trend growth in employment of 7.7 percentage points and wage arrears of 8.3 percentage points (Table 9). The difference in effects of the share of preferential treatments on net-of-industry-trend growth in profitability, sales, assets, arrears to suppliers and to the government for firms not controlled by the regional government and firms controlled by the regional government is also negative but statistically insignificant. The fact that firms controlled by regional governments have slower growth of wage arrears is not surprising because wage arrears are politically costly to the regional governments. A more puzzling is the fact that regional enterprises do not use preferential treatment to hire more workers which would also have been consistent with governments' political incentives (Shleifer and Vishny, 1994). One possible explanation for this is reversed causality: preferential treatments are given to regional firms when they experience relative decrease in employment growth.

When the controlling owner is a foreign investor, the share of preferential treatments has significantly smaller than the average effect on the net-of-industry-trend growth in wage arrears (see appendix). Overall, preferential treatments given to foreign firms do not have any significant or consistent effect on their performance. This could mean that preferential treatments given to foreign firms to attract FDI to the region do not really make much difference. The only significant effect is that the net effect of preferential treatments on wage arrears is negative and significant. It could be the case that regional governments bargain with foreign firms to reduce wage arrears in exchange

for preferential treatment (and regional government's bargaining power is relatively strong). Thus, preferential treatments given to foreign firms do not mean much for these firms. There is insufficient number of observations to study how preferential treatments affect firms with dispersed ownership.

Overall, one can note that the effects observed are statistically pretty weak. There could be two purely technical reasons for that: a small sample and absence of appropriate instruments.

V. How is the effect of regional capture on non-captors affected by type of captor's owner?

First, we summarize how capture by different types of controlling owners is distributed across Russia's regions. We define a region in a particular year to be captured by a certain owner type if in this year at least 50% of preferential treatments are given to firms controlled by the owners that are of this type. Further, we define a region to be captured in 1996-2000 by a certain owner type if it was captured by this owner type for at least two of the five years. Three regions were captured by two different types for 2 years during the period: Tatarstan republic, Vologda oblast, Orenburg oblast. Thus, we consider these regions to be captured by both types of owners. Table 11 presents the lists of captured regions by the type of captor.

Second, we analyze differences in effect of regional capture on non-captor firms by type of captor's controlling owner. In order to do this, we use the following basic OLS between effects specification:

$$\overline{y_f} = \alpha_1 \overline{PTC\_Contr_f} + \alpha_2 \overline{Dummy\_Captor_f \bullet (PTC\_Contr_f - \sum_f PTC\_Contr_f / n)} + \alpha_3 Dummy\_Captor_f + \alpha_4 y_{ft_0} + \varepsilon_f \cdot \quad (3)$$

Thus, we regress net-of-mean-industry performance characteristics of firms on the variable that reflects the scale of institutional subversion by a particular type of owner (PTC_Contr) and its interaction with the dummy that indicates firms-captors ($Dummy\_Captor$).[6] PTC_Contr is equal to the regional preferential treatment concentration if firms with the particular type of controlling owner receive at least 50% of preferential treatments or if the region is not subverted by any firms, i.e., there are no preferential treatments in the region or their equal number given out to the five largest recipients of preferential treatments.[7] $Dummy\_Captor$ equals one if a firm is a recipient of preferential treatments. Here we control for the direct effect of preferential treatments on performance and the initial performance. Thus, coefficients should be interpreted in the following way: α_1 is the effect of regional institutional subversion by a particular type of controlling owner on performance of firms that do not receive preferential treatments; α_2 is the difference in the effects of capture by a particular type of owner on captors and non-captors; and α_3 is the effect of receiving preferential treatment evaluated at the mean value institutional subversion. The full set of regression results is presented in Table A2 in Appendix.

The results are as follows:

Institutional subversion by federal oligarchs has strong negative significant effect on all indicators of net-of-industry-trend performance of non-captor firms in the region (see Table 11): it significantly reduces growth in productivity, profitability, sales, employment, and regional market shares of non-captor firms. The economic significance of these results is as follows: a 10% increase in preferential treatment concentration in

[6] The across-firms average preferential treatment concentration is subtracted from the regional preferential treatment concentration for a particular firm to make interpretation of coefficient α_3 easier.
[7] Summary statistics for this variable are given in Table A3 in Appendix.

regions captured by federal oligarchs leads to a decrease in non-captor firms productivity of 3.5%; profitability of 6.7%; sales of 6.8%, and employment of 3.8%, and a 0.8 percentage points decrease in their regional market share. The results are very similar for members of groups that were engaged in loans-for-shares privatization (see Table 12). A 10% increase in preferential treatment concentration in regions captured by loans-for-shares groups leads to a 3.2% decrease in productivity, 8.8% decrease in profitability, 8.3% decrease in sales, and 0.4 percentage points decrease in regional market share of non-captor firms. Just as with capture by federal oligarchs, when preferential treatments are given to foreign firms, preferential treatment concentration has consistently negative but significant only for profitability effect on firms that do not receive preferential treatment.[8]

In contrast to capture by federal oligarchs, institutional subversion by regional private owners does not have a significant or systematic negative effect on other regional firms (all coefficients are insignificant and five out of seven are positive). If preferential treatments are given to firms that are controlled by regional governments, preferential treatment concentration also does not have a statistically significant effect on regional governments, but all coefficients are consistently positive. Effect of capture by firms controlled by the federal government is insignificant and there is no consistent pattern in the coefficients.

Even though, there are only few statistically significant results, the overall picture is quite striking. The strong negative effect of capture when captors are the federal oligarchs, groups engaged in loans for shares, or foreign investors makes perfect sense

[8] Note that federal private oligarchs have the largest number of observations. It is possible, that we just have insufficient number of observations to get significance for preferential treatment concentration of preferential treatments received by foreign investors.

because they do not internalize externalities from capture on other firms in the region (unlike the regional government). Private regional controlling owners turn out to be more benign than federal oligarchs or foreign investors: capture by regional private owners does not have a negative significant effect on other regional firms. This is consistent with the story that regional private firms have smaller bargaining power vis-à-vis regional authorities that internalize this externality of regulatory policies. (Preferential treatments given to state regional firms have, if any, positive effect on other regional firms.) Thus, the key differences between the effects of capture by the type of captor's controlling owner are not in the distinction between state vs. private ownership and control, but in the distinction between federal vs. regional interests. Our results once again confirm the importance of the structure of federalism relations to functioning of Russian economy. Due to insufficient number of observation we are unable to draw inference about the effect of capture by firms that have dispersed ownership.

VI. Conclusions

This paper investigated how regional capture is affected by the identity of the controlling owner. The main point that comes out of our analysis is that the most effective and the least benign captors are the firms that are members of groups that have representation in more than two regions and firms belonging to groups that engaged in loans-for-shares privatization. Although, federal oligarchs receive preferential treatments less often than other firms (the opposite is true for loans-for-shares groups), preferential treatments given to these firms bring them higher than average benefits in terms of performance boost and acquisition of bargaining power vis-à-vis employees, suppliers, and government. When federal oligarchs receive disproportionate number of regional

preferential treatments, other firms in the region suffer more from capture than when capture is carried out by other firms. Firms that controlled by private agents with economic interests that do not span on more than two regions (although are more likely to get treated preferentially by the regional legislature) do not have such a strong effect of preferential treatments on either their own performance or performance of other regional firms.

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Table 1. Regional distribution of firms in the sample

Region name	Number of firms	Region name	Number of firms
Sverdlovsk oblast	9	Bashkortostan rep.	5
Moscow city	9	Karelia republic	5
Khabarovsk krai	8	Tatarstan republic	5
Kaliningrad oblast	8	Udmurtia Republic	5
Orenburg oblast	8	Stavropol krai	5
Perm oblast	8	Kamchatka oblast	5
Rostov oblast	8	Sakhalin oblast	5
Samara oblast	8	Ulyanovsk oblast	5
Tyumen oblast	8	Chelyabinsk oblast	5
Yaroslavl oblast	8	Sakha republic	4
Irkutsk oblast	7	Krasnodar krai	4
St. Petersburg city	7	Krasnoyarsk krai	4
Primorskii krai	6	Amur oblast	4
Arkhangelsk oblast	6	Vologda oblast	4
Belgorod oblast	6	Kirov oblast	4
Bryansk oblast	6	Kursk oblast	4
Volgograd oblast	6	Lipetsk oblast	4
Kemerovo oblast	6	Novgorod oblast	4
Moskow oblast	6	Penza oblast	4
Murmansk oblast	6	Tver oblast	4
N. Novgorod oblast	6		
Omsk oblast	6		
Tomsk oblast	6	The other 23 regions	44
Tula oblast	6		

Table 2. Distribution of firms in the sample by industry

Industry	# of firms	Industry	# of firms
Energy	44	Tobacco	7
Oil	42	Gas	6
Ferrous met.	19	Pipes	5
Auto	18	Beer	4
Coal	14	Meat	4
Fish	14	Milk	4
Pulp	13	Mill	4
P. Chemicals	12	Jewelry	3
Aluminum	11	Non-alcohol dr.	3
Machinery	11	Cable	3
Confectionary	10	Timber	3
Nonferrous met.	10	Trade energy	2
Pharmaceuticals	8	Vodka	2
Tire	8	Furniture	2
Ore	7	Polygraph	1
Rubber	7		

Table 3. Preferential treatments and the size of groups

Number of firms in a group	Number of firms	Average number of preferential treatments	Average share of preferential treatments
1-5 firms	104	0.18*	0.12
6-24 firms	91	0.27	0.13
25 firms and more	96	0.26	0.15*
Whole sample	301	0.24	0.14

*Note: The table reports unconditional means. * denotes significant difference from other two groups*

Table 4. Preferential treatments given to firms that do and do not have control over other firms

	Number of firms	Average share of preferential treatments	Standard errors
Ultimate controlling owner of a group	6	0.16	0.04
Other firms	285	0.13	0.01
Controlling owner of a firm	44	0.17**	0.01
Other firms	248	0.13	0.01

*Note: The table reports unconditional means. ** denotes significant difference from other firms at 5% level*

Table 5. Preferential treatments by the type of controlling owner

Owner type	Number of firms	Average number of preferential treatments	Average share of preferential treatments	Average employment of a firm	Average number of firms in group*
Regional government	9	0.38	0.16	14278	30
Foreign investor	22	0.34	0.16	2372	12
Federal government	63	0.32	0.15	6154	44
Federal private oligarch	129	0.19	0.12	7620	20
Regional private owner	67	0.22	0.13	5177	3
Dispersed ownership	11	0.08	0.12	4198	0

Note: The table reports unconditional means.

** The average number of firms in groups is calculated from the full sample of firms that have ownership data. The rest of the statistics are given for the sub-sample of firms used in analysis (i.e., that have both ownership and preferential treatments data).*

Table 6. Preferential treatments and "loans-for-shares" oligarchs

	Number of firms	Average share of preferential treatments	Standard errors
Firms in groups that engaged in loans for shares	65	0.17**	0.01
Other	236	0.13	0.01

*Note: The table reports unconditional means. ** denotes significant difference at 5% level*

Table 7. Who gets treated preferentially? (OLS, Between effects)

	Share of preferential treatments				
Ultimate controlling owner of a group	0.12				
	[0.06]**				
Controlling owner of a firm		0.04			
		[0.02]*			
Dummy – Regional private owner			0.04		
			[0.03]*		
Dummy – Foreign owner			0.08		
			[0.03]**		
Dummy – Dispersed ownership			0.07		
			[0.05]		
Dummy – Federal private oligarch				-0.03	
				[0.02]**	
Dummy – Loans for shares					0.03
					[0.02]*
Log (number of firms in group)		0.01	0.02	0.01	0.01
		[0.01]*	[0.01]**	[0.01]*	[0.01]
Log (initial employment)	0.02	0.01	0.01	0.01	0.01
	[0.01]***	[0.01]**	[0.01]***	[0.01]***	[0.01]**
Constant	-0.05	0.01	-0.07	0	0.03
	[0.05]	[0.04]	[0.05]	[0.04]	[0.04]
Observations	1308	1374	1374	1374	1374
Number of firms	289	290	290	290	290
R-squared	0.05	0.05	0.06	0.05	0.04

*Note: Robust standard errors are in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 8. Effect of the share of preferential treatments on firms controlled by federal oligarchs (OLS, Between effects)

	Profitabi-lity	Sales	Employ-ment	Wage arrears	Arrears to suppliers	Arrears to budget
D_NON_fed. oligarch *PTS	-3.44	-2.4	-0.64	-2.02	-1.7	-2.3
(effect of NON-fed. oligarch – effect of fed. oligarch)	[1.85]*	[1.50]	[0.99]	[1.03]*	[0.87]*	[1.14]**
PTS	3.86	2.23	0.66	1.91	1.89	2.37
(effect of fed. oligarch)	[1.50]**	[1.22]*	[0.83]	[0.82]**	[0.70]***	[0.90]***
D_fed. oligarch	-0.09	-0.48	-0.32	0.08	0.18	-0.01
	[0.21]	[0.17]***	[0.12]***	[0.12]	[0.10]*	[0.14]
Initial level of depend variable	0.35	0.09	0.47	0.73	0.62	0.58
	[0.05]***	[0.05]*	[0.04]***	[0.03]***	[0.03]***	[0.03]***
Preferential Treatments Concentration	0.11	-0.29	0.57	0.01	0.06	0.11
	[0.69]	[0.58]	[0.39]	[0.35]	[0.29]	[0.38]
Constant	4.04	0.43	-2.71	1.1	0.42	1.18
	[0.73]***	[0.75]	[0.36]***	[0.30]***	[0.39]	[0.34]***
Observations	1260	1284	1298	914	915	911
Number of firms	284	284	288	276	276	276
R-squared	0.16	0.05	0.34	0.72	0.63	0.65
PTS from the adjacent regression	0.43	-0.17	0.02	-0.11	0.2	0.07
(= effect of NON_fed. Olig.)	[1.08]	[0.88]	[0.54]	[0.63]	[0.54]	[0.70]

*Note: Robust standard errors are in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 9. Effect of preferential treatment share on firms controlled by regional government (OLS, Between effects)

	Profitability	Sales	Fixed Assets	Employment	Wage arrears	Arrears to suppliers	Arrears to budget
D_NON_reg.govern. *PTS	5.36	5.38	2.66	5.51	5.9	3.01	4.99
(effect of NON-reg. government – effect of reg. government)	[4.74]	[4.06]	[3.26]	[2.73]**	[2.78]**	[2.39]	[3.09]
PTS	-3.55	-4.43	-1.71	-5.03	-5.08	-2.11	-3.9
(effect of reg. government)	[4.66]	[3.99]	[3.21]	[2.69]*	[2.74]*	[2.35]	[3.04]
	0	0.22	0.21	-0.01	0.07	0.15	-0.06
D_reg. government	[0.60]	[0.53]	[0.40]	[0.34]	[0.35]	[0.30]	[0.39]
	0.36	0.06	0.57	0.44	0.73	0.62	0.57
Initial level of depend variable	[0.05]***	[0.05]	[0.03]***	[0.04]***	[0.03]***	[0.03]***	[0.03]***
	-0.11	-0.54	0.02	0.43	-0.14	-0.04	-0.02
Preferential Treatments Concentration	[0.69]	[0.59]	[0.47]	[0.39]	[0.35]	[0.29]	[0.38]
Constant	5.03	1.56	0.39	-1.83	2.11	1.09	2.13
	[0.97]***	[0.94]*	[0.66]	[0.52]***	[0.48]***	[0.52]**	[0.53]***
Observations	1260	1284	1266	1298	914	915	911
Number of firms	284	284	284	288	276	276	276
R-squared	0.16	0.02	0.53	0.33	0.72	0.62	0.65
PTS from the adjacent regression	1.81	0.96	0.95	0.48	0.82	0.91	1.09
(= effect of NON_reg. government)	[0.90]**	[0.74]	[0.54]*	[0.46]	[0.51]	[0.44]**	[0.56]*

*Note: Robust standard errors are in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 10. Captured regions (1996-2000)

Federal government:	Sakha republic; Belgorod oblast; Vologda oblast (1998, 1999); Kurgan oblast; Nizhny Novgorod oblast; Omsk oblast
Regional government:	Bashkortostan republic; Tatarstan republic (1997, 1999, 2000); Moscow city
Regional private owner:	Mordovia republic; Tatarstan republic (1996, 1998, 2000); Kaliningrad oblast; Moskow oblast; Perm oblast; Rostov oblast; Tula oblast; Tyumen oblast; Chelyabinsk oblast
Federal private oligarch:	Karelia republic; Krasnoyarsk krai; Primorskii krai; Vologda oblast (1996, 1998, 2000); Lipetsk oblast; Orenburg oblast (1998, 1999); Sverdlovsk oblast
Foreign investor:	Udmurtia Republic; Orenburg oblast (1996, 1997, 1999); Sarartov oblast

Table 11. Effect of federal oligarchs' capture on non-captor firms (OLS, Between effects)

	Produc-tivity	Profitabi-lity	Sales	Fixed Assets	Employ-ment	Regional Market Share
PTC_F.O.	-1.6	-3.06	-3.1	-0.33	-1.72	-0.38
(effect of capture by fed. oligarch on non-captors)	[0.80]**	[1.61]*	[1.46]**	[0.91]	[0.68]**	[0.15]**
D_PTS *PTC_F.O.	0.88	5.23	4.17	1.72	1.16	0.53
(difference in effects on captors and non-captors)	[1.25]	[2.52]**	[2.26]*	[1.41]	[1.07]	[0.24]**
D_PTS	0.07	-1.94	-1.25	0.1	0.12	-0.1
	[0.44]	[0.89]**	[0.80]	[0.50]	[0.38]	[0.08]
	0.08	0.5	0.38	0.52	0.49	0.75
Initial level of depend variable	[0.06]	[0.08]***	[0.08]***	[0.04]***	[0.04]***	[0.04]***
Constant	0.02	3.43	6.77	0.9	-2.25	0.23
	[0.39]	[1.02]***	[1.14]***	[0.56]	[0.37]***	[0.04]***
Observations	472	458	459	464	473	501
Number of firms	211	201	202	206	212	218
R-squared	0.03	0.2	0.12	0.48	0.39	0.61

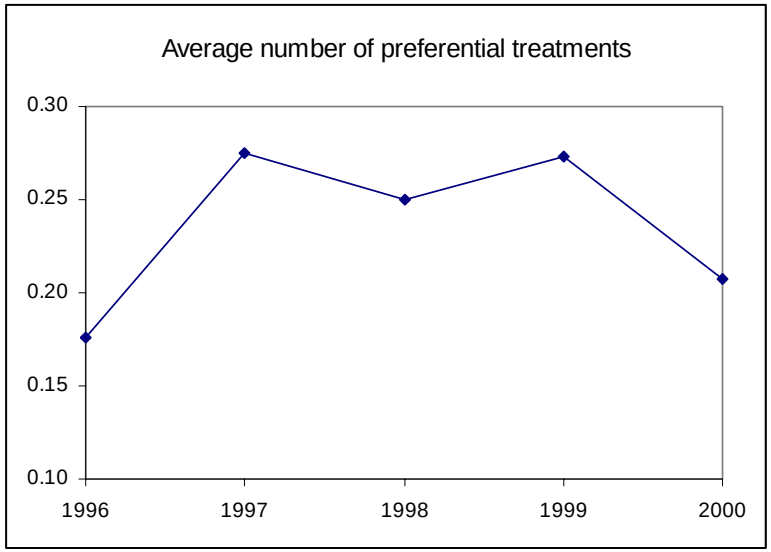
*Note: Robust standard errors are in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.*

Table 12. Effect of firms in loans-for-shares groups capture on non-captor firms (OLS, Between effects)

	Produc-tivity	Profitabi-lity	Sales	Fixed Assets	Employm ent	Regional Market Share
PTC_L. for S.	-1.45	-3.95	-3.78	-1.03	-0.74	-0.2
(effect of capture by loans for share on non-captors)	[0.65]**	[1.29]***	[1.13]***	[0.71]	[0.53]	[0.12]*
D_PTS *PTC_L. for S.	0.89	4.91	4.54	1.52	0.44	0.41
(difference in effects on captors and non-captors)	[1.04]	[2.07]**	[1.81]**	[1.16]	[0.88]	[0.20]**
D_PTS	-0.14	-1.57	-1.34	0.04	0.24	-0.1
	[0.41]	[0.82]*	[0.72]*	[0.46]	[0.35]	[0.08]
	0.15	0.53	0.43	0.56	0.49	0.74
Initial level of depend variable	[0.06]**	[0.08]***	[0.08]***	[0.04]***	[0.04]***	[0.04]***
Constant	-0.42	3.11	6.18	0.52	-2.57	0.19
	[0.36]	[0.96]***	[1.09]***	[0.54]	[0.36]***	[0.04]***
Observations	464	450	451	456	465	491
Number of firms	217	207	208	212	218	224
R-squared	0.04	0.21	0.15	0.5	0.4	0.58

*Note: Robust standard errors are in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.*

Figure 1. Average number of preferential treatments per firm in the sample



Appendix

Table A2. The table presents coefficients α1 and α2 (along with robust SEs) from the full set of regressions (2)

Regression for:	Producti-vity	Profitabi-lity	Sales	Fixed Assets	Employ-ment	Wage arrears	Arrears to suppliers	Arrears to budget	Regional Market Share	National Market share
Federal Private Oligarchs										
D_NON_fed. oligarch *PTS	-0.3	-3.44	-2.4	-1.69	-0.64	-2.02	-1.7	-2.3	-0.25	-0.01
(difference of effects)	[1.08]	[1.85]*	[1.50]	[1.20]	[0.99]	[1.03]*	[0.87]*	[1.14]**	[0.21]	[0.02]
PTS	-0.08	3.86	2.23	2.14	0.66	1.91	1.89	2.37	0.3	0
(effect of fed. oligarch)	[0.87]	[1.50]**	[1.22]*	[1.02]**	[0.83]	[0.82]**	[0.70]***	[0.90]**	[0.17]*	[0.02]
PTS from the adjacent regression	-0.38	0.43	-0.17	0.45	0.02	-0.11	0.2	0.07	0.05	-0.01
(= effect of NON_fed. oligarch)	[0.64]	[1.08]	[0.88]	[0.63]	[0.54]	[0.63]	[0.54]	[0.70]	[0.12]	[0.01]
Regional Private Owners										
D_NON_reg. oligarch *PTS	-0.63	1.27	2.2	0.28	0.37	1.35	0.84	1.73	0.27	0.01
(difference of effects)	[1.24]	[2.16]	[1.74]	[1.14]	[0.95]	[1.37]	[1.18]	[1.52]	[0.24]	[0.02]
PTS	0.35	0.72	-0.89	0.69	0.07	-0.58	0.09	-0.5	-0.08	-0.01
(effect of reg. oligarch)	[1.09]	[1.93]	[1.53]	[0.92]	[0.77]	[1.27]	[1.09]	[1.40]	[0.22]	[0.02]
PTS from the adjacent regression	-0.28	2	1.31	0.97	0.44	0.78	0.93	1.23	0.19	0
(= effect of NON_reg. oligarch)	[0.58]	[0.97]**	[0.82]	[0.67]	[0.56]	[0.55]	[0.47]**	[0.61]**	[0.11]*	[0.01]
Federal Government										
D_NON_fed.govern.*PTS	0.82	0.06	-0.73	0.96	-0.48	-1.17	0.17	0.23	0.15	0
(difference of effects)	[1.20]	[2.01]	[1.65]	[1.28]	[1.08]	[1.10]	[0.93]	[1.22]	[0.21]	[0.02]
PTS	-0.79	1.68	1.28	0.15	0.66	1.38	0.77	0.73	0.01	0
(effect of fed. government)	[1.03]	[1.72]	[1.41]	[1.13]	[0.96]	[0.92]	[0.78]	[1.02]	[0.18]	[0.02]
PTS from the adjacent regression	0.03	1.73	0.55	1.1	0.18	0.22	0.94	0.95	0.15	0
(= effect of NON_fed. gov.)	[0.61]	[1.02]*	[0.85]	[0.60]*	[0.51]	[0.60]	[0.51]*	[0.67]	[0.11]	[0.01]

Table A1 (Continued.)

Regression for:	Producti-vity	Profitabi-lity	Sales	Fixed Assets	Employ-ment	Wage arrears	Arrears to suppliers	Arrears to budget	Regional Market Share	National Market share
Regional Government										
D_NON_reg.govern. *PTS	-1.33	5.36	5.38	2.66	5.51	5.9	3.01	4.99	0.47	0.01
(difference of effects)	[2.90]	[4.74]	[4.06]	[3.26]	[2.73]**	[2.78]**	[2.39]	[3.09]	[0.43]	[0.04]
PTS	1.09	-3.55	-4.43	-1.71	-5.03	-5.08	-2.11	-3.9	-0.31	-0.01
(effect of reg. gev)	[2.85]	[4.66]	[3.99]	[3.21]	[2.69]*	[2.74]*	[2.35]	[3.04]	[0.42]	[0.04]
PTS from the adjacent regression	-0.24	1.81	0.96	0.95	0.48	0.82	0.91	1.09	0.17	0
(= effect of NON_reg. gov.)	[0.53]	[0.90]**	[0.74]	[0.54]*	[0.46]	[0.51]	[0.44]**	[0.56]*	[0.10]*	[0.01]
Foreign investors										
D_NON_foreign *PTS	0.69	1.97	2.67	1.65	1.78	4.23	0.46	-0.35	-0.05	0
(difference of effects)	[1.63]	[2.60]	[2.27]	[1.69]	[1.50]	[1.62]***	[1.39]	[1.81]	[0.31]	[0.03]
PTS	-0.9	-0.03	-1.69	-0.68	-1.44	-3.11	0.32	1.3	0.19	0
(effect of foreign. Investor)	[1.52]	[2.41]	[2.13]	[1.60]	[1.43]	[1.52]**	[1.31]	[1.70]	[0.29]	[0.03]
PTS from the adjacent regression	-0.21	1.94	0.98	0.97	0.34	1.12	0.78	0.96	0.13	0
(= effect of NON_foreig. inv)	[0.55]	[0.96]**	[0.77]	[0.57]*	[0.47]	[0.53]**	[0.46]*	[0.59]	[0.10]	[0.01]
Loans for shares										
D_NON_L_for_S*PTS	0.82	0.06	-0.73	0.96	-0.48	-1.17	0.17	0.23	0.15	0
(difference of effects)	[1.20]	[2.01]	[1.65]	[1.28]	[1.08]	[1.10]	[0.93]	[1.22]	[0.21]	[0.02]
PTS	-0.79	1.68	1.28	0.15	0.66	1.38	0.77	0.73	0.01	0
(effect of L for S)	[1.03]	[1.72]	[1.41]	[1.13]	[0.96]	[0.92]	[0.78]	[1.02]	[0.18]	[0.02]
PTS from the adjacent regression	0.03	1.73	0.55	1.1	0.18	0.22	0.94	0.95	0.15	0
(= effect of NON_L for S)	[0.61]	[1.02]*	[0.85]	[0.60]*	[0.51]	[0.60]	[0.51]*	[0.67]	[0.11]	[0.01]

Table A2. The table presents coefficients α1 and α2 (along with robust SEs) from the full set of regressions (3)

Regression for:	Productivity	Profitability	Sales	Fixed Assets	Employment	Regional market share	National market share
Federal Private Oligarchs							
PTC_Federal_Oligarch (effect of capture by fed. oligarch on non-captors)	-1.6 [0.80]**	-3.06 [1.61]*	-3.1 [1.46]**	-0.33 [0.91]	-1.72 [0.68]**	-0.38 [0.15]**	-0.01 [0.01]
D_PTS * Federal_Oligarch (difference in effects on captors and non-captors)	0.88 [1.25]	5.23 [2.52]**	4.17 [2.26]*	1.72 [1.41]	1.16 [1.07]	0.53 [0.24]**	0.05 [0.02]**
Regional Private Owners							
PTC_Regional_Oligarch (effect of capture by reg. oligarch on non-captors)	0.77 [0.85]	0.84 [1.82]	0.5 [1.59]	0.04 [1.01]	-0.74 [0.73]	-0.1 [0.16]	0.01 [0.01]
D_PTS * Regional_Oligarch (difference in effects on captors and non-captors)	0.61 [1.69]	1.49 [3.53]	0.4 [3.08]	0.93 [1.55]	0.49 [1.16]	0.13 [0.31]	-0.01 [0.03]
Foreign investors							
PTC_Foreign (effect of capture by foreign investor on non-captors)	-3.99 [2.93]	-10.84 [5.96]*	-8.52 [5.22]	-2.92 [3.22]	-0.12 [2.51]	-0.49 [0.56]	-0.03 [0.05]
D_PTS *PTC_Foreign (difference in effects on captors and non-captors)	4.65 [3.25]	10.86 [6.63]	7.23 [5.81]	3.59 [3.58]	0.56 [2.79]	0.72 [0.64]	0.04 [0.05]

Table A2. (Continued.)

Federal Government	Productivity	Profitability	Sales	Fixed Assets	Employment	Regional market share	National market share
PTC_Fed.Gov. (effect of capture by fed. government on non-captors)	-0.7 [1.21]	-2.79 [2.20]	-2.1 [2.08]	-0.84 [1.17]	0.88 [0.89]	0.26 [0.20]	0.02 [0.02]
D_PTS *PTC_ Fed.Gov. (difference in effects on captors and non-captors)	-0.32 [1.57]	4.01 [2.85]	2.35 [2.69]	0.48 [1.51]	-0.42 [1.15]	0.08 [0.26]	-0.02 [0.02]
Regional government							
PTC_Reg.Gov. (effect of capture by reg. government on non-captors)	1.71 [1.57]	0.23 [3.22]	1.23 [2.93]	1.92 [1.75]	0.18 [1.38]	0.14 [0.28]	0.1 [0.02]***
D_PTS *PTC_ Reg.Gov. (difference in effects on captors and non-captors)	-1.62 [2.49]	0.14 [5.08]	-1.59 [5.63]	-2.06 [2.76]	-1.95 [2.19]	-0.36 [0.62]	-0.13 [0.05]**
Loans for shares							
PTC_L. for S. (effect of capture by loans for shares on non-captors)	-1.45 [0.65]**	-3.95 [1.29]***	-3.78 [1.13]***	-1.03 [0.71]	-0.74 [0.53]	-0.2 [0.12]*	-0.01 [0.01]
D_PTS *PTC_L. for S. (difference in effects on captors and non-captors)	0.89 [1.04]	4.91 [2.07]**	4.54 [1.81]**	1.52 [1.16]	0.44 [0.88]	0.41 [0.20]**	0.04 [0.02]**

Table A3. Summary statistics for institutional subversion measure by different controlling owner type

Variable	Observations	Mean	Std. Dev.	Min	Max
PTC_ reg. oligarch	1381	0.23	0.14	0.2	1
PTC_ loans for shares	1398	0.23	0.13	0.2	1
PTC_ fed. government	1346	0.22	0.11	0.2	1
PTC_ reg. government	1318	0.21	0.06	0.2	1
PTC_ fed. oligarch	1449	0.25	0.17	0.2	1
PTC_foreign investor	1316	0.21	0.06	0.2	1