

Institutional Subversion: Evidence from Russian Regions[∇]

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Abstract:

What are the effects of institutional subversion on small business development, fiscal policies, economic growth, and firm performance? This paper provides an empirical investigation of institutional subversion in Russia's regions. We develop a complete account of preferential treatments to the largest regional firms in texts of regional legislation during 1992-2000 and use the concentration of preferential treatments as a proxy for *legislative* subversion. Based on cross-section and panel data analysis, we find that regional institutional subversion has an adverse effect on small business growth, tax collection, social public spending, and federal tax arrears. At the firm-level, substantial gains are generated to firms that exercise political influence on regional authorities both in the long and the short run. These firms exhibit faster growth in sales, market share, employment, and investment in the short run compared to their counterparts who are not politically connected. In the long run, firms that exercise political influence have higher market share growth despite lower labor productivity. We check the robustness of these results by looking at an alternative proxy for *potential* subversion based on size concentration in regional economies. The alternative approach produces similar results.

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“...*oligarchy* [...] throws a close network of dependence relationships over all the economic and political institutions of present-day bourgeois society without exception...”
 Vladimir Lenin
 (“Imperialism: The Highest Stage of Capitalism,” 1916)

1. Introduction

Ever since the emergence of post-Washington consensus, striking differences in economic performance among transition countries and provinces within transition countries have been attributed to differences in institutional environment. A wide range of institutions has been named to be important for transition to go smoothly, including: federalism, political regime, property-rights protection, presence of an outside anchor, social norms, and trust.¹ Institutions, however, are not exogenous. Vested interests often influence the evolution of the very rules of the game in the economy. The literature labels this phenomenon *state capture* or *institutional subversion*.

The first decade of Russia’s transition was notorious for intervention of *oligarchs* in determining the direction and speed of institutional reforms.² The BEEPS 1999 survey confirmed that state capture was deeply rooted in economic and political processes of the country as Russia ranked the fourth in the composite index of state capture among twenty transition countries.³ Russia provides a good case for studying consequences of institutional subversion not only because the problem is there, but also because of high variation in regional institutions that was a result of vast political autonomy of regions in the first half of the 1990s. In addition, all regional laws are in the public domain which allowed us to construct a reliable measure of institutional subversion by counting preferential treatments to particular firms in regional legislations. This paper attempts a close examination of the effect of subversion of regional legislature on regional budgetary and regulatory policies, aggregate growth, growth of small businesses, and performance of captor firms.

The theoretical literature on institutional subversion was originated by Olson (1965), Stigler (1971), Pelzman (1976), and Becker (1983) and developed further by Laffont and Tirole (1991). Seminal work of Grossman and Helpman (1994, 1995) created the contemporary framework for studying the interest groups politics. Persson (1998) studied interest-group-specific government spending. Glaeser, Scheinkman, and Shleifer (2003) analyzed the effects of institutional subversion on

¹ For an excellent survey of the literature, see Roland (2000).

² Russian oligarchs were called so for a reason. According to Encyclopedia Britannica, “*oligarchy* is especially despotic power exercised by a small and privileged group for corrupt or selfish purposes.”

³ BEEPS 1999 and 2002 are Business Environment and Enterprise Performance Surveys, conducted jointly by the World Bank and the European Bank for Reconstruction and Development in transition countries. See <http://info.worldbank.org/governance/beeps/> for survey description, data and research.

law and order, property rights protection, capital accumulation, growth, and inequality. Benedssen (2000) and Sonin (2003a) applied ideas of the literature to the context of transition. Theoretical literature identified the following determinants of state capture: cohesiveness of interest groups, level of voter awareness, electoral competition, electoral uncertainty (Bardhan and Mookherjee, 1999), political centralization (Blanchard and Shleifer, 2000), and initial inequality (Glaeser, Scheinkman, and Shleifer, 2003).

Empirical studies of institutional subversion are scarce. The main reason is the difficulty in finding direct measures of influence since neither firms, nor bureaucrats would like to be caught engaged in high-level corruption. To the best of our knowledge, all empirical research on state capture in transition countries is based on the data from BEEPS 1999 and BEEPS 2002 enterprise surveys that asked firms if they engage in activities that can be characterized as extending political influence or feel that other firms do that (see, Hellman, Jones, Kaufmann, and Schankerman, 2000; Hellman and Schankerman, 2000; Hellman, Jones, and Kaufmann, 2000; Hellman and Kaufmann, 2003). These works show that, first, there is a sizable variation in the levels of capture among transition countries and, second, the speed and success of reforms is partly explained by the interplay of capture and democratization of transition economies. Firm-level analysis of BEEPS data showed that in high-capture countries, captor firms showed superior performance in the short run compared to similar non-captor firms but did not expect to perform better in the long run. Survey evidence produced by BEEPS is insightful but has limitations common to cross-country and survey data studies: few observations, incomparability of many policy variables, possible discrepancy between perceptions and reality.

This paper takes another approach – panel-data analysis of regional variation in one country based on objective data. It turns out that measuring the extent of institutional subversion based on official publicly-available information is challenging but feasible exercise. Russia, as many other countries, has a system that allows legislation to be enacted only after its publication. We study regional legislation in order to discover laws that treat economic agents unequally. It is worth mentioning that in some transition countries (e.g., Uzbekistan) this kind of legislation is a state secret.

We construct a measure of institutional subversion based on direct evidence of vested interests influence in regional legislation. To construct this measure, we, first, count the number of regional legislative acts that contain preferential treatments (tax breaks, investment credits, etc.) to several largest regional firms in each of 73 regions between 1992 and 2000. A typical example of legislation that contains preferential treatment is the following: In 1998, Volgograd regional Duma adopted the law “On Special Economic Zone on the Territory of Volgograd Tractor Plant (VTP)”. The law relieves all firms from paying regional and local taxes for the period of ten years if these firms operate on the

territory of VTP and at least 30% of their assets are in VTP's ownership. Then, we take concentration of the resulting number of preferential treatments among firms as a measure of regional state capture controlling for the total number of preferential treatments. Thus, for two regions with the same number of legislative acts that contain preferential treatments, the region where preferential treatments go to only one (or few) large firms is considered to be more captured compared to the region where preferential treatments are uniformly dispersed across firms. In addition, we take the share of preferential treatments of a particular firm among the five largest recipients of preferential treatments as a proxy for the likelihood that this firm is a captor.

Albeit these measures account for the very essence of capture, i.e., unequal treatment of firms by the legislation, they have serious drawbacks: First, we cannot compare the importance of different preferential treatments, thus, we just count the number of "subverted" legislative acts.⁴ Second, we can discover legislative preferential treatment given to a particular firm only when the text of the law directly refers this firm.⁵ Despite all the imperfections of our concentration of preferential treatments measure of institutional subversion highly correlates with other measures of institutional subversion available for selected years and regions. Preferential treatment concentration has correlation coefficient of about 0.45 (significant at 1% significance level) with the Transparency International and INDEM state capture rating.⁶ Our measure of institutional subversion also negatively correlates the Institute of Free Media regional index of freedom of press (correlation coefficient is -0.41, significant at 1% significance level).⁷ Another piece of evidence that speaks in favor of our measure is that a robustness check that considers size concentration among the biggest regional enterprises as an alternative measure of *potential* institutional subversion produces similar results despite the relatively low correlation between the measures of *potential* and *legislative* subversion. The theoretical motivation for the use of size concentration as a proxy for institutional subversion was given by Grossman and Hellpman (1994), Friebel and Guriev (2002), Glaeser, Scheinkman, and Shleifer (2003), and Sonin (2003b).

⁴ For instance, we cannot compare directly the effects of opening a special economic zone on the territory on a particular firm and giving a large piece of land for free to another firm.

⁵ An example of legislative preferential treatment that we cannot systematically account for can be drawn from Briansk regional legislature. In 1997 regional Duma adopted the law "On regulation of alcohol market" that stated that the alcohol is to be sold only by accredited firms. Any firm could get accreditation from the regional administration if it satisfies a list of criteria (for instance, being present on the market for several years, having storage place of a certain size, etc.) Products sold by firms without accreditation were subject to confiscation. There have been many firms on the market in the region at a time, but only one satisfied the criteria outlined in the law.

⁶ This measure is available for 39 regions in 2001. All Transparency International and INDEM data can be found at http://www.anti-corr.ru/rating_regions/index.htm.

⁷ This index is available for 72 regions in 1999 and 2000. It can be found at www.freepress.ru.

We deliberately talk about institutional subversion rather than state capture because we cannot differentiate between capture of regional legislation by private businesses and capture of private businesses by regional politicians (e.g., when politicians give favors to firms that are under their own control). We regard both of these cases as examples of institutional subversion (since both lead to unequal treatment of firms by regional institutions) but with a different distribution of bargaining power in the bargain between politicians and firms.⁸

We find that, at the regional level, institutional subversion has an adverse effect on small business growth, tax collection, federal tax arrears, and regional public spending on some social services. At the micro-level, it generates substantial performance gains to firms that exercise political influence on regional authorities both in the long and the short run. In the long run, captor firms lack efficiency incentives, but continue extensive growth: profitability and market shares of captor-firms grow faster and labor productivity slower compared to their non-captor counterparts.

The paper proceeds as follows. The next section describes the measures of institutional subversion. Hypotheses are formulated in section 3. Section 4 presents data sources and summary statistics. Section 5 contains empirical methodology. Section 6 presents results. Section 7 concludes.

2. Measuring institutional subversion

Since the measurement of institutional subversion plays the central role in the whole exercise, we start with its description.

Legislative subversion

In order to construct a proxy for institutional subversion at the regional level and identify captor-enterprises in each region, we took the following steps. First, we limited ourselves to the largest firms in the regions: we constructed a list of firms that included five largest non-state regional firms and all state regional firms that are among the five largest (in terms of sales) in at least one year during 1992 – 2000. The resulting list contained 978 firms (up to 20 largest regional firms in each of 73 regions). We considered these firms as potentially able to exercise political influence. Second, we searched the comprehensive data base of Russia's regional laws for any preferential treatment for each of these enterprises in the regional legislation in each year between 1992 and 2000. We deemed an enterprise to be treated preferentially in a particular year if it received any of the following benefits: tax breaks, investment credits, subsidies, subsidized loans and loans with the regional budget guarantee, official delays in tax payments, subsidized licensing, state property give away for free, or creation of

⁸ Numerous stories in the Russian media suggest that both cases are relevant for Russian regions but the case of state capture is more common.

the “Special Open Economic Zone” on the territory of that particular enterprise. We then counted the number of regional laws that grant distinct preferential treatments to each firm each year.⁹ To check the quality of our preferential treatments data, we correlate it with budgetary subsidies reported in firms’ balance sheets and found strong significant correlation despite the fact that direct subsidies were not the most common type of preferential treatments.¹⁰ Third, we constructed a measure of regional capture. We took concentration of preferential treatments for five non-state enterprises in each region each year that received the largest number of preferential treatments.¹¹ Henceforth, we refer to this variable as “preferential treatment concentration.” Thus, at the regional level, holding total number of preferential treatments constant, higher preferential treatment concentration is an indication of higher extent of legislative subversion, since few firms receive disproportionate amount of preferential treatments by the regional legislature. At the firm-level, we take the share of regional preferential treatments that go to a particular firm in the total number of preferential treatment for five largest recipients as a proxy for the size of the firm’s political influence.

Potential capture

Preferential treatments concentration is an indication of mere one aspect of institutional subversion. Institutional environment affected by vested interests is much richer than just the regional legislation. In particular, political influence of vested interests extends over law enforcement (i.e., court decisions) and regulation (i.e., licensing policies). Thus, to check robustness of our results, we take regional size concentration among ten largest non-state regional firms as an indirect measure of *potential* subversion.¹² As size proxies we take firm’s employment and output. There are two theoretical stories behind the potential subversion measure. First, in the model by Grossman and Helpman (1994), agents are assumed to have different interests; and big ones can organize their interests more easily. Concentration matters for potential for subversion because it makes organization cheaper. Second, Friebe and Guriev (2002) assumed all agents (local firms) to have similar interests (of attaching high-skilled worker to locality), thus, everyone benefits if attachment occurs. In this case,

⁹ Preferential treatments are persistent: If a firm receives preferential treatments in any particular year, there is an over 60% chance that it also receives preferential treatments in the subsequent or the previous year. If the firm does not get preferential treatments in any particular year, there is an over 80% chance that this enterprise does not get preferential treatments in both the subsequent and the previous year. 56% of firms in our sample do not receive any preferential treatments throughout the whole period.

¹⁰ The largest share of preferential treatments (39% of the total number) are the tax breaks; the second most common are the subsidized loans from the budget (20%); and the next largest group is the direct subsidies (7%).

¹¹ As a measure of concentration, we take the Herfindahl-Hirschman measure (a sum of squared shares of the numbers of preferential treatments).

¹² We include the same number of the largest regional firms into the size concentration measure in order to have comparability across regions. Not including the smaller firms into the formula does not create a problem because only the

the free-rider externality is smaller for larger firms, because they receive a significantly larger portion of the total benefits when favorable regulations are adopted. Glaeser, Scheinkman, and Shleifer (2003) argued that there is a feedback in the relationship between concentration and institutional subversion: inequality leads to subversion and weak institutions allow only the rich to protect themselves and become even richer.

3. Hypotheses

The literature motivates us to formulate the following hypotheses.

3.1. Regional level hypotheses

Small business growth

On the one hand, large powerful firms may be interested in SME growth because they may have excessive employment and would like to lay off workers, but they cannot do so for political reasons unless there are small firms to hire these workers.¹³ In this case, politically powerful firms may lobby for creating a favorable regulatory environment for small business. On the other hand, SME growth may be against interests of managers of large politically connected firms if they compete with the small firms for scarce skilled labor on the labor market (Friebel and Guriev, 2002) or for scarce government budgetary resources (Gehlbach, 2003). In this case, vested interests may put pressure on regional authorities to harden regulatory environment for small business. Regional authorities can directly affect small business environment, for example, by changing costs of registration, certification, inspections, licensing, and leasing premises. Thus, if either of the arguments set forth by Friebel and Guriev (2002) and Gehlbach (2003) are empirically relevant, we would observe smaller SME growth in the regions with higher level of institutional subversion, as in these regions more SMEs would be driven out of the market or to the unofficial sector.¹⁴

GDP growth and investment

Theoretical predictions about the effect of institutional subversion on GDP growth and investment are ambiguous. On the one hand, state capture improves growth prospects and return on investment in captor firms since they obtain investment credits, tax breaks, and protection from competitors. On the other hand, subversion of institutions by vested interests should necessarily lead to

largest firms can effectively capture the state. The results are robust to changes in the number of firms included in the concentration measure.

¹³ Needless to say, managers of large firms may be interested in SME growth because they want to eat in good restaurants and shop in nice stores.

¹⁴ See, for instance, Johnson, Kaufmann, and Shleifer (1998) and Frye and Zhuravskaya (2000).

lower growth and investment in discriminated firms with no political influence. Thus, politically influential firms are the only potential source of growth in environment with subverted institutions. Moreover, institutional subversion may lead to deterioration of growth even in politically connected firms in the long run because these firms lack incentives to improve efficiency because of relatively high returns from rent seeking activities.

Tax collection and arrears

We expect tax collections to decrease with an increase in institutional subversion for a given level of tax base because vested interests use political influence to decrease their tax burden. This effect should be seen in aggregate because usually the large enterprises who contribute the most to regional budgets also have the political connections. The same logic implies that tax arrears are higher in more subverted regions because influential firms lobby for less strict tax enforcement. Moreover, federal arrears should increase to a larger extent than regional arrears since regional authorities, often, offer protection to captor firms from paying federal taxes.¹⁵

Social spending

This hypothesis is motivated by Friebel and Guriev (2002) who argue that large enterprises in Russia are trying to attach skilled workers by paying them in-kind (for instance, providing them with corporate housing, healthcare, education, and daycare). This is done in order to prevent savings sufficient for the workers to leave. One implicit assumption of their model is that workers value privately provided social services because of poor public provision. Public access to high quality social services would undermine larger firms' attachment strategies. We expect public spending on provision of housing, healthcare, daycare centers, etc. to be lower in regions with higher institutional subversion.

There are two alternative explanations of possible negative relationship between social spending and institutional subversion, however. First, vested interests may not be concerned with social services at all; instead, they are more interested in other budgetary items (for instance, expenditures on industry, police, and media). Therefore, they may lobby for substitution of expenditures on social infrastructure services by spending on these budgetary items. Second, large enterprises and regional governments may agree to private provision of social services in exchange for tax breaks in order to avoid paying federal tax obligations.¹⁶ Both of these stories are consistent with institutional subversion. We test whether regional variation in any of the budgetary items can be partly explained by differences in the level of regional institutional subversion.

¹⁵ Mechanisms of the regional protection from paying federal taxes have been extensively studied in the literature. See, for instance, Ponomareva and Zhuravskaya (2001), Shleifer and Treisman (2000), Treisman (1999), Lambert et al. (2000), and Sonin (2003b) for theory and evidence on protection of regional firms from paying federal taxes.

3.2. Firm-level hypotheses

Hellman, Jones, and Kaufmann (2000) pointed out that in countries with active market for capture (of which Russia is an example) politically connected firms enjoyed better performance in terms of growth in sales, employment, and investment in the short run. They also showed that captors in the BEEPS survey did not expect to outperform other firms in the long run. We test if our data are consistent with these findings. In addition to performance indicators used in the BEEPS study we compare profitability and labor productivity of captor and non-captor firms. Politically influential firms should also have higher growth of their market power because of their preferential treatment.

Worker-attachment story by Friebe and Guriev (2002) predicts higher bargaining power of politically influential firms *vis-à-vis* their employees. Thus, wage arrears in these firms should be higher. Political power of captor-firms may also allow them to run higher arrears to suppliers compared to other enterprises because of possible subversion of contract enforcement institutions. In addition, we expect tax arrears to be higher in politically connected firms, as was discussed in the previous subsection.

3.3. Endogeneity problem – “social support hypothesis”

There is an alternative story that could explain a strong correlation between our primary measure of institutional subversion (based on legislative preferential treatments) and the firm performance. This alternative story reflects endogeneity of preferential treatments to firm performance. Suppose that there is a large dying firm in a region. The regional government and legislators have political incentives to support this firm because its poor performance and potential closure threatens regional political stability: it would result in high social costs in terms of rises in unemployment and poverty. In order to avoid social unrest, regional politicians may grant preferential treatments to the firm, which, in turn, may result in performance improvements in the firm. To avoid endogeneity we need to instrument the share of preferential treatments. We use initial relative size of firms as an instrument. Unlike preferential treatments, initial size of firms is not associated with contemporaneous performance but is closely related to the likelihood of getting preferential treatment. This endogeneity problem should be important only on the micro-level because, on the macro-level, social support of troubled regions by their paternalistic governments should result in the increase in the number of

¹⁶ See Lavrov, Litwack, and Sutherland (2001) for a description of the mechanism of federal tax evasion.

preferential treatments and not in their concentration for a given total number of regional preferential treatments. Thus, we need to carefully control for overall level of regional paternalism.

4. Data and summary statistics

Data sources

We use panel data from the following sources:

- 1) Financial and other statistical data on enterprises comes from RERLD 2001, Russian Enterprise Registry Longitudinal Data set covering most basic financial statistics on (45,000) large and medium size firms in Russia that produce over 85% of Russia's official industrial output. The data spans time period from 1992 to 2000 for 77 regions.¹⁷
- 2) Comprehensive database of Russian regional laws "Consultant Plus" was used to construct a panel data set on legislative capture (www.consultant.ru/Software/Systems/RegLaw). Legislative data covers 978 largest regional enterprises in the period between 1992 and 2000 in 73 regions of Russian Federation.
- 3) Detailed regional budgetary figures for 1996 - 2000 come from the Ministry of Finance of the RF (www.minfin.ru).
- 4) Other regional level statistical data come from "Goskomstat", the official Russia's statistical agency. The panel spans 1996 - 2000.

Summary statistics

Table 1 presents summary statistics for the measures of capture. The mean value of preferential treatment concentration (0.395) corresponds to the most common situation when in a particular year one regional enterprise receives two preferential treatments, another two enterprises receive one preferential treatment each, and all other regional firms do not receive preferential treatments. The mean value of output concentration is 0.226. On average, the first firm's output is twice as large as the output of the second largest firm and three times as large as the output of the third largest firm. The mean value of employment concentration is 0.160. On average, employment in the largest enterprise is 70% larger than in the second largest; the second largest is 35% larger than the third; the third – 20% larger than the fourth, etc. As table 1A shows, measures of legislative and potential capture are positively, significantly, but not very highly correlated. Despite the low correlation between the legislative and potential capture, the results using the two alternative measures turned out to be similar.

¹⁷ For the detailed description of the data base, see Brown and Earl, 2000.

Figure 1A in appendix presents the map of regional preferential treatment concentration. Figure 2A shows the dynamic aspect of measures of institutional subversion throughout the 1990s.

5. Empirical methodology

5.1. Regional–level regressions

First, we study macroeconomic effects of institutional subversion using regional level panel regressions. In the short run analysis, we estimate regional-level fixed effects regression (1).

$$Y_{it} = \alpha_1 PTC_{it} + \alpha_2 NPT_{it} + \alpha_3 CONTROLS_{it} + \alpha_4 YEAR_t + \rho_i + \varepsilon_{it} \quad (1)$$

Notation in equations (1) is as follows: Subscript i - region; t - year; Y - characteristics of macroeconomic conditions of the regional economies; PTC - preferential treatment concentration (our proxy for the regional institutional subversion); NPT - number of preferential treatments in five regional enterprises with maximum number of preferential treatments (our proxy for regional paternalism); $CONTROLS$ – control variables (vary with dependent variables); $YEAR$ - year dummies; ρ - regional fixed effects. Greek letters denote estimation parameters. Equation (1) is the only equation for which we can use potential capture measure as a robustness check because in the rest of the analysis the interpretation of the results with potential capture measure suffers from alternative explanations that we can not rule out. For each of the hypotheses tested using equation (1) and described in section 3.1, table 2 presents all the variables used as dependent and control variables.

For the long run analysis, we estimate regional-level between effects regression (2):

$$\bar{Y}_i = \alpha_1 \bar{PTC}_i + \alpha_2 \bar{NPT}_i + \alpha_3 Y_{0i} + \bar{CONTROLS}_i + \varepsilon_i \quad (2)$$

The notation in equation (2) is the same as in equation (1) with the following additions: Upper bars denote average values of the respective variables across all years (excluding the initial year); Y_0 denotes the level of the dependent variable in the initial year. Specification (2) is an OLS cross-section regression of mean values of variables across time controlling for their initial levels.

The list of dependent and control variables for equation (2) is the same as for equation (1), except that in the long run we test only the hypotheses that are related to small business development and GRP growth and investment (since budgetary spending and revenues are inherently a short run phenomenon and the long run theoretical predictions are unclear).

5.2. Firm-level regressions

In order to investigate microeconomic effects of institutional subversion on captor firms, we use the sample of firms for which we have legislative data. The short run analysis uses fixed effects panel regression specification given in equation (3):

$$y_{ft} = \alpha_1 pt_share_{ft} + \alpha_2 RPTC_{ft} + \alpha_3 NPT_{ft} + \alpha_4 REGTR_{ft} + \alpha_5 indtr_{ft} + \alpha_6 YEAR_t + \alpha_7 size_{ft} + \phi_f + \varepsilon_{ft} \quad (3)$$

For the long run, we use between effects regression equation (4):

$$\overline{y}_f = \alpha_1 \overline{pt_share}_f + \alpha_2 \overline{RPTC}_f + \alpha_3 \overline{NPT}_f + \alpha_4 y_{0f} + \alpha_5 \overline{ind}_f + \alpha_6 \overline{REG}_f + \alpha_7 \overline{state}_f + \alpha_8 \overline{size}_f + \varepsilon_f \quad (4)$$

In equations (3) and (4), the following new notation is added: Subscript f stands for firm. Lower case letters denote firm-level and industry-level variables. Upper case denotes regional-level variables. y stands for various indicators of firms' performance: log values of sales, employment, fixed assets, regional (2-digit OKONH) and national (3-digit OKONH) market shares, labor productivity, profit, arrears to suppliers, wage arrears, arrears to budget. pt_share is a firm's share of preferential treatments (instrumented by lagged relative size of the firm).¹⁸ $RPTC$ is the residual preferential treatment concentration filtered through the total regional number of preferential treatments given to their five largest recipients. NPT is the regional number of preferential treatments (as before). In the micro-level regressions, PTC and NPT are very highly correlated, thus, we orthogonalize them before including in the regression.¹⁹ Thus, $RPTC$ controls for the regional-level capture and NPT controls for the regional paternalism. $REGTR$ is the regional trend of the dependent variable (calculated as regional aggregate). $indtr$ is the industry trend of the dependent variable (calculated as industry aggregate). Regressions of market shares we do not include regional and industry trends as controls. $size$ stands for log sales; it is used as a control variable in regressions of wage, trade, and tax arrears and profits. ϕ denotes firm fixed effects. ind is an industry dummy; REG - a regional dummy; $state$ - a state-enterprise dummy.

In short run fixed effects regressions (3), we limit the sample to observations in regions and years for which total number of regional preferential treatments is greater than zero. This is because only in this case our instrument is highly correlated with the share of preferential treatments. In case when the regional number of preferential treatments is zero, the value of the share of preferential treatments variable is constant across firms while employment shares differ greatly. In between effects

¹⁸ In fixed effects panel regressions (short run), the share of firm's preferential treatments is instrumented with lagged employment share. In between effects regressions (long run), the initial employment share is used as an instrument for all dependent variables except employment. In employment regressions, initial output share is an instrument. This choice of the instruments is driven by their quality.

¹⁹ An alternative approach is to include just plain PTC (without NPT). It leads to the same results.

regressions (4), we use the whole sample because in this case the instrument works well even for the whole sample.²⁰

6. Results

6.1. Regional-level effects of institutional subversion

Let us turn to presentation of the results about the aggregate regional effect of institutional subversion.

Small business

Table 3 presents the results of the tests of the hypothesis about small business growth: panel A of the table reports short run panel-data results and panel B long run cross-section results. In the short run, preferential treatments concentration has significant negative effect only on the share of small business employment. Coefficients of the other two measures of small business development (the number of small businesses and retail turnover per capita) are also negative, but insignificant.²¹ The magnitude of the short term relationship between capture and small business is as follows: One standard deviation increase in the preferential treatment concentration decreases the share of small business employment by 2.4% in the same year. One standard deviation increase in preferential treatment concentration implies, for instance, that among the five largest recipients of preferential treatments in one year, the distribution of the number of preferential treatments changes from {three; two; one; zero; zero} to {four, two, zero; zero; zero}. The long run relationship between the legislative capture and small business growth is stronger. Just as in the short-run regressions, coefficients of all three measures of small business development are negative. In the long run, two of the three measures (the number of small businesses and the share of small business employment) are significantly related to institutional subversion. One standard deviation increase in the average preferential treatment concentration decreases the number of small businesses per capita by 13% and share of small business employment by 7%. One standard deviation increase in average regional preferential treatments concentration from the mean (holding the total number of preferential treatments constant) implies that, in seven out of nine years, the number of preferential treatments in each of the five largest recipients of

²⁰ The results of long run estimation are robust to limiting the sample to be equal to the sub-sample for which fixed effects regressions are valid.

²¹ The total number of preferential treatments given to the five largest recipients of legislative preferential treatments has significant negative effect on the share of small business employment. There is, however, an ambiguity in interpretation of this coefficient. On the one hand, the number of preferential treatments, for a given level of concentration, measures the strength of influence (when only few firms receive any preferential treatments); on the other hand, the number of

preferential treatments remains unchanged: the largest recipient gets two preferential treatments, another two enterprises receive one each and no other firm receives preferential treatments; but in each of the other two years, one firm only receives four preferential treatments. The fact that retail turnover is not significantly affected by institutional subversion points to the possibility that some small businesses do not exit the market completely under the regulatory pressure from the regional governments, instead, they are driven to the unofficial sector. Overall, our hypothesis that vested interests get in the way of small business growth finds support in the data. The use of size concentration as a measure of potential capture confirms robustness of this result.²²

GDP growth and investment

As discussed in the hypotheses section, the theoretical prediction about effect of state capture on growth and investment is ambiguous. Vested interest groups that primarily engage in rent seeking may grow fast due to favorable business conditions. This growth may outweigh efficiency losses from rent seeking activities in the short run. Panel A of table 4 shows that annual changes in GRP per capita are significantly positively associated with changes in preferential treatment concentration. Thus, in the short run, positive effect of institutional subversion on growth within vested interests groups dominates the negative effect on the rest of the producers. The economic significance of this result is as follows: one standard deviation increase in preferential treatment concentration increases regional product per capita by one percent in the same year. We do not find significant relationship between legislative subversion and investment. Panel B of table 4 presents the long run results: We find no statistically significant effect of legislative subversion on growth or investment. The fact that short run positive effect on growth disappears in the long run is consistent with the view that rent-seeking activities of captor enterprises destroy value in the long run, and that we just have insufficient horizon to observe negative correlation (reliable GRP data are available only for six years 1995-2000 of which the first year we take as a baseline). Robustness check yields strong positive relationship between size concentration and growth and investment.²³

Tax collection and arrears

preferential treatments may just measure the extent of paternalism of regional governments towards all firms (when many firms get preferential treatments). These effects have the opposite predicted signs.

²² We find strong negative relationship between changes in regional size concentration, on the one hand, and the share of small business employment and the number of small businesses, on the other, as reported in table 2A. One standard deviation increase in the output concentration among ten largest firms decreases the number of small businesses per capita by 14% and the share of small business employment by 23%.

²³ Table 2A presents the results: Employment concentration among ten largest private firms strongly positively affects contemporaneous private and total investment and has no significant effect on GRP. Changes in output concentration have positive significant effect on GRP growth and no effect on investment. One standard deviation increase in output concentration is associated with 2.8% additional GRP growth. A standard deviation increase in employment concentration leads to a 9% increase in aggregate regional investment.

Table 5 presents results of the tax-collection hypothesis test. The data are consistent with the hypothesis. There is a strong negative statistically significant and robust association between regional tax collection and institutional subversion, holding other things constant. One standard deviation increase in preferential treatment concentration decreases regional total net revenues and tax revenues by 1.2%, federal and total tax arrears by 2.7%.²⁴ Institutional subversion does not seem to affect regional arrears to the same extent as federal arrears. This evidence supports the view expressed, for instance, by Sonin (2003b) and Ponomareva and Zhuravskaya (2001) that Russia's regional governments protect regional firms from paying federal taxes.

Fiscal policies

Table 6 presents the results of the test of the relationship between institutional subversion and the size of the social budgetary expenditures. Our findings are consistent with Friebel and Guriev's story as well as the story of federal tax evasion (Lavrov et al., 2001): holding other things constant, legislative subversion is negatively significantly correlated with expenditures on construction of some social service facilities. One standard deviation increase in preferential treatment concentration decreases expenditure on construction of new housing by 5%, and cultural facilities by 14%.²⁵ Expenditures on construction of education and healthcare facilities also have negative, but insignificant coefficients. There is no evidence of significant correlation in any other budgetary items with our measures of institutional subversion.

6.2. Firm-level effects of institutional subversion

The evidence of microeconomic effects of institutional subversion is consistent with our hypotheses. Firm-level fixed-effects regressions presented in table 7 show that, holding other things constant, in the short run captors experience significantly higher investment, employment and sales growth, and growth of their shares both on the regional and national markets. The magnitude of the short run effect is as follows: A one percent increase in the share of preferential treatments (from the mean value equal to 0.15) in any particular year increases the enterprise employment and sales by approximately 2% and fixed assets by 1.5 %. In addition, regional market share increases by one tenth of a percentage point and national market share by one hundredth of a percentage point. The long run

²⁴ Table 2A shows the results of the robustness check: one standard deviation increase in output concentration decreases taxes by 6.1%; in employment concentration - by 2.7%, in addition, one standard deviation increase in employment concentration increases federal tax arrears by 6%.

²⁵ Robustness check shows that there is no association between construction expenditure and size concentration. At the same time, one standard deviation increase in output concentration decreases (net of wage bill) total expenditures on education by 5.2%, healthcare by 3.5%, housing by 4.4% (see Table 2A). In addition, the results are robust to the choice of specification between having shares and levels of expenditures as dependent variables.

results are stronger (table 8). We find that, holding other things constant, captors continue to outperform non-captor firms in terms of sales and employment growth, investment in fixed assets, national and regional market shares. In addition, in the long run, captors have higher profits and higher bargaining power *vis-à-vis* employees, suppliers, and government that allows them to run higher wage, trade, and tax arrears. An important finding is that in the long run, firms that engage in institutional subversion have significantly lower labor productivity growth compared to their counterparts despite their higher profitability. Thus, long run gains to captor firms are a result of rent-seeking activities and not driven by efficiency improvements. The economic significance of the results in the long run is as follows: A one percent increase in the average share of preferential treatments in eight years (from the mean equal to 0.1) increases average sales by approximately 1.7%, average employment by 0.5%, average fixed assets by 3.6%, profitability by 1.4%, arrears to suppliers by 1.4%, wage arrears by 2%, and tax arrears by 3%, but decreases labor productivity by one percent. It also leads to one tenth of a percentage point increase in the regional market share and two hundredth of a percentage point increase in the national market share.

6.3. Comparison with BEEPS

Our findings by and large are consistent with BEEPS evidence (Hellman, Jones, and Kaufmann, 2000 and Hellman and Schankerman, 2000). Cross-country comparisons based on BEEPS show that in countries with higher level of capture, firms from the BEEPS sample have on average lower investment, output and employment growth. We show that there is a short run positive association between GRP growth and capture in Russian regions and that it disappears in the long run. How one can reconcile these pieces of evidence? Since variation in institutional subversion across countries is much higher than across Russia's regions, the evidence from BEEPS and our study are perfectly consistent because the relationship between the level of institutional subversion and growth may be different within the group of high-capture environments (i.e., countries or regions) and between the high and low capture environments. We find robust negative association between the level of regional institutional subversion and small business development. This finding is in line with Hellman and Schankerman's (2000) result that reform is slower in the high-capture countries.

There is a slight dichotomy between BEEPS and our findings at the micro-level: there is universal evidence that sales and investment grow faster in captor firms compared to non-captors in the short run. Hellman, Jones, and Kaufmann (2000) found that captor firms do not expect these gains to be sustained in the long run. We find, however, that captors are too modest in their expectations: actual

long run growth in sales, investment and market share is higher in captor firms but their productivity growth is lower.

7. Conclusions

This paper investigates the effects of institutional subversion on small business, economic growth, fiscal policies and firm performance in the Russian regions. The key findings can be summarized as follows:

The most important effect of institutional subversion that we have documented is that environments with higher level of state capture have greater obstacles to small business growth. This effect has particularly significant consequences in a transition economy because institutional subversion becomes an impediment to asset re-allocation from the old to the new sector. Despite the negative effect of institutional subversion on small business, institutional advantages for captor firms result in short-term aggregate economic growth which is not sustained in the long run. Tax capacity of the state deteriorates with capture: tax revenues fall and arrears grow for a given level of GRP. In addition, a part of fiscal expenditures are affected by the level of institutional subversion: construction of new social facilities is smaller in high-capture regions.

On the micro level, capturing the state brings great advantages to firms. Captors exhibit faster growth in employment, sales, market share, and investment both in the short and the long run. In addition, higher bargaining power gives captors the ability to maintain higher arrears to suppliers and employees in the long run since local officials protect captors from legal enforcement of these payments. The source of the long run captors' growth is rent-seeking as they win market share from their counterparts and lose to them in efficiency measured by labor productivity.

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Table 1: Summary statistics of state capture measures

1992-2000:	Obs	Mean	SD	Min	Median	Max
<u>Regions</u>						
Preferential treatment concentration	667	0.395	0.294	0.200	0.200	1
Total number of preferential treatments in the region	667	1.41	1.99	0	0	11
Output concentration among ten largest private firms	644	0.226	0.145	0.103	0.176	1
Employment concentration among ten largest private firms	653	0.160	0.082	0.101	0.131	0.760
<u>Enterprises</u>						
Total number of preferential treatments	7284	0.14	0.410	0	0	4

Table 2: Specification of regional-level regressions.

Hypotheses:	Measures, used as dependent variables, <i>Y</i> :	Control variables, <i>CONTROLS</i> :
Small business growth	<ul style="list-style-type: none"> - Log number of small businesses per capita - Log share of small business employment - Log retail turnover per capita 	<ul style="list-style-type: none"> - Log population size (instrumented by lagged values) - Log average wage level (instrumented by lagged values)
GRP growth and investment	<ul style="list-style-type: none"> - Log GRP per capita - Log investment per capita - Log private investment per capita 	<ul style="list-style-type: none"> - Log population size (instrumented by lagged values) - Log average wage level (instrumented by lagged values) - Log investment per capita (instrumented by lagged values; used only in regressions with GRP per capita as dependent variable) - Life expectancy - Log share of secondary school students in regional population - Share of oil and gas extraction industries
Tax collections and arrears	<ul style="list-style-type: none"> - Log tax revenues per capita - Log total revenues net of transfers per capita - Log level of regional tax arrears per capita - Log level of federal tax arrears per capita - Log level of total tax arrears per capita 	<ul style="list-style-type: none"> - Log GRP per capita (instrumented by lagged values) - Log population size (instrumented by lagged values) - Dummy for regional election year
Social spending	<p>Log of per capita regional budget expenditures on:</p> <ul style="list-style-type: none"> - Culture (net of wages) - Education (net of wages) - Healthcare (net of wages) - Housing (net of wages) <p>Log of per capita expenditures on construction of:</p> <ul style="list-style-type: none"> - New housing - Cultural facilities - Education facilities - Healthcare facilities 	<ul style="list-style-type: none"> - Log population size (instrumented by lagged values) - Log total budgetary expenditures - Dummy for regional election year

Note: We use retail turnover as an indirect proxy for small business development because reporting on retail turnover is often much better than on small business employment: many small firms underreport employment for tax purposes. In the panel regressions, instruments are one-year lags; in the between regressions, instruments are the initial values of respective variables. In growth regressions, we use control variables standard for growth literature. (See, for instance, Barro, 1997, Barro and Sala-i-Martin, 1995, Mauro, 1996, Sala-i-Martin, 1997). Dummy for regional election year is added to control for possible political cycle (see, for instance, Akhmedov et al., 2003).

Table 3: Small business growth

	Panel A. Short run.			Panel B. Long run.		
	Number of small businesses per capita	Share of small business employment	Retail turnover per capita	Number of small businesses per capita	Share of small business employment	Retail turnover per capita
Preferential treatment concentration	-0.023 [0.65]	-0.084 [1.88]*	-0.009 [0.42]	-0.446 [1.99]**	-0.231 [1.74]*	-0.156 [0.76]
Preferential treatments	-0.008 [1.30]	-0.029 [3.83]***	0.002 [0.47]	0.019 [0.83]	-0.010 [0.76]	-0.001 [0.04]
Log population (instrum-d)	0.379 [1.08]	1.348 [1.93]*	0.782 [7.47]***	-0.001 [0.03]	0.030 [1.04]	0.168 [4.93]***
Log wage (instrum-d)	-0.608 [0.67]	3.142 [2.00]**	1.332 [3.87]***	0.252 [3.19]***	-0.082 [1.33]	0.229 [2.41]**
Initial level of dependent variable				0.594 [8.58]***	0.797 [14.14]***	0.525 [5.55]***
Constant	3.371 [0.53]	-27.957 [2.15]**	-6.555 [2.50]**	-3.661 [5.21]***	1.151 [2.72]***	1.110 [1.71]*
Year dummies included	Yes	Yes	Yes			
Regional fixed effects included	Yes	Yes	Yes			
Observations	415	278	558	432	286	568
Number of regions	70	71	72	73	73	73
R-squared	0.001	0.01	0.21	0.49	0.61	0.53

Note: Absolute value of Z-statistics in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: GRP growth and investment

Independent variables for the next two columns	Panel A. Short run.			Panel B. Long run.		
	Investment per capita	Private investment per capita	GRP per capita	Investment per capita	Private investment per capita	GRP per capita
Preferential treatment concentration	-0.02 [0.68]	-0.02 [0.37]	0.03 [1.71]*	0.22 [0.92]	0.22 [1.04]	0.04 [0.41]
Preferential treatments	0.01 [1.98]**	0.01 [1.20]	0.00 [1.06]	0.02 [0.63]	0.03 [1.34]	0.01 [0.63]
Log investment per capita (instrum-d)			0.14 [2.26]**			0.33 [5.38]***
Log wage (instrum-d)	1.05 [5.97]***	1.23 [1.95]*	0.74 [5.38]***	0.12 [0.47]	0.32 [1.37]	0.06 [0.49]
Log population (instrum-d)	-1.04 [1.87]*	-0.23 [0.13]	-0.92 [2.81]***	0.21 [3.91]***	0.04 [0.78]	0.05 [2.82]***
Life expectancy	0.01 [0.82]	0.04 [1.33]	0.02 [3.06]***	-0.02 [0.77]	0.004 [0.15]	-0.01 [0.62]
% secondary school students	1.98 [2.85]***	2.67 [1.95]*	0.47 [1.38]	0.04 [0.14]	-0.77 [2.73]***	0.19 [1.37]
% of oil/gas extraction industries	0.81 [5.07]***	1.14 [3.55]***	0.39 [3.71]***	0.22 [0.92]	0.57 [2.78]***	-0.12 [1.20]
Constant	-2.45 [0.50]	-14.75 [1.09]	-0.53 [0.19]	1.28 [0.49]	2.93 [1.21]	-3.08 [2.88]***
Initial level of dependent variable				0.64 [3.95]***	0.71 [4.18]***	0.63 [7.65]***
Year dummies	Yes	Yes	Yes			
Regional fixed effects	Yes	Yes	Yes			
Observations	554	344	480	556	346	480
Number of regions	72	72	70	72	72	70
R-squared	0.06	0.26	0.04	0.47	0.62	0.88

Note: All dependent variables are in logs. Absolute value of Z-statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: Regional tax collections and arrears to regional and federal budgets

	Panel A. Revenues.		Panel B. Arrears.		
	Tax revenues per capita	Total net revenues per capita	Regional tax arrears per capita	Federal tax arrears per capita	Total tax arrears per capita
Preferential treatment concentration	-0.04 [1.80]*	-0.04 [1.66]*	0.06 [1.42]	0.09 [1.71]*	0.09 [2.14]**
Preferential treatments	0.00 [1.23]	0.01 [2.48]**	0.00 [0.62]	0.01 [1.13]	0.01 [1.57]
Log GRP per capita (instrum-d)	1.30 [6.39]***	1.22 [5.77]***	0.53 [2.07]**	0.81 [2.91]***	0.49 [1.98]**
Log population (instrum-d)	1.95 [2.27]**	3.17 [3.50]***	2.19 [1.93]*	5.84 [4.28]***	4.49 [4.07]***
Regional election year	0.01 [0.39]	0.02 [1.03]	0.03 [1.01]	0.05 [1.40]	0.03 [1.17]
Constant	-10.20 [1.58]	-18.78 [2.77]***	-12.28 [1.44]	-39.58 [3.87]***	-28.28 [3.41]***
Year dummies	Yes	Yes	Yes	Yes	Yes
Regional fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	355	351	420	421	424
Number of regions	71	71	71	71	71
R-squared	0.30	0.17	0.08	0.03	0.4

Note: All dependent variables are in logs. Absolute value of Z-statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 6: Budget expenditures

	Variable part of expenditure items per capita				Expenditures on construction per capita			
	culture	education	healthcare	housing	new housing	cultural facilities	education facilities	healthcare facilities
Preferential treatment concentration	-0.036 [1.04]	-0.014 [0.77]	0.019 [0.76]	-0.009 [0.32]	-0.178 [1.84]*	-0.484 [1.91]*	-0.250 [1.52]	-0.210 [1.53]
Preferential treatments	0.020 [3.47]***	0.010 [3.26]***	0.002 [0.50]	0.001 [0.21]	0.019 [1.19]	0.013 [0.31]	0.042 [1.51]	0.017 [0.75]
Log population (instrum-d)	0.537 [0.46]	0.538 [0.85]	1.845 [2.07]**	0.738 [0.74]	6.232 [1.82]*	9.280 [0.90]	-10.554 [1.79]*	8.737 [1.76]*
Log of total expenditures	0.916 [11.80]***	0.717 [17.13]***	0.739 [12.86]***	0.947 [14.35]***	0.854 [3.92]***	0.941 [1.62]	0.858 [2.24]**	1.090 [3.43]***
Year of regional elections	-0.030 [1.33]	-0.012 [0.97]	0.010 [0.64]	-0.001 [0.07]	-0.026 [0.41]	-0.054 [0.33]	-0.106 [0.97]	0.107 [1.17]
Constant	-7.377 [0.86]	-3.782 [0.82]	-13.746 [2.11]**	-6.538 [0.90]	-48.417 [1.93]*	-75.657 [0.99]	73.151 [1.69]*	-69.816 [1.92]*
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	360	360	359	360	353	319	350	355
Number of regions	72	72	72	72	72	69	72	72
R-squared	0.47	0.34	0.08	0.35	0.13	0.05	0.04	0.07

Note: All dependent variables are in logs. Absolute value of Z-statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 7: Microeconomic effects of capture in the short run

	Employment	Sales	Fixed assets	Wage arrears	Arrears to suppliers	Arrears to budget	Regional market share	National market share	Profitability	Labor productivity
Firm's share of preferential treatments (Instrum-d)	13.85 [2.64]***	12.38 [2.11]**	10.33 [2.55]**	1.18 [0.45]	0.46 [0.21]	-5.72 [1.29]	0.96 [2.28]**	0.06 [2.00]**	-3.91 [1.39]	-1.75 [1.18]
Institutional subversion (Residual preferential treatments concentration)	0.12 [0.48]	0.13 [0.51]	0.13 [0.61]	-0.04 [0.21]	-0.09 [0.70]	0.38 [1.59]	0.02 [0.92]	0.001 [0.75]	0.16 [1.04]	0.03 [0.44]
Regional paternalism (Total number of preferential treatments)	-0.04 [1.07]	-0.04 [1.29]	-0.02 [0.94]	-0.002 [0.11]	0.01 [0.99]	-0.04 [1.54]	-0.002 [0.88]	-0.00002 [0.10]	0.01 [0.44]	0.002 [0.25]
Log sales				0.04 [0.68]	0.19 [4.51]***	0.09 [0.90]			0.46 [10.54]***	
Regional trend	-0.16 [0.37]	0.02 [0.21]	-0.27 [1.35]	0.04 [0.25]	-0.03 [0.29]	0.27 [0.96]			0.10 [3.21]***	-0.02 [0.58]
Industry trend	0.40 [0.94]	-0.04 [0.25]	0.39 [0.82]	0.03 [0.34]	0.02 [0.25]	0.07 [0.58]			0.06 [1.61]	0.78 [7.44]***
Constant	5.02 [1.39]	11.78 [5.37]***	10.85 [4.68]***	7.02 [10.00]***	9.15 [14.91]***	8.48 [6.46]***	0.17 [5.36]***	0.01 [2.79]***	4.18 [7.24]***	1.22 [2.36]**
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects for firms	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.02	0.01	0.06	0.10	0.24	0.01	0.01	0.01	0.27	0.27
Observations	2925	2982	2824	1462	1449	1446	2958	2969	2757	2872
Number of firms	792	800	781	648	648	648	806	799	760	793

Note: All dependent variables are in logs. In all regressions share of preferential treatments is instrumented by the lagged employment share. In order for the instrument to work, observations are excluded from the sample when annual number of regional preferential treatments is zero.

Table 8: Microeconomic effects of capture in the long run

	Employment	Sales	Fixed assets	Wage arrears	Arrears to suppliers	Arrears to budget	Regional market share	National market share	Profitability	Labor productivity
Firm's share of preferential treatments (Instrum-d)	4.91 [2.01]**	17.78 [2.69]***	35.96 [1.71]*	20.48 [2.45]**	13.76 [1.81]*	30.04 [1.72]*	1.32 [2.46]**	0.21 [3.41]***	14.25 [1.84]*	-10.03 [3.40]***
Institutional subversion (Residual preferential treatments concentration)	0.70 [1.78]*	1.08 [1.47]	5.66 [1.89]*	5.08 [2.06]**	3.20 [1.66]*	8.60 [1.65]*	0.20 [2.39]**	0.03 [3.29]***	1.98 [1.34]	-1.30 [2.72]***
Regional paternalism (Total number of preferential treatments)	0.08 [1.78]*	0.41 [2.13]**	0.70 [2.19]**	-0.15 [0.65]	-0.14 [0.89]	0.06 [0.19]	0.06 [4.02]***	0.004 [2.18]**	0.32 [1.82]*	-0.28 [3.19]***
Log sales				0.13 [1.10]	0.22 [2.23]**	-0.04 [0.18]			0.51 [5.72]***	
Initial level of depend variable	0.67 [21.59]***	0.21 [3.00]***	0.34 [1.94]*	0.37 [3.40]***	0.44 [4.43]***	0.38 [3.51]***	0.64 [16.50]***	0.38 [11.71]***	0.10 [2.27]**	0.33 [8.64]***
State enterprise dummy	-0.02 [0.25]	-0.35 [1.55]	-0.40 [0.71]	-1.57 [1.99]**	-0.92 [1.34]	-2.35 [1.60]	-0.03 [1.25]	-0.01 [1.96]**	-0.52 [1.36]	-0.04 [0.31]
Constant	1.32 [3.61]***	6.01 [5.70]***	1.23 [0.61]	-0.50 [0.26]	1.40 [0.95]	-0.51 [0.16]	-0.15 [1.51]	-0.04 [2.96]***	-0.59 [0.49]	4.94 [7.53]***
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.558	0.14	0.06	0.13	0.27	0.09	0.08	0.25	0.19	0.11
Observations	5492	5657	5317	1131	1122	1123	5629	5637	2821	5426
Number of firms	906	917	896	582	575	579	914	915	767	904

Note: All dependent variables are in logs. In all regressions (except the employment regression) share of preferential treatments is instrumented by the initial employment share. In regression with employment share of preferential treatments is instrumented by the initial sales share.

APPENDIX

Table 1A: Correlations among the measures of institutional subversion

	Preferential treatment concentration		
	Pooled (633 obs.)	Regional between effects (72 obs.)	Regional fixed effects (633 obs.)
Output concentration among ten largest private firms	0.120 [0.002]	0.219 [0.065]	0.066 [0.096]
Employment concentration among ten largest private firms	0.105 [0.008]	0.221 [0.062]	0.085 [0.033]

Note: *p-values are in brackets.*

Figure 1A: Map – legislative subversion measure

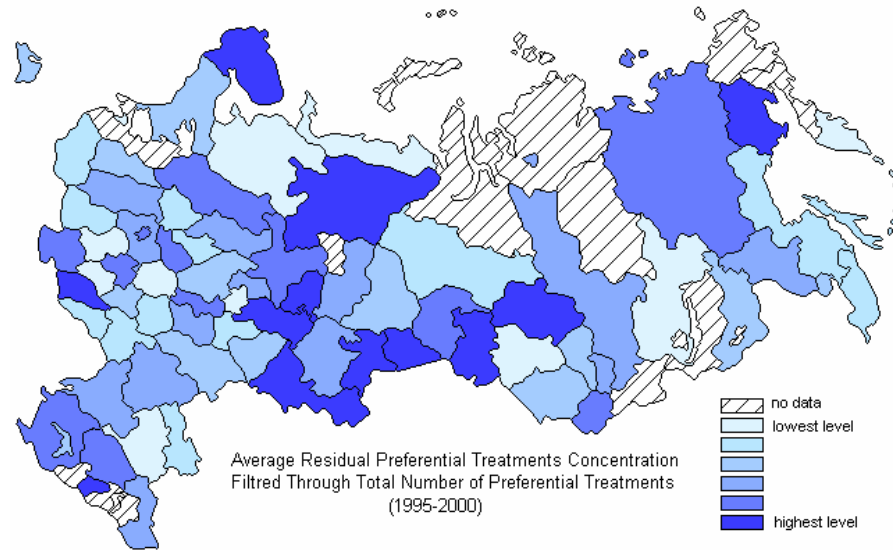


Figure 2A: Means of institutional subversion measures through time

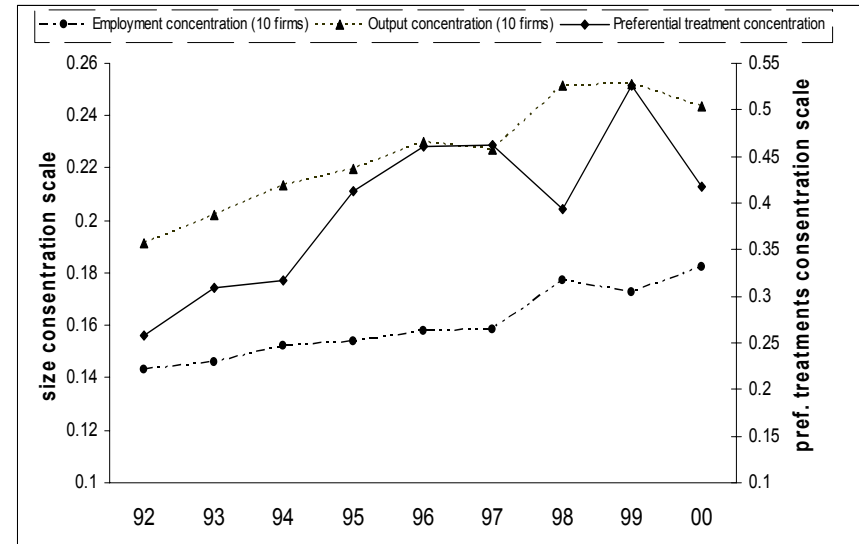


Table 2A: Potential capture

	Output concentration 10	Employment concentration 10	Control variables used in regressions
<u>Small business development</u>			
Number of small businesses per capita	-0.98***	-0.28	Log wage (instrum-d), Log population (instrum-d), Year dummies, Regional fixed effects
Share of small business employment	-1.58***	-0.88*	Log wage (instrum-d), Log population (instrum-d), Year dummies, Regional fixed effects
Retail turnover per capita	-0.01	0.15	Log wage (instrum-d), Log population (instrum-d), Year dummies, Regional fixed effects
<u>GRP growth, investment</u>			
GRP per capita	0.19 **	0.08	Log wage (instrum-d), Log population (instrum-d), Life expectancy, % secondary school students, % of oil/gas extraction industries, Log investment per capita (instrum-d), Year dummies, Regional fixed effects
Investment per capita	0.03	1.03***	Log wage (instrum-d), Log population (instrum-d), Life expectancy, % secondary school students, % of oil/gas extraction industries, Year dummies, Regional fixed effects
Private investment per capita	0.32	1.15***	Log wage (instrum-d), Log population (instrum-d), Life expectancy, % secondary school students, % of oil/gas extraction industries, Year dummies, Regional fixed effects
<u>Tax collections and arrears</u>			
Tax revenues per capita	-0.42**	-0.33*	Log population (instrum-d), Log GRP per capita (instrum-d), Year of regional elections, Year dummies, Regional fixed effects
Total revenues per capita	-0.21	-0.22	Log population (instrum-d), Log GRP per capita (instrum-d), Year of regional elections, Year dummies, Regional fixed effects
Regional tax arrears per capita	0.04	0.29	Log GRP per capita (instrum-d), Log population (instrum-d), Regional election year, Year dummies, Regional fixed effects
Federal tax arrears per capita	-0.003	0.73*	Log GRP per capita (instrum-d), Log population (instrum-d), Regional election year, Year dummies, Regional fixed effects
Total tax arrears per capita	0.03	0.65**	Log GRP per capita (instrum-d), Log population (instrum-d), Regional election year, Year dummies, Regional fixed effects
<u>Budget expenditures (variable part of expenditure items per capita)</u>			
Culture	-0.2	-0.33	Log population (instrum-d), Log of total expenditures, Year of regional elections, Year dummies, Regional fixed effects
Education	-0.35***	-0.43***	Log population (instrum-d), Log of total expenditures, Year of regional elections, Year dummies, Regional fixed effects
Healthcare	-0.24*	-0.29	Log population (instrum-d), Log of total expenditures, Year of regional elections, Year dummies, Regional fixed effects
Housing	-0.230**	-0.04	Log population (instrum-d), Log of total expenditures, Year of regional elections, Year dummies, Regional fixed effects

Note: All dependent variables are in logs. * significant at 10%; ** significant at 5%; *** significant at 1%.