Inter-State Spillovers and Lobbying

Sergei Guriev, Evgeny Yakovlev, and Ekaterina Zhuravskaya

November 6, 2007

Abstract

In a federation, the optimal degree of decentralization depends on the importance of inter-state spillovers of local policies. We show that inter-state spillovers are determined by spatial distribution of interest groups. Interest groups who have multi-state scope internalize inter-state externalities to a larger extent than the lobbyists with interests within a single state. We use the variation in the extent and the nature of local capture to estimate the lower bound of the magnitude of spillovers on firm performance in neighboring states. Using firm-level panel data from a peripheral federation, Russia in 1996-2003, we show that, controlling for firm fixed effects, the performance of firms substantially improves with an increase in the number of neighboring regions captured by multi-state business groups compared to the number captured by local business groups. Our findings have implications for the literatures on federalism and on international trade as trade restrictions are a common source of spillovers.

JEL classification: P26, D78, F15, F23

1 Introduction

The main normative question of federalism is how to resolve the tradeoff between costs and benefits of decentralization. The classic benefits of decentralization come from the better use of local information (Hayek, 1948) and stronger fiscal and political incentives (Tiebout, 1956) of government officials, whereas the main cost is associated with inter-state externalities (Musgrave, 1969; Oates, 1972). How important are inter-state externalities? What determines their magnitude? This paper provides empirical evidence that sheds light on these questions.

The key role of spillovers between states in a federation, and in particular, inter-state trade barriers, was well understood as early as 220 years ago by the Founding Fathers of the United States. After the Revolution and the Declaration of Independence, the Articles of Confederation provided the individual states with substantial autonomy in economic policy. The states used this autonomy to erect high inter-state trade barriers. The authors of the Constitution argued that common market is a necessary condition for the country's successful development and insisted on the Commerce Clause.[1] The Federalist Papers (1787—1789) not only emphasized the importance of the common market for economic prosperity (*"active commerce in our own bottoms," "unrestrained intercourse between the States themselves,"* Hamilton, Federalist Paper No. 11) and sustainability of the federation (*[the absence of the common market] "would nourish unceasing animosities, and not improbably terminate in serious interruptions of the public tranquillity,"* Madison, Federalist Paper No. 42) but also stressed the inherent free-rider problem between the states. They argued that without special institutional arrangements which would delegate all aspects of trade policy to the federal level, the inter-state trade barriers are bound to emerge in equilibrium. In Federalist Paper No. 42, James Madison wrote:

[1] Article I Section 8 of the Constitution of the United States of America, also reinforced by Article I Section 10.

> *"The defect of power in the existing Confederacy to regulate the commerce between its several members, is in the number of those which have been clearly pointed out by experience."*

As a result, the *"maintenance of harmony and proper intercourse among the States"* became one of the six main functions of the US federal government (Madison, Federalist Paper No. 41).

While the Commerce Clause has given the federal government an authority to enforce common market and created the largest free trade area of that time, the inter-state barriers have not disappeared altogether. Hollander and Popper (1994) provides multiple examples of inter-state trade barriers throughout American history (as well as Canadian and European history). Wiseman and Ellig (2007) study the inter-state barriers in alcohol trade in the US that were in force as recently as in 2002. The issue of inter-state trade barriers was especially important during the Great Depression. In 1941, US Department of Commerce's National Marketing Laws Survey counted 1489 active inter-state barriers; the omnipresent inter-state barriers were often referred to as "Balkanization of America" (see Melder (1937); Hollander and Popper (1994); and "De-Balkanizing States and Cities" in *The Time Magazine*, Monday, April 17, 1939).

Inter-state trade barriers and other forms of negative inter-state spillovers are a common phenomenon in other federations as well.[2] Canadian Chamber of Commerce (2004) describes inter-provincial trade barriers in Canada; Young (2000) and Poncet (2004) provide evidence of inter-provincial barriers in the post-1970s-reform China; Berkowitz DeJong (1999) show the existence of inter-regional trade barriers in the transitional Russia. The literature also discusses the effects of the severe inter-state spillovers when the federal govern-

[2]Externalities are present in many state-level policies, such as state trade restrictions, regulation of factor mobility across state borders, investment in public infrastructure, pollution control, state capital taxation, issuance of money surrogates, etc.

ment partially loses its monopoly on monetary policy (see Tommasi, Saiegh and Sanguinetti (2001) on Argentina and Woodruff (2000) on Russia).

What accounts for the emergence — and especially for the non-emergence — of such conflicts between subnational units? Riker (1964) associated large inter-jurisdictional spillovers with "peripheral" federalism (in his terms, federalism with weak nationwide political institutions), and low spillovers with "centralized" federalism (federalism with strong institutions). In particular, he argued that strong national political parties generate national career concerns for local public officials which, in turn, helps internalizing inter-state externalities. Riker's theory found a solid empirical support (Enikolopov and Zhuravskaya, 2007).

This paper focuses on another channel for internalizing the externalities within a federation. We argue that the spatial distribution of politically-important industrial interests has an effect on the inter-state spillovers. In particular, multi-state interest groups internalize inter-state externalities of local policies to a larger extent than powerful industrial lobbies with interests in a single state. Therefore, the equilibrium policies that result from lobbying by multi-state groups have lower negative spillovers. For example, trade barriers set by states where powerful industrial lobbies are comprised of multi-state business groups are lower than barriers set by the states in which the most powerful interest groups are local.[3] In addition, the states with powerful multi-state lobbies may also be less protectionist than

[3]Being a multi-state businessman himself, George Washington must have understood well the consequences of inter-state spillovers for his own operations. While most of his business was concentrated in Virginia, he exported to other states and other countries; more importantly, he was a founder of Ohio Company which operated throughout the territory of the modern states of Ohio, Indiana, Pennsylvania, and West Virginia. In addition, George Washington was a founder the Potowmack Company which invested in improving navigability of the Potomac River and generated substantial positive externalities for the development of the neighboring states.

states with perfectly accountable non-captured governments who oppose trade for fiscal reasons or due to terms-of-trade effects.

We illustrate our argument with a simple model and test the model's predictions using data from Russia between 1996-2003. We estimate the difference in the effect of the multi-state vs. single-state scope of politically-powerful lobbyists on the intensity of the inter-state spillovers. We use panel data on performance of a representative sample of large and medium-size Russian firms and panel data on the regional vs. multi-regional scope of powerful industrial lobbies in Russian regions. We show that performance of an average firm depends on the presence of powerful regional or multi-regional lobbies in the neighboring regions controlling for a wide variety of factors, including firm fixed effects and macro-economic trends. An increase in the number of neighboring regions with governments under political influence of multiregional industrial groups compared to having them being under influence of regional industrial groups has a significant and substantial positive effect on performance of firms operating in industries related to the captors of the neighboring regions. We conclude that spillovers from regions captured by multiregional industrial groups are significantly more benign to firms in the neighboring regions compared to spillovers from regions captured by regional industrial groups.

We have no systematic data on the actual policies that generate the estimated spillovers and, therefore, estimate just the reduced-form relationship between firm performance in one region and the scope of industrial lobbies in other regions. To fill this gap, we provide anecdotal evidence on inter-regional trade barriers as a source of spillovers. Considered case studies illustrate that, first, regional industrial groups lobby for erecting inter-regional trade barriers, whereas multiregional industrial groups lobby for free trade among regions; and second, the very same interest groups reverse their stance from protectionist to pro-trade once they became multiregional.

We focus on 1996-2003 Russia because of a unique constellation of political and economic factors that make it an ideal testing ground for an empirical study of the relationship between inter-regional spillovers and geographical scope of regional lobbyists. First, high degree of economic and, even more importantly, political autonomy of regional governors made Russia a typical example of Riker's "peripheral" federalism. Second, industrial interest groups played a very important role in policymaking at all levels of government. Privatization of the early 1990s gave rise to a high concentration of wealth and, as a consequence, high degree of state capture. (The general theory of emergence of state capture is developed in Grossman and Helpman (1994, 1995, 2001); for the applications to Russia, see Glaeser, Scheinkman and Shleifer (2003); Sonin (2003); empirical evidence on state capture in Russia is provided by Slinko, Yakovlev and Zhuravskaya (2005).) Third, industrial production chains inherited by Russia from the Soviet planning system and the largely ad-hoc privatization process of the early 1990s were the main determinants of the spatial distribution of interests of owners of privatized business making it exogenous to the inter-jurisdictional spillovers.

As we estimate the micro-level effects of inter-jurisdictional spillovers, our main contribution is to the literature on fiscal federalism (see Bardhan (2002) for a recent survey of this literature). We show that the efficiency of decentralization depends on the geographical scope of industrial interests and quantify the lower bound of the effect of the inter-jurisdictional spillovers on firm performance. Despite the consensus in the literature about the importance of interstate spillovers for the economic and political success of federations, there has been a void of empirical research on the issue.

Our results also contribute to the literature on political economy of international trade as they imply that lobbying by multinationals reduces protectionism. Thus, we find empirical support to the predictions of Hillman and Ursprung (1993) and Endoh (2005) about the role of multinational interest groups in liberalizing trade. Our findings complement existing empirical literature which focused ex-

clusively on the effect of foreign lobbying (e.g., Gawande, Krishna and Robbins, 2006; Kee, Olarreaga and Silva, 2004) and overlooked the effect of lobbying by multinational corporations. We consider our exercise as a quasi-laboratory experiment for an analysis of the effects of lobbying national governments by multinationals and domestic firms.[4]

The paper proceeds as follows. Section 2 presents a simple theoretical framework and develops testable predictions. Section 3 provides anecdotal evidence. Section 4 presents the data and empirical methodology. Section 5 presents empirical results. Section 6 focuses on robustness checks. Section 7 concludes.

2 Theoretical framework

The purpose of this section is to formulate testable hypotheses. We present a simple partial equilibrium model that illustrates how the incentives of the captured regional governments depend on the identity of the captors. The model is a straightforward modification of a standard textbook analysis of an optimal tariff in a large country (e.g., Krugman and Obstfeld, 1991). We focus on inter-regional trade barriers, but the results would hold for any regulation protecting captors from their out-of-region competitors: non-tariff trade barriers, regulation of product, capital, and labor markets, or subsidies. The main idea of the model is as follows: if captors have a

[4] Our approach has a number of advantages compared to the standard empirical methodology in political economy of international trade (Goldberg and Maggi, 1999; Gawande and Bandyopadhyay, 2000). First, we use firm-level panel data and, therefore, are able to control for firm, industry, and region heterogeneity as well as for macroeconomic trends with fixed effects in contrast to the existing trade literature, which so far is based on cross-sectional evidence. Second, we consider a more comparable pool of trade partners which allows us to contain the problem of unobserved heterogeneity further: despite all the disparities across Russian regions, they are more homogeneous than sovereign states.

stake in firms located outside the region, they are less inclined to lobby for policies with negative externalities on other regions.

2.1 A simple model

Consider a region which imports a tradeable good from the rest of the country's regions. We will refer to this region as "Home" region and to the rest of the country's regions as "Abroad." Let P and P^* denote the price of the good at Home and Abroad, respectively. The demand for the good at Home is $D(P) = 1 - P$; the demand Abroad is $D^*(P^*) = 1 - P^*$. The supply of the good at Home is $S(P) = aP$ and the supply Abroad is $S^*(P^*) = a^*P^*$, where $a^* > a$.[5]

The government of the home region sets an import tariff τ to maximize the weighted average of consumer surplus of home consumers CS, tariff revenues TR, and producer surplus PS (a la Baldwin, 1987; Bagwell and Staiger, 2006). Grossman and Helpman (1994) provide microfoundations for this utility function.

The tariff revenues and consumer surplus enter the government's objective function with the weight 1 while the producer surplus enters with the weight $\gamma \geq 1$. The parameter γ reflects the extent to which the Home government is under the influence of the local industrial lobby, i.e., domestic producers. If $\gamma = 1$, there is no "state capture" and the Home government maximizes social welfare. We shall assume that the industrial lobby in addition to being an owner of the 100 percent of domestic industry also owns $\mu \in [0, 1)$ share of the firms Abroad. The total producer surplus that belongs to the

[5]This assumption is necessary to generate trade between regions. An alternative approach is to consider a differentiated good produced by firms at Home and Abroad, varieties of which are demanded both at Home and Abroad. Such a model is a straightforward generalization of the model in Hillman and Ursprung (1993) allowing for differentiated goods. This alternative model produces very similar results in terms of our main empirical prediction but requires more complex math. For the sake of simplicity, we opt for the model with a homogenous good.

captors is $PS + \mu PS^*$ and the home-region government maximizes $CS + TR + \gamma(PS + \mu PS^*)$.

The equilibrium conditions (i.e., the law of one price and the market clearing) are as follows:

$$P = P^* + \tau$$

$$D(P) + D^*(P^*) = S(P) + S^*(P^*).$$

Solving for P and P^*, we find $P = \frac{2+\tau(1+a^*)}{2+a+a^*}$; $P^* = \frac{2-\tau(1+a)}{2+a+a^*}$. The imports into the Home region are $D(P) - S(P) = 1 - (1+a)P = \frac{a^*-a-\tau(1+a)(1+a^*)}{2+a+a^*}$. We shall denote the prohibitive tariff level by $\overline{\tau}$:

$$\overline{\tau} = \frac{a^* - a}{(1+a)(1+a^*)}.$$

The Home government chooses the tariff to maximize:

$$\begin{aligned} W &= TR + CS + \gamma\left(PS + \mu PS^*\right) = \\ &= \tau\left(1 - (1+a)P\right) + \frac{\left(1-P\right)^2}{2} + \gamma\frac{aP^2}{2} + \gamma\mu\frac{a^*P^{*2}}{2}. \quad (1) \end{aligned}$$

This is a quadratic function of τ; the first order condition implies

$$\widehat{\tau} = \frac{2(1+a^*)(1+\gamma a) - (1+a)(2+a+a^*) - 2\gamma\mu a^*(1+a)}{2(1+a)(1+a^*)(2+a+a^*) - (1+a^*)^2(1+\gamma a) - (1+a)^2\gamma\mu a^*}. \quad (2)$$

The second-order condition is equivalent to both numerator and denominator in (2) being positive (otherwise, the optimal tariff is either prohibitive $\tau = \overline{\tau}$ or trivial $\tau = 0$).

Our main interest is in deriving comparative statics with regard to the extent of capture γ and the weight of multi-regional interests μ. Figures 1 and 2 illustrate the optimal tariff as a function of γ and μ. We summarize comparative statics in the following proposition.

Proposition 1. *The optimal tariff τ is:*

(i) weakly decreasing in the weight of multi-regional interests μ for a given level of local capture γ;

(ii) weakly increasing in γ for a given level of capture of out-of-region interests $\gamma\mu$;

(iii) weakly increasing in γ for a given level of μ if μ is sufficiently small: $\mu < \frac{1+1/a^*}{1+1/a}$.[6]

Proof. We shall use monotone comparative statics. The second derivatives of the objective function W with regard to τ and the parameters are as follows:

$$\begin{aligned}
\frac{\partial^2 W}{\partial \mu \partial \tau} &= -\gamma a^* P^* \frac{1+a}{2+a+a^*}; \qquad \left.\frac{\partial^2 W}{\partial \gamma \partial \tau}\right|_{\gamma\mu=const} = aP\frac{1+a^*}{2+a+a^*}; \\
\frac{\partial^2 W}{\partial \gamma \partial \tau} &= aP\frac{1+a^*}{2+a+a^*} - \mu a^* P^* \frac{1+a}{2+a+a^*}.
\end{aligned}$$

As $\frac{\partial^2 W}{\partial \mu \partial \tau}$ is negative and $\left.\frac{\partial^2 W}{\partial \gamma \partial \tau}\right|_{\gamma\mu=const}$ is positive, we directly obtain the claims (i) and (ii). The sign of $\frac{\partial^2 W}{\partial \gamma \partial \tau}$ depends on the magnitude of μ. If the extent of multiregional interests is relatively small $\mu < \frac{(1+a^*)aP}{(1+a)a^*P^*}$ then it is positive and the tariff increases with γ. As $P \geq P^*$, the sufficient condition is $\mu < \frac{(1+a^*)a}{(1+a)a^*} = \frac{1+1/a^*}{1+1/a} < 1$. *Q.E.D.*

The intuition is straightforward. For a given level of capture γ, the higher the out-of-region component in the group interests, the more they benefit from a tariff reduction. For a given level of their interest abroad μ, the effect of the extent of capture γ on policy depends on two countervailing forces. On one hand, the lobbies want to restrain competition to increase their domestic producer surplus. On the other hand, the lobbyists want to promote trade to raise their producer surplus abroad. As long as μ is sufficiently small, the first effect dominates.

Remark 1. *The tariff is positive even if there is no capture $\gamma = 1$ and $\mu = 0$. Due to the terms-of-trade effect, the benevolent regional*

[6] This is a sufficient condition. The necessary and sufficient condition is more involved but less restrictive: $\mu < \frac{1+1/a^*}{1+1/a}\frac{2+\tau(1+a^*)}{2-\tau(1+a)}$, where τ is the optimal tariff.

government sets a non-trivial tariff:

$$\tau_B = \frac{a^* - a}{(3 + 2a + a^*)(1 + a^*)}.^{7}$$

If the producers have a positive stake $\mu > 0$ *in the foreign producer surplus but the government is benevolent* $\gamma = 1$ *and maximizes* $TR + CS + PS + \mu PS^*$ *then the tariff will actually be lower* $\frac{a^* - a - 2a^*\mu}{(3+2a+a^*)(1+a^*)-(1+a)a^*\mu}$ *and may even be trivial if* $\mu \geq (a^* - a)/(2a^*)$.

How does the global welfare depend on parameters? It is impossible to provide a complete answer within a partial equilibrium model. Yet, if the region is sufficiently small compared to the whole country, it is clear that eliminating trade barriers increases the welfare. Once we neglect the effect of the policies in a given market on other markets, the global welfare becomes simply $TR + CS + CS^* + PS + PS^*$ which is maximized at $\tau = 0$. (Note that there are no tariff revenues Abroad in our simple set up because goods flow only in one direction.) In this sense, multiregional interest groups deliver greater social welfare than local ones.

Our simple model does not capture three important effects that could potentially influence the multiregional interest's impact on trade policy. All three of these effects, however, work in the same direction as predicted by our simple model. First, we abstract from vertical integration and intra-firm trade. It is clear, however, that the vertically-integrated multiregional firms are even more interested in free trade than horizontally-integrated ones. Second, we do not consider the issue studied by Hillman and Ursprung (1993). If a horizontally-integrated multiregional company with constant returns to scale runs plants in both home and foreign regions, it may actually benefit from tariffs that protect its plants from competition in both regions. Hillman and Ursprung (1993) show, however, that

[7] The tariff τ_B that maximizes regional welfare $TR + CS + PS$ may also emerge in equilibrium under non-trivial $\mu > 0$ and $\gamma > 1$. For a given γ, there exists $\mu_B(\gamma)$ such that $\widehat{\tau} = \tau_B$; it is easy to show that $\mu_B(\gamma)$ is an increasing function $\gamma > 1$.

once the political competition is properly modeled, the presence of multiregional campaign contributors actually has a liberalizing effect as pro-trade candidates are more likely to win in both regions. Third, we assume away the policy response of the Abroad region. The latter would, of course, strengthen the multiregional firms' incentives to lobby for lower tariffs in order to prevent retaliation.

2.2 Testable predictions

The main prediction of our simple model is that multiregional captors — business groups with special interests that span over several regions — set lower tariffs compared to regional captors (industrial lobbyists with interests only in their home region). In addition, the model predicts that regional captors set higher tariffs than non-captured governments. These two predictions are clear cut and testable.

The model does not generate a prediction with regard to the comparison between non-captured governments and multi-regional capture. Our analysis implies that, for a given level of μ, the tariffs increase with the level of capture γ only if μ is small. Moreover, even though small μ may be a realistic assumption, this prediction is hard to test empirically: we cannot measure (and, therefore, control for) μ in the non-captured regions. To construct a proxy for μ we need to observe regional-vs-multiregional scope of business interests. It is feasible in a captured region where the captors are few and known. In a non-captured region, we would need the data on ultimate ownership of *all* firms which are not available.

The logic of the model can be generalized to any regional regulation or other regional policy that affects business interests and imposes inter-jurisdictional externalities. Another example of such a policy is investment in infrastructure that connects different regions, e.g., roads, railroads, or communications. (In particular, vertically-integrated groups may lobby for building public roads to connect their production units. Naturally, multiregional industrial groups would lobby for better roads compared to regional groups; other

firms located along the road would also benefit.) When lobbying for regional policies, multiregional industrial groups should internalize inter-jurisdictional spillovers to a larger extent than regional lobbies. Therefore, we expect to see relatively low negative spillovers and relatively high positive spillovers from regions captured by multiregional industrial groups than from regions captured by regional industrial groups.

In this paper we abstract from the question of how the (multiregional vs. regional) type of capture affects domestic non-captors. Our theory does not produce a clear prediction which would hold for different kinds of public policy. On the one hand, domestic firms benefit from local lobbies restricting competition from outside the region (for this reason, they would prefer regional to multiregional capture). On the other hand, the multiregional lobbies promote infrastructure investment that can help domestic firms export abroad (for this reason, they would prefer multiregional to regional capture). Note that, in contrast to domestic firms, for the foreign firms these two effects work in the same direction.

Since we do not have data on regional trade barriers and there are other policies with inter-regional spillovers, we test the predictions of the model directly, i.e., by estimating the effect of capture on the very spillovers rather than the effect on trade barriers. Our tests estimate the effect of all policies that have regional spillovers on firm performance. Trade barriers, however, are an important policy that imposes inter-jurisdictional externalities. In the next section, we provide anecdotal evidence on how regional trade policies fit the model.

3 Case study evidence on trade barriers

Inter-regional trade barriers are a pervasive phenomenon in Russia. Media provides numerous stories in which vodka-producing regions institute barriers to trade in regional alcohol markets. For example, in the late 1990s, republic of Udmurtia, Riazan oblast, Astrahan

oblast, and Yakutia republic passed regional laws that obliged alcohol retailers to have at least a certain percent of their sales be from products produced by local alcohol producers (e.g., 80% in Yakutia republic); whereas Vladimir oblast, Saratov oblast, and Penza oblast maintain sizable tariffs on vodka produced outside of these regions.[8] Berkowitz DeJong (1999) show that the patterns of price dispersion in Russia suggested the existence of substantial interregional trade barriers in the 1990s. Below, we consider three case studies from Russia to illustrate the main prediction of the model.

3.1 Uralelektromed

Uralelectromed is the largest copper refinery in Russia; the only copper refinery and the fourth largest company in Sverdlovsk Oblast, a region in the Urals in Russia. Uralelectromed was politically very powerful in Sverdlovsk Oblast throughout the 1990s. In the spring of 1996, it successfully lobbied for introducing a regional export tariff on products containing precious metals which are its main input. The tariff significantly hurt the neighboring Cheliabinsk Oblast, since its main copper refinery — Kyshtymsky copper-electrolytic plant — relied on inputs produced in Sverdlovsk Oblast by Sredneuralsky copper-melting plant. After the introduction of the tariff, Uralelectromed became the only profitable customer of Sredneuralsky. At the time, Iskander Makhmudov, the controlling owner of Uralelectromed, did not own other assets. In the second half of 1996, Iskander Makhmudov started building a vertically-integrated copper group which had later become one of the largest Russian business groups UGMK (Guriev and Rachinsky, 2005). Once the Makhmudov's group grew beyond Sverdlovsk oblast, the export tariff on products containing precious metals was abolished.[9]

[8] The source of these data is the comprehensive database of regional laws and regulations in Russia, "Consultant Plus" (www.consultant.ru).

[9] For the account of this story, see, for instance, *Segodnia* (October 4, 1996).

3.2 Tatneft vs. Lukoil

Throughout the second half of 1990s and in the beginning of 2000s, Tatarstan Republic, a Russia's region on the Volga river, witnessed a major conflict of lobbyists over tariff restrictions on gasoline imports into the region. The two main players in this conflict were Tatneft, the fourth largest oil company in Russia with all major assets located in Tatarstan, and Lukoil, the largest oil firm in Russia at that time with extraction plants and refineries located in many regions. In 1998, active lobbying by Tatneft (the most powerful firm in the region's politics) led Governor Shaimiev to prepare a decree that aimed at severely restricting gasoline imports into Tatarstan. To prevent the decree from taking effect, Lukoil threatened Governor Shaimiev with stopping to refine Tatneft's oil. Tatneft did not have its own oil refinery then. The decree was not passed. In 2000, Tatneft built its own refinery and, therefore, could no longer be threatened. As a result, it successfully lobbied for an institution of gasoline import restrictions. Having no more leverage inside the region, Lukoil had to complain to Sergei Kirienko, the Russian President's Plenipotentiary in the Volga region about these trade restrictions. Since obstruction of inter-regional trade contradicts federal law, the federal government abolished the restrictions. Only the direct intervention of the federal government relaxed the gasoline import duties in Tatarstan.[10]

3.3 Russia's Beer

In 1996-2002, beer was produced in 72 to 76 (depending on a year) out of 89 regions of Russia. The industry consisted of the two market leaders, Baltic Beverages Holding (BBH) and Sun Interbrew and *hundreds* of small regional breweries.[11] BBH and Sun Interbrew had production facilities in 13 regions (7 and 9, respectively). Regional

[10] For the account of this war, see, for instance, *Russky Telegraph* (July 28, 1998) and *Vecherniaya Kazan* (October 4, 2002).

[11] Sun Interbrew was formed in 1999 after the merger of Sun Breweries and Interbrew; before 1999, Sun Breweries was one of the two market leaders. Other

breweries targeted exclusively local markets and lobbied regional governments to erect barriers for import of beer produced outside their region. BBH and Sun Interbrew, on the other hand, were not interested in erecting trade barriers even in the regions where they had production plants because of product differentiation: Typically, a regional branch of BBH or Sun Interbrew brewed some of group's national brands and few local brands some of which were subsequently marketed to become national brands.[12] In order to take advantage of the economies of scale in production and marketing, BBH and Sun Interbrew moved away from duplicating brands at the plant level and preferred to ship the products to other regions (even those regions where they had own production facilities). Regional governments' main instrument for restriction of beer imports from other regions was the legislation on "licensing and accreditation" of beer retailers. Often, these laws included provisions restricting sale of beer produced in other regions of the country.

Yakovlev (2005) coded the content of the regional licensing and accreditation laws for 75 regions between 1996 and 2003, i.e., 600 region*year observations.[13]

Out of these 600 region*year observations, multiregional beer producers had operational production facilities in 78 cases. In 65 out of 600 cases, the laws erected severe trade barriers for beer imports. It is striking that in the regions and years when a multiregional beer producer was present, regional laws *never* stipulated trade restrictions.

One may argue that the causality between the presence of multiregional brewing companies and regional trade barriers works in

large producers, e.g., Efes, SABMiller, or Heineken, had little presence in Russia before 2002.

[12]A good example of a local brand that later became one of the national champions is Sun-Interbrew's "Sibirskaya Korona." It was launched as a local brand in Omsk but now sells throughout the country.

[13]The dataset excludes war-affected Chechnya and Ingushetia and so-called autonomous okrugs which are parts of other regions; data on the autonomous okrugs are very scarce.

the opposite direction: multiregional groups may not able to enter regions where local breweries are successful lobbyists. To address this, let us consider trade barriers which were introduced after both BBH and Sun-Interbrew established plants in all 13 regions of their current presence. Between 1999 and 2003, 7 out of 62 regions which had no multiregional companies, introduced new import restrictions. In contrast, *none* of the 13 regions which had production plants of BBH and Sun-Interbrew did this.

Discussion

All the three pieces of anecdotal evidence are consistent with the model: trade restrictions arise in regions were politically-powerful lobbyists have their business interests concentrated within regional borders and do not arise where lobbyists' interests span over multiple regions. Even in the Tatneft case where Tatneft initially did not own the assets outside its home regions, reliance on an independent refineries in other regions forced it to care for the interregional trade and to act as a multiregional firm.

In the remainder of the paper, we test whether there is a systematic difference in spillovers from the regions captured by regional industrial interests, the regions captured by multiregional industrial interests, and the non-captured regions.

4 Empirical methodology and the data

4.1 Data

For each region in Russia in each year between 1996 and 2003, we construct a variable which indicates whether the region was captured by a regional industrial group, captured by a multiregional industrial group, or non-captured using data from three sources.[14]

[14] We constraint our analysis to 1996-2003 because 1) the 1992-1995 hyperinflation undermined the quality of firm-level data and 2) 2004 marked the beginning

1. We draw information on the extent of local capture and the names of firms that were local captors from the data set on preferential treatment of large firms by regional legislation constructed and described by Slinko, Yakovlev and Zhuravskaya (2005).

2. We identify whether in 2003 local captors belonged to an industrial group that had regional or multiregional scope using data on industrial groups collected and described by Guriev and Rachinsky (2005). For each large firm in Russia, the dataset identifies the ultimate controlling owner in 2003. The data allow us to track whether the most politically-powerful firms in each region — who are the recipients of preferential treatments in Slinko, Yakovlev and Zhuravskaya (2005) dataset — belonged to a controlling owner who had productive assets in multiple regions or in a single region.

3. Since data from Guriev and Rachinsky (2005) are a cross-section, we collected additional time series information on controlling owners of each firm-captor (i.e., each recipient of preferential treatment) between 1996 and 2003 using "Labyrinth" dataset that contains detailed histories of most large Russian companies.

We relegate the detailed description of each of these three dataset to the Appendix.

A region in a particular year is defined to be captured by an interest group of a particular type — regional or multiregional — whenever: (i) the region is captured, i.e., the number of preferential treatments given out to firms in that region and that particular year is greater than zero; and (ii) at least 50% of all preferential treatments go to firms controlled by groups of a particular type, i.e., regional or multiregional. A region in a particular year is said

of substantial political centralization with the Yukos affair and the abandonment of gubernatorial elections.

to be not captured if there were no preferential treatments that year in that region. Table A.1 in the Appendix presents the lists of regions by type of their captor over time.[15] There are 103 cases (i.e., regions*years) of multiregional capture, 285 cases of regional capture, and 200 cases of no capture.

We concentrate on estimating spillovers from neighboring regions. Thus, for that purpose, for each region, we construct variables measuring the total number of neighboring regions and the numbers of neighboring regions that are (i) captured by regional groups, (ii) captured by multiregional groups, or (iii) non-captured. Table A.2 in Appendix presents these data.

We are interested in how spillovers from regional policies affect performance of an average firm. The outcomes that we look at are growth in sales, productivity, employment, fixed assets, and return on sales (controlling for firm fixed effects and industry-specific time trends). The data on these basic performance indicators for 1995-2004 come from the Russian Enterprise Registry Longitudinal dataset (RERLD) which covers the basic financial statistics for about 80% of large and medium-size firms in Russia. Summary statistics for performance variables are presented in Table A.3 in Appendix.

4.2 Empirical specification

Our aim is to estimate how the extent of inter-jurisdictional spillovers depends on the scope of local special interests. The estimation strategy is as follows: we compare the average performance of firms depending on whether neighboring regions are (i) captured by regional groups, (ii) captured by multiregional groups, or (iii) non-captured controlling for firms' fixed effects and other covariates

[15] We are unable to classify several regions according to the type of capture because these regions are missing from the Slinko, Yakovlev and Zhuravskaya (2005) dataset due to the absence of information about laws of these regions in the legal database "Consultant Plus."

(to be described below). If multiregional groups internalize inter-jurisdictional externalities to a larger extent than regional groups, firm performance should be higher under multiregional capture of the neighboring regions.

We look at the capture in the neighboring regions because we assume that spillovers are higher between neighbors than between regions that are far away from each other. This is true both for trade and for infrastructure externalities. For example, if inter-regional trade barriers are the source of spillovers, gravity model (Linnemann, 1967) would predict higher effect on immediate geographical neighbors.

As our model is a partial equilibrium one, all predictions of the model are about the spillovers on firms in the same or related industries to the industry of the captors. The multiregional captor would lobby for more benign regulation towards the same industry, if she has a stake in firms in that industry, or towards the industries she trades with, if the captor is vertically integrated as most of Russian industrial groups are (see Guriev and Rachinsky, 2005). It is important to emphasize that we assume that policy and, therefore, its spillovers are industry-specific rather than firm-specific. Under this assumption, captors cannot design regulations that would benefit only their foreign subsidiaries; they can only reduce tariffs or relax regulations that hurt all the firms in the targeted industry. We define firm f to have a "related" industry to the industries of the firms-captors of the neighboring regions if the f's industry has sufficiently high volume of trade with at least one of the industries of the neighboring captors or the f's industry is the same as of at least one of the neighboring captors. The information on trade between industries is from the two-digit industry-level input-output table (constructed by the official Russia's statistical agency, Rosstat using Rosstat's OKONH industry classification). We estimate the spillover effects on both "related" and "unrelated" industries.

Using a representative sample of large and medium-size registered firms in Russia, we estimate the following panel regression

with fixed effects for each firm:

$$Y_{ft} = \phi_f + \rho_t + \alpha_1 C_{rt}^{MR} + \alpha_2 U_{ft} C_{rt}^{MR} + \alpha_3 C_{rt}^{NO} + \\ + \alpha_4 U_{ft} C_{rt}^{NO} + \alpha_5 U_{ft} + \alpha_6' \mathbf{X}_{rt} + \alpha_7' \mathbf{Z}_{ft} + \varepsilon_{ft}, \quad (3)$$

where f indexes firms; r indexes regions in which firm f is located; t indexes years; ϕ_f and ρ_t are the firm and time fixed effects, respectively.

The dependent variable, Y_{ft}, is one of the following measures of performance: logs of productivity, return on sales, fixed assets, employment, and sales. The main independent variables are: C_{rt}^{MR}, which is the number of neighboring regions of the region r that are captured by multinational groups; C_{rt}^{NO}, which is the number of neighboring regions of the region r that are not captured; U_{ft}, which is a dummy indicating whether the firm f's industry is unrelated to the industries of firms who are the captors of the neighboring regions; and the interaction terms between the "unrelated industry" dummy, U_{ft}, and "type of neighboring capture" variables, C_{rt}^{MR} and C_{rt}^{NO}.

Thus, α_1 estimates the effect of an increase in the number of neighbors captured by multiregional groups on performance of an average firm in an industry related to industries of the neighbor's captors. And α_2 estimates the difference between the effects of an increase in the number of neighbors captured by multiregional groups for firms in unrelated and related industries. Our main hypothesis in terms of estimated coefficients is as follows: $\alpha_1 > 0$, i.e., the higher the multiregional scope of lobbyists in the neighboring regions, the better the performance of firms in related industries. In addition, for trade-related externalities, we expect the effect of an increase in multiregional lobbying of neighboring regions to be weakened for firms in unrelated industries, i.e., $\alpha_2 < 0$ (since spillovers reach firms in "unrelated" industries only indirectly through capital and labor markets, rather than through product markets).

Similarly, α_3 and α_4 estimate the effect of an increase in the number of non-captured neighbors on performance of an average firm in related industry and the difference in the effect of an increase in the number of non-captured neighbors for firms in unrelated and related industries. Again, we expect $\alpha_3 > 0$ and, possibly, $\alpha_4 < 0$.

Notice that the estimated effects are relative to having neighbors captured by regional groups because we look at the effect of an increase in the number of multiregionally-captured neighbors holding the number of non-captured neighbors constant and, vice versa, we look at the effect of an increase in the number of non-captured neighbors holding the number of multiregionally-captured neighbors constant. The total number of neighbors is controlled for by firm-fixed effects as firms do not change location in our data.

We include several firm-level and region-level covariates denoted by $\mathbf{Z}_{ft}$ and $\mathbf{X}_{rt}$, respectively. Vectors $\mathbf{Z}$ and $\mathbf{X}$ include the following regressors. We control for industry-specific trends with interactions of linear time trends with industry dummies. To make sure that our results are not driven by the differences in industrial structure of regions that are captured by regional and multiregional groups, we include controls for the shares of total regional industrial production produced by machinery, electricity, extraction, and food industries both for the region r and its neighbors. We control for the extent of local capture in the neighboring regions of region r with the mean number of preferential treatments and mean concentration of preferential treatments among the neighbors as was done in Slinko, Yakovlev and Zhuravskaya (2005). Since performance of firms may be influenced by the extent and type of local capture in their own region, we control for the number of preferential treatments in region r as well as their concentration and multiregional vs. regional type. We allow for clusters in error terms at the level of regions. Finally, we drop outlier-observations from the sample defined as observations with residuals of performance of firms on our control variables which are above the 99th or below the 1st percentile of their distribution.

It is important to note that our estimation strategy treats the type of capture of the neighboring regions as exogenous to performance of an average firm. We are comfortable with this assumption because the allocation of preferential treatments in a region depends on what is going on in that region and certainly not on performance of firms outside that region. The results are robust to exclusion of control variables that describe the region r (which, therefore, potentially can be endogenous to firm performance in the same region). In section 6, we discuss potential alternative stories and robustness of the results to alterations in the set of covariates.

In addition, it is worth noting that we do not estimate the effect of capture on the captors themselves; using the very same dataset, Slinko, Yakovlev and Zhuravskaya (2005) have shown that captors do benefit from the capture. For clarity's sake, we exclude the captors from our sample.

Specification (3) explores within-region variation in the identity of industrial lobbies because it includes fixed effects for firms and, therefore, also fixed effects for regions as firms in our sample do not change location. The advantages of running panel regressions with fixed effects are obvious compared to cross-sectional regressions. Yet, cross-sectional variation in regional vs. multiregional scope of local capture is vast. Thus, we want to verify whether our main results hold in cross-section as well. For that purpose, we run the following between-effects regression, i.e., OLS regression of de-trended over-time averages, controlling for the initial level of dependent variable:

$$\bar{Y}_f = \alpha + \alpha_0 Y_{f_{t=1995}} + \alpha_1 \bar{C}_r^{MR} + \alpha_2 U_f \bar{C}_r^{MR} + \alpha_3 \bar{C}_r^{NO} + \\ + \alpha_4 U_f \bar{C}_r^{NO} + \alpha_5 U_f + \alpha_6' \tilde{\mathbf{X}}_r + \alpha_7' \tilde{\mathbf{Z}}_f + \varepsilon_f. \quad (4)$$

The upper bar denotes over-time averages between 1996 to 2003 of the residuals from linear regressions of the corresponding variables

(described above) on time dummies.[16] In order to look at changes in performance, we include the initial level of the dependent variable, $Y_{f_{t=1995}}$, as one of covariates. U_f is a dummy that indicates whether the firm f is in the industry which is unrelated to any captors in the neighboring regions throughout the whole period 1996-2003. The set of controls ($\tilde{\mathbf{Z}}$ and $\tilde{\mathbf{X}}$) includes over-time averages of covariates used in specification 3 and, in addition, the following cross-sectional controls: the number of neighboring regions, average exposure of the region r to trade (measured by the average share of exports plus imports in total industrial output), dummy for state ownership of the firm f, the initial share of people with higher education in region r and its initial gross-regional product per capita, a dummy indicating whether the region r has a special "ethnic republic" status in the federation, and 3-digit industry dummies. In addition, in regressions for productivity and return on sales we control for the size of firms with contemporary sales, as productivity and profitability vary a lot with size. As above, we adjust standard error to allow for cluster in error terms at the level of regions.

5 Empirical results

The results of the fixed-effects regressions are presented in Table 1. Our main hypothesis is supported by the data. A change from regional to multiregional capture of a region is associated with higher firm performance in other regions. The estimates of the coefficients on the number of neighbors captured by multiregional groups are positive and significant for all performance measures except the return on sales. In particular, an increase in the number of neighboring regions captured by *multiregional* groups by one (equivalent

[16] Thus, as above, $\bar{Y}$ stands for the level of sales, employment, return on sales, and productivity. In contrast to the level of fixed assets used in specification 3, in specification 4 we use annual change in assets to reflect differences in investment patterns.

to a decrease in the number of neighboring regions captured by *regional* groups by one) leads to the following statistically significant changes in the performance of an average firm in an industry related to industries of the captors in an average region: it experiences a 1.3% productivity increase, a 2% increase in sales, a 1.4% increase in employment, and a 1.5% increase in fixed capital stock. The effect on returns on sales is much smaller, negative, and insignificant; but this variable is based on the accounting profits data, which are believed to be unreliable.

In contrast, there is no significant and robust effect of a change in the type of capture in the neighboring regions on firms operating in unrelated industries. (The difference between the effects for firms in related and unrelated industries, α_2, is negative for four out of five outcome variables and statistically significant for productivity and sales. As the sum of the coefficients α_1 and α_2 shows, in most cases the own effect on unrelated industries is insignificant and close to zero.)

Unlike the multiregional capture of neighbors, an increase in the number of non-captured neighbors (holding the number of multiregionally-captured neighbors constant) does not result in a significant boost in firm performance. The sign of the estimates of four out of five coefficients on the number of non-captured neighbors is positive indicating that spillovers from non-captured regions are only insignificantly better than from regionally-captured regions. As above, there is no robust pattern for the effect of an increase in the number of non-captured neighbors for firms in unrelated industries.

In most cases, the magnitude of the effect of an increase in multiregionally-captured neighbors is larger than that of an increase in non-captured neighbors; yet, the difference in magnitude is statistically significant only for the effect on employment.

Overall, as predicted by our simple model, we find that spillovers from regions with multiregional interest groups are significantly more benign than from regions with interest groups that have interests in a single region.

We also find suggestive evidence that positive spillovers from non-captured regions are larger than that of regionally-captured regions and smaller than multiregionally-captured regions. The latter result is consistent with evidence on China presented by Young (2000) and Poncet (2004). These papers argue that Chinese province leaders erect inter-province trade barriers to protect their own rents (as opposed to rents of industrial lobbies). Particularly, Poncet shows that regional protectionism is partly explained by political incentives of provincial governments to maximize tax collection and to avoid social unrest from closing down inefficient local firms (a la Shleifer and Vishny, 1994). It is important to note that there is no clear prediction for the difference between the effects multiregionally-captured and non-captured neighbors (see the discussion in Section 2.2).

The results of between-effects regressions are presented in Table 2. Again, we find that spillovers from regions captured by multiregional groups are significantly more benign to firms in related-to-captors industries in the neighboring regions compared to spillovers from regions captured by regional groups. There is no effect on firms in unrelated industries. Thus, the main prediction of our model is confirmed by cross-section estimates as well as by panel estimates. The magnitude of cross-sectional estimates of the effects is larger: an increase in the average share of multiregionally-captured neighbors by one leads to a 16% increase in productivity, a 27% increase in sales, a 14% increase in investment, 13% increase in employment, and 5% increase in return on sales in firms operating in related industries. This increase in magnitude of coefficients should be expected. The between-effects specification provides estimates for the long-run effect of spillovers in contrast to the fixed-effects estimates which are for the short-run effects. In the fixed-effects regressions we look at the annual changes in the type of capture and in firm performance, whereas in between effects estimation, we look at the eight-year-long horizon.

As our model predicts, the estimated spillovers from regions that are not captured are significantly more benign than spillovers from regions captured by regional industrial groups. In contrast to fixed-effects estimation, this difference is statistically significant. In addition, the estimated coefficients of the effect of an increase in the share of non-captured neighbors turns out to be larger in magnitude than the effect of an increase in the share of multiregionally-captured neighbors, but that latter difference is statistically insignificant.

Overall, we find strong support for our main hypothesis. It is worth noting that multiregional lobbies are unlikely to internalize all external effects of local policies. Thus, the magnitude of the difference between the effects of inter-regional spillovers from regions captured by multiregional groups and regions captured by regional groups is an estimate of the lower bound for the microeconomic effects of full internalization of inter-regional spillovers in a federation.

6 Robustness

In this section we consider robustness of our results and possible alternative explanations for them.

One could argue that multiregional and regional captors are different in other dimensions in addition to geographical scope of their interest and that our results are driven by those very differences.

First, could it be that multiregional and regional groups have different capacity of influencing regional authorities, i.e., political power of these two types of lobbyists differ? To address this question, we compared the number of preferential treatments received by all firms in regional and multiregional groups from the Guriev and Rachinsky (2005) dataset. It turns out that likelihood of getting treated preferentially by regional authorities does not depend on whether a firm in controlled by a multiregional or a regional group. The main predictor of whether a firm is treated preferentially is its size. We also checked that the interaction between the size of

the firm and the multiregional vs. regional scope of the controlling owner of the firm does not have any predictive power for the likelihood of being treated preferentially. Moreover, in our regressions we always control for political power of lobbyists with the average number and average concentration of preferential treatments among neighbors.

Second, multiregional and regional lobbyists may not be uniformly distributed across different industries, whereas different industries may have different spillover effects. For example, being located next to a region that produces cheap hydro electricity may be beneficial for power-intensive manufacturing firms. Indeed, it turns out that there are important differences in industrial composition of captors who are members of multiregional groups vs. regional groups: multiregional owners are prevalent among captors from non-ferrous metals, coal, and diamond industries, whereas regional owners are prevalent among captors from machinery, timber, and food industries. (Captors in other industries do not significantly differ by multiregional vs. regional type of their owners.) To control for the potential industry-related spillover effects, we include industrial composition of the neighboring regions and of the own region into our baseline regressions. It is worth noting, however, that most of the industry effects are picked up by firm-level fixed effects and, therefore, our estimates of fixed effects regressions do not depend on the presence of these controls. In between effects specification, however, these controls are important and they are included.

Another possible alternative story behind our results is as follows. When a member of a group receives preferential treatment, the benefits of this preferential treatment may be spread among all members of the group. Therefore, firms-members of multiregional groups, other members of which receive preferential treatment in the neighboring regions, may enjoy benefits of these preferential treatments. In order to rule this out as a possible driving force of the results, we excluded members of groups (other members of which are captors) from the sample. This did not have any effect on our

results. One could argue, however, that preferential treatment given to members of a group may not only have a direct effect on other members of the same group located in other regions but also hurt their competitors (which are also located in other regions). To address this, we tried including a dummy that equals one if the region has firms-members of multiregional groups that capture neighboring regions. Addition of this covariate also did not change our results. It is worth noting that this story (if important) would bias out coefficients downwards, and, therefore, work against our predictions.

We also tried to include many other control variables for the own region and neighboring regions. In particular, the exclusion of all controls for own region — which may be endogenous to firm performance in the region — does not change the main results. Overall, the results seem to be very robust to any alterations in the set of covariates.

7 Conclusions

Our main finding is that in a federation, local public policy with inter-state spillovers depends on whether business interests of local lobbies span over many states or are concentrated in a single state. Multi-state lobbies internalize spillovers between jurisdictions to a larger extent than the local lobbies. We show that performance of an average firm significantly improves if neighboring states are captured by multiregional (compared to regional) industrial lobbies. States with governments not captured by any industrial interests generate spillovers that are in between the ones from states captured by state and multi-state interests; yet, these differences are not statistically significant.

The results shed light on the workings of a federation in which the conditions of "market-preserving" federalism do not hold: common market is not enforced. First, decentralization under these conditions involves substantial costs on firms due to the large inter-

state spillovers. Second, political influence of large (multi-state) businesses helps alleviating these costs. The role of the multi-state interest groups, therefore, is similar to that of strong national political parties (Riker, 1964); both make local public officials internalize externalities of local policies, at least partially.

Our findings also have implications for the political economy of international trade. Countries where trade policy is shaped by multinationals are more likely to internalize international externalities and therefore be less protectionist. There are obvious differences between interregional trade in a federation and international trade; yet, the former provides a robust testing ground for the latter. While cross-country analysis suffers from the biases due to inconsistencies of the data and omitted variables, our empirical exercise is set up in a more homogenous environment.

Throughout the paper, we take the structure of lobbies for granted and do not allow for endogenous emergence of lobbies. Future research should analyze political economy of interest group formation taking into account the distinctions between multi-jurisdictional and single-jurisdictional interest groups.

References

Bagwell K., Staiger R.W., What Do Trade Negotiators Negotiate About? Empirical Evidence from the World Trade Organization. National Bureau of Economic Research, Inc. 2006. NBER Working Papers. № 12727.

Baldwin R. Politically Realistic Objective Functions and Trade Policy. Economics Letters. 1987. Vol. 24. P. 287—290.

Bardhan P. Decentralization of Governance and Development. Journal of Economic Perspectives. 2002. Vol. 16. № 4. P. 185—205.

Berkowitz D., DeJong D. Russia's Internal Border. Regional Science and Urban Economics. 1999. Vol. 29. № 5. P. 633—649.

Endoh M. Cross-Border Political Donations and Pareto-Efficient Tariffs. Economic Growth Center, Yale University. 2005. Working Paper. № 915.

Enikolopov R., Zhuravskaya E. Decentralization and Political Institutions. Journal of Public Economics. 2007 (forthcoming).

The Federalist: A Collection of Essays Written in Favor of the New Constitution. 1787—1789. Reprinted in New York, New American Library (ed.) Clinton Rossiter, 1961.

Gawande K., Bandyopadhyay U. Is Protection for Sale? Evidence on the Grossman-Helpman Theory of Endogenous Protection. The Review of Economics and Statistics. 2000. Vol. 82. № 1. P. 139—152.

Gawande K., Krishna P., Robbins M.J. Foreign Lobbies and U.S. Trade Policy. The Review of Economics and Statistics. 2006. Vol. 88. № 3. P. 563—571.

Glaeser E., Scheinkman J., Shleifer A. The Injustice of Inequality. Journal of Monetary Economics. 2003. Vol. 50. № 1. P. 199–222.

Goldberg P.K., Maggi G. Protection for Sale: An Empirical Investigation. American Economic Review. 1999. Vol. 89. № 5. P. 1135—1155.

Grossman G.M., Helpman E. Protection for Sale. American Economic Review. 1994. Vol. 84. №4. P. 833—850.

Grossman G.M., Helpman E. The Politics of Free-Trade Agreements. American Economic Review. 1995. Vol. 85. P. 667—690.

Grossman G.M., Helpman E. Special Interest Politics. Cambridge, MA, MIT Press, 2001.

Guriev S., Rachinsky A. The Role of Oligarchs in Russian Capitalism. Journal of Economic Perspectives. 2005. Vol. 19. №1. P. 131—150.

Hayek F.A. Individualism and Economic Order. Chicago, The University of Chicago Press, 1948.

Hillman A.L., Ursprung H.W. Multinational Firms, Political Competition, and International Trade Policy. International Economic Review. 1993. Vol. 34. № 2. P. 347—363.

Hollander S., Popper K. Balkanization of America: Lessons from Interstate Trade Barrier Experience. Journal of Macromarketing. 1994. Vol. 64. P. 62—72.

Kee H.L., Olarreaga M., Silva P. Market Access for Sale: Latin America's Lobbying for U.S. Tariff Preferences. The World Bank. 2004. Policy Research Working Paper. № 3198.

Krugman P., Obstfeld M. International Economics: Theory and Policy. N.Y., Harper Collins, 1991.

Linnemann H. An Econometric Study of International Trade Flows. Amsterdam, North Holland, 1966.

Melder F.E. State and Local Barriers to Interstate Commerce in the United States. University of Maine Bulletin, 40. Univ. of Maine stud., 2nd ser., № 43. 1937.

Musgrave R.A. Theories of Fiscal Federalism. Public Finance / Finances Publiques. 1969. Vol. 24. № 4. P. 521—532.

Oates W.E. Fiscal Federalism. N.Y., Harcourt Brace Jovanovich, 1972.

Obstacles to Free Trade in Canada: A Study on Internal Trade Barriers. Canadian Chamber of Commerce. 2004.

Poncet S. A Fragmented China. Tinbergen Institute Discussion Papers. 2004. № 04-103/2. Available at http://ideas.repec.org/p/dgr/uvatin/20040103.html.

Riker W.H. Federalism: Origins, Operation, Significance. Boston, Little, Brown and Co., 1964.

Shleifer A., Vishny R.W. Politicians and Firms. Quarterly Journal of Economics. 1994. Vol. 109. № 4. P. 995—1025.

Slinko I., Yakovlev E., Zhuravskaya E. Laws for Sale: Evidence from Russian Regions. American Law and Economics Review. 2005. Vol. 7. №1. P. 284—318.

Sonin K. Why the Rich May Favor Poor Protection of Property Rights. Journal of Comparative Economics. 2003. Vol. 31. № 4. P. 715—731.

Tiebout C.M. A Pure Theory of Local Expenditures. Journal of Political Economy. 1956. Vol. 64. №5. P. 416—424.

Tommasi M., Saiegh S., Sanguinetti P. Fiscal Federalism in Argentina: Policies, Politics, and Institutional Reform. Economia. 2001. Vol. 1. № 2. P. 157—211.

Wiseman A.E., Ellig J. The Politics of Wine: Trade Barriers, Interest Groups, and the Commerce Clause. Unpublished manuscript. Ohio State University, 2007.

Woodruff D. Money Unmade: Barter and the Fate of Russian Capitalism. Ithaca, Cornell University Press, 2000.

Yakovlev E. Political Economy of Regulation: Case Study of Russian Regional Alcohol Markets. EERC Working paper. 2005.

Young A. The Razor's Edge: Distortions and Incremental Reform in the People's Republic of China. Quarterly Journal of Economics. 2000. Vol. 115. P. 1091—1135.

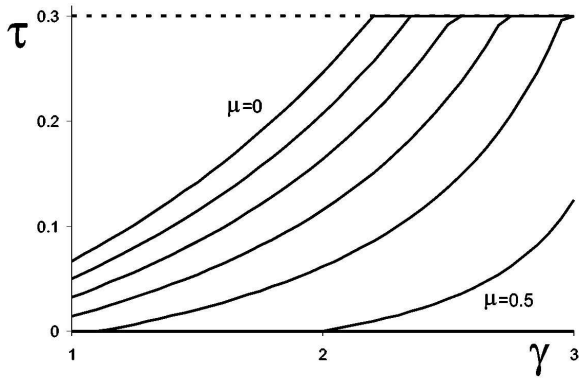

Figure 1. The optimal tariff τ as a function of the degree of capture γ for the weight of multi-regional interests μ ranging from $\mu = 0$ to $\mu = 0.5$.

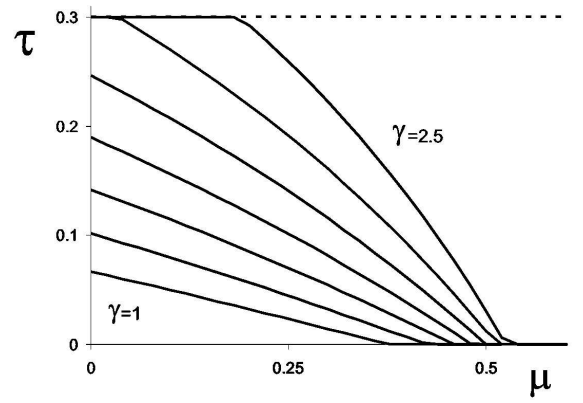

Figure 2. The optimal tariff τ as a function of the weight of multi-regional interests μ when μ is sufficiently small for the degree of capture γ increasing from $\gamma = 1$ to $\gamma = 2.5$. Note that for large enough μ, this relationship does not hold.

In both figures, the parameters are: $a = 1$; $a^* = 4$; and the prohibitive tariff is: $\overline{\tau} = 0.3$.

Table 1. Fixed effects regressions

	(1) Productivity	(2) Sales	(3) Fixed assets	(4) Employment	(5) Return on sales
Number of neighbors captured by MR group	0.0128	0.0192	0.0159	0.0142	-0.0030
	[0.007]*	[0.010]*	[0.007]**	[0.007]**	[0.002]
Number of neighbors captured by MR group* Unrelated industry	-0.0349	-0.0412	-0.0032	-0.0077	0.0006
	[0.009]***	[0.011]***	[0.008]	[0.008]	[0.002]
Number of noncaptured neighbors	0.0104	0.0107	0.0025	-0.0049	0.0024
	[0.010]	[0.013]	[0.008]	[0.005]	[0.002]
Number of noncaptured neighbors * Unrelated industry	-0.0201	-0.0202	0.0032	0.0024	-0.0038
	[0.006]***	[0.008]**	[0.005]	[0.003]	[0.003]*
Unrelated industry	0.0008	0.0019	-0.0004	0.0029	-0.0027
	[0.011]	[0.011]	[0.009]	[0.007]	[0.003]
Mean concentration of PTs in neighbors	0.0180	0.0276	-0.0125	0.0025	-0.0051
	[0.040]	[0.045]	[0.041]	[0.019]	[0.011]
Mean number of PTs in neighbors	0.0156	0.0181	0.0030	-0.0039	0.0023
	[0.011]	[0.014]	[0.008]	[0.005]	[0.002]
Concentration of PTs in own region	0.0048	0.0294	0.0080	0.0130	0.0075
	[0.029]	[0.034]	[0.017]	[0.015]	[0.008]
Number of PTs in own region	0.0056	0.0111	0.0038	0.0018	0.0017
	[0.004]	[0.006]*	[0.003]	[0.003]	[0.001]
MR capture in own region	-0.0288	-0.0276	0.0006	-0.0010	-0.0045
	[0.018]	[0.019]	[0.013]	[0.008]	[0.003]
No capture in own region	0.0013	0.0221	0.0054	0.0104	0.0087
	[0.024]	[0.029]	[0.018]	[0.014]	[0.006]
Home and neighbor's industry structure controls	Yes	Yes	Yes	Yes	Yes
Year and firm fixed effects, industry-specific linear trend	Yes	Yes	Yes	Yes	Yes
Observations	102,028	81,656	110,253	104,573	111,723
R-squared	0.10	0.09	0.09	0.73	0.04

Note: Dependent variables are expressed in logs. Robust standard errors adjusted for clusters at the level of regions in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2. Between effects regressions

	(1) Productivity	(2) Sales	(3) Investment	(4) Employment	(5) Return on sales
Share of neighbors captured by MR group	0.155	0.268	0.144	0.130	0.052
	[0.057]***	[0.065]***	[0.035]***	[0.045]***	[0.014]***
Share of neighbors captured by MR group * Unrelated industry	-0.043	-0.111	-0.089	-0.112	-0.023
	[0.052]	[0.068]	[0.033]***	[0.044]**	[0.012]*
Share of noncaptured neighbors	0.220	0.271	0.265	0.109	0.076
	[0.147]	[0.116]**	[0.063]***	[0.080]	[0.028]***
Share of noncaptured neighbors * Unrelated industry	-0.020	0.017	-0.064	-0.085	-0.031
	[0.065]	[0.075]	[0.043]	[0.060]	[0.018]*
Unrelated industry	-0.007	0.031	-0.026	0.016	0.015
	[0.018]	[0.016]*	[0.010]**	[0.011]	[0.004]***
Mean concentration of PTs in neighbors	-0.172	-0.020	0.080	-0.031	-0.011
	[0.172]	[0.160]	[0.078]	[0.124]	[0.034]
Mean number of PTs in neighbors	-0.007	0.013	0.013	-0.007	0.001
	[0.030]	[0.026]	[0.014]	[0.014]	[0.005]
Concentration of PTs in own region	-0.008	0.037	-0.065	-0.079	-0.035
	[0.057]	[0.073]	[0.047]	[0.053]	[0.013]***
Number of PTs in own region	0.003	-0.004	-0.015	-0.009	-0.004
	[0.009]	[0.012]	[0.009]	[0.009]	[0.002]**
MR capture in own region	-0.008	-0.004	-0.003	0.042	-0.011
	[0.030]	[0.036]	[0.031]	[0.033]	[0.006]*
No capture in own region	-0.012	-0.026	-0.057	-0.044	-0.026
	[0.040]	[0.052]	[0.053]	[0.039]	[0.009]***
Total number of neighbors	-0.010	-0.003	-0.009	-0.002	0.000
	[0.010]	[0.011]	[0.007]	[0.008]	[0.002]
Regional controls	Yes	Yes	Yes	Yes	Yes
Home and neighbor's industry structure controls, initial performance	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	25,181	26,748	24,685	26,717	23,445
R-squared	0.31	0.08	0.66	0.07	0.34

Note: Dependent variables are expressed in logs. Robust standard errors adjusted for clusters at the level of regions in brackets. * significant at 10%; **significant at 5%; *** significant at 1%.

A Appendix

A.1 Data sources

Capture and captors in Russian regions

The database contains an account of all preferential treatments between 1992 and 2003 given by regional legislators and regulators to 978 firms in Russia. Firms were chosen on the basis of being among the five largest firms at least once during 1992 - 2003 in any Russian region. An enterprize was said to be treated preferentially if it received any of the following benefits: tax breaks, investment credits, subsidies, subsidized loans and loans with a regional budget guarantee, official delays in tax payments, subsidized licensing, free grants of state property, or a special "open economic zone" status for their territory. The number of regional laws and regulations that grant distinct preferential treatments to each firm in the sample each year is collected. The source of the information about preferential treatments is the comprehensive database of Russia's regional legislation "Consultant Plus" (www.consultant.ru/Software/Systems/RegLaw). It is worth noting that preferential treatment data have a couple of significant drawbacks: First, the importance of different preferential treatments cannot by quantified (i.e., we cannot compare the benefits firms get from a tax break or a transfer of a large piece of land to them); thus, the data are just a count of the number of legislative acts with distinct preferential treatments. Second, authors identify preferential treatment only when texts of the law contain direct reference to a firm. Despite these drawbacks, the measures of regional-level capture and firms' political influence survive a number of reality checks. Looking at the five largest recipients of preferential treatments per region in any particular year seems to be sufficient to construct reliable measures of political power for firms and state capture for regions because for the vast majority of years and regions (well above 90%), fewer than six firms receive preferential

treatments. For a more detailed description of the data see Slinko, Yakovlev and Zhuravskaya (2005).

Cross-section of ownership and control in Russia

Ownership data that we start with are described by Guriev and Rachivsky (2005) as follows: "The project identified the structure of control for about 1,700 large firms in 45 sectors of Russian economy... The sectors were selected based on their size in order for the survey to cover as large a portion of the economy as possible... The next stage was to target the largest establishments and firms within the sectors. In industry, for example, our firms represented 35 percent of employment and 85 percent of sales of the selected sectors. Finally, economists and business journalists interviewed investment banks, consultancies, business advisors, information agencies and other institutions. They identified the main controlling owners of each firm and the portion of the firm they owned and also any subsidiaries owned by the firms. This in turn generated new sets of firms to be investigated — subsidiaries and corporate owners. A chain would stop downward when a firm owned no subsidiaries and would stop upward when an "ultimate owner" or "controlling party" was identified. The data were checked and supplemented with publicly accessible information." (p. 132).

Histories of Russian companies

The Labyrinth data set The data set contains informal but very detailed account of the histories of most Russian companies. The histories include records of all the major ownership changes. The data set can be found at http://www.panorama.ru/info/labir.html.

Table A.1. Types of regional capture

Region	1996	1997	1998	1999	2000	2001	2002	2003
Adygeya republic	R	R	R	R	R	R	R	R
Altai krai	R	NO	MR	MR	NO	R	R	R
Altai republic	NO	R	R	R	R	R	R	R
Amur oblast	R	R	R	R	R	R	R	NO
Arkhangelsk oblast	NO	NO	NO	NO	NO	R	R	R
Astrakhan oblast	R	R	MR	R	R	R	R	R
Bashkortostan republic	R	R	R	R	NO	NO	NO	R
Belgorod oblast	MR	NO	NO	NO	NO	MR	NO	NO
Bryansk oblast	NO	R	R	NO	NO	R	NO	R
Chelyabinsk oblast	R	R	R	R	R	MR	MR	NO
Chita oblast	NO	R	NO	R	NO	R	NO	NO
Chuvash republic	NO	NO	NO	R	R	R	R	R
Dagestan republic	NO	R	R	R	R	NO	NO	R
Evrei autonomous oblast	NO	NO	NO	R	R	NO	NO	R
Irkutsk oblast	NO	NO	NO	NO	NO	NO	NO	NO
Ivanovo oblast	R	R	R	R	R	R	R	R
Kabardino-Balkar republic	NO	R	R	R	R	R	R	NO
Kaliningrad oblast	R	R	NO	NO	R	R	R	R
Kalmyk republic	NO	NO	NO	R	R	R	NO	NO
Kaluga oblast	R	NO	NO	NO	NO	R	R	R
Kamchatka oblast	NO	NO	NO	NO	R	R	R	NO
Karelia republic	NO	MR	R	NO	MR	NO	NO	MR
Kemerovo oblast	NO	NO	R	R	MR	MR	MR	R
Khabarovsk krai	R	R	R	R	NO	R	R	R
Khakasia republic	NO	NO	NO	NO	NO	NO	NO	R
Khanty-Mansi autonomous okru	NO	NO	NO	R	NO	NO	NO	
Kirov oblast	R	R	R	R	R	NO	MR	MR
Komi republic	R	R	R	R	MR	NO	R	MR
Kostroma oblast	R	R	R	R	NO	MR	MR	MR
Krasnodar krai	NO	NO	R	R	NO	NO	NO	MR
Krasnoyarsk krai	NO	NO	NO	MR	MR	NO	R	NO
Kurgan oblast	NO	NO	NO	NO	NO	R	R	R
Kursk oblast	MR	R	MR	MR	MR	MR	MR	MR
Lipetsk oblast	R	R	NO	NO	R	R	R	R
Magadan oblast	NO	NO	NO	NO	NO	NO	NO	NO
Mari-El republic	NO	R	NO	NO	R	NO	NO	R
Mordovia republic	R	R	R	R	R	R	R	R
Moscow city	R	R	R	R	NO	R	R	R
Moskow oblast	NO	R	R	R	R	R	R	NO
Murmansk oblast	MR	NO	NO	MR	MR	MR	NO	NO
Nizhny Novgorod oblast	R	NO	NO	R	NO	NO	NO	R
Novgorod oblast	NO	NO	R	R	NO	R	R	R
Novosibirsk oblast	R	R	NO	R	R	R	R	MR

Note: "MR," "R" and "NO" denote different types of capture of the neighboring regions: multi-regional, regional, and no capture, respectively. "MR + R" indicates that one half of preferential treatments a region goes to a multiregional group and the other half to a regional group.

Table A.1. Types of regional capture (continued)

Region	1996	1997	1998	1999	2000	2001	2002	2003
Omsk oblast	MR	MR	MR	MR	MR	MR	MR	MR
Orenburg oblast	MR + R	MR + R	R	MR + R	NO	MR	NO	NO
Oryol oblast	R	R	R	MR	MR	MR	NO	NO
Penza oblast	NO	MR	MR	R	R	R	R	MR
Perm oblast	NO	NO	R	R	R	R	NO	NO
Primorskii krai	R	NO	NO	R	NO	R	R	NO
Pskov oblast	R	NO	NO	R	NO	NO	NO	R
Rostov oblast	R	R	R	R	R	R	MR + R	NO
Ryazan oblast	R	MR	NO	NO	NO	NO	NO	NO
Sakha (Yakutia) republic	MR	R	R	R	MR	MR	R	MR
Sakhalin oblast	R	R	R	R	R	MR	NO	NO
Samara oblast	MR	R	R	MR	R	R	NO	NO
Saratov oblast	NO	MR	MR	MR	MR	MR	MR	MR
Smolensk oblast	R	R	R	R	NO	R	NO	NO
St. Petersburg city	NO	NO	R	R	R	NO	MR	NO
Stavropol krai	R	MR	MR	MR	MR	MR	R	R
Sverdlovsk oblast	R	R	R	MR	NO	R	NO	NO
Tambov oblast	R	NO	R	R	R	R	R	R
Tatarstan republic	R	R	R	R	R	R	NO	NO
Tomsk oblast	R	R	MR	MR	MR	R	R	R
Tula oblast	NO	R	R	R	R	R	NO	R
Tver oblast	NO	NO	R	R	R	R	NO	MR
Tyumen oblast	R	MR	NO	R	NO	NO	NO	NO
Udmurtia Republic	NO	MR + R	MR	MR	MR	R	R	NO
Ulyanovsk oblast	NO	R	MR	MR	NO	NO	NO	NO
Vladimir oblast	R	R	NO	R	R	R	R	R
Volgograd oblast	MR	R	R	R	R	R	R	NO
Vologda oblast	MR	NO	MR	NO	MR	R	MR	R
Voronezh oblast	R	R	R	MR	NO	R	MR	MR
Yaroslavl oblast	MR	MR	MR	MR	MR	MR	MR	MR

Table A.2. Number of neighbors by types of capture

		1996			1997			1998			1999			2000			2001			2002			2003		
Region	N	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO
Adygeya republic	1	0	0	1	0	0	1	0	1	0	0	1	0	0	0	1	0	0	1	0	0	1			
Altai krai	3	0	1	2	0	2	1	0	2	1	0	3	0	1	2	0	1	2	0	1	2	0	1	2	0
Altai republic	3	0	1	2	0	0	3	1	1	1	1	1	1				1	1	1	1	1	1	0	3	0
Amur oblast	4	1	1	2	0	2	2	0	2	2	0	4	0	1	1	2	1	2	1	0	2	2	1	2	1
Arkhangelsk oblast	5	1	3	1	2	2	1	1	3	1	0	2	3	3	1	1	0	0	5				3	1	1
Astrakhan oblast	2				0	1	1	0	1	1	0	2	0	0	2	0	0	2	0	0	1	1	0	0	2
Bashkortostan republic	6	1	3	3	2	5	1	1	3	2	3	4	0	1	3	2	2	3	1	1	1	4	0	0	6
Belgorod oblast	2	1	1	0	0	2	0	1	1	0							1	1	0						
Bryansk oblast	4	1	2	1	0	3	1	1	2	1	2	1	1				2	2	0	1	1	2	1	1	2
Chelyabinsk oblast	4	1	2	2	1	3	1	0	1	3	2	2	1	0	0	4				0	1	3	0	2	2
Chita oblast	3	1	1	1	0	1	2	0	2	1	0	2	1	1	1	1	1	1	1	0	2	1			
Chuvash republic	5	0	3	2	0	4	1	1	2	2	1	3	1	0	3	2	0	2	3	0	1	4	0	3	2
Dagestan republic	2	0	1	1							1	1	0	1	1	0	1	1	0	0	1	1	0	1	1
Evrei autonomous oblast	2	0	2	0	0	2	0	0	2	0	0	2	0	0	1	1	0	2	0	0	2	0	0	1	1
Irkutsk oblast	3				0	1	2	0	1	2	1	2	0				1	1	1	0	2	1			
Ivanovo oblast	4	1	3	0	1	2	1	1	1	2	1	3	0	1	1	2	2	1	1	2	1	1	2	2	0
Kabardino-Balkar republic	1	0	1	0																0	1	0	0	1	0
Kalmyk republic	5	1	3	1	1	4	0	2	3	0	1	4	0	1	4	0	1	2	2	1	4	1	0	3	2
Kaluga oblast	5	0	2	3	0	5	0	0	5	0	1	3	1	1	2	2	1	3	1	0	1	4	0	2	3
Karelia republic	3				0	0	3										1	1	1	1	1	1	0	2	1
Kemerovo oblast	6	0	3	3	0	3	3	2	1	3	3	2	1	2	2	2	0	4	2	0	5	1	1	4	1
Khabarovsk krai	6	1	3	2	0	2	4	0	3	3	0	4	2	1	3	2	2	1	3	0	2	4	1	1	4
Khakasia republic	3	0	0	3	0	1	2	0	2	1	1	2	0	2	1	0	1	1	1	1	2	0	0	2	1
Kirov oblast	9	1	4	4	1	5	4	2	4	3	1	5	3	3	3	3	1	4	4	2	2	5	2	4	3
Komi republic	6	0	2	4	1	2	3	0	2	4	1	3	2	0	2	4	0	2	4	1	1	4	1	1	3
Kostroma oblast	5	2	3	0	1	2	2	2	2	1	1	3	1	2	2	1	1	1	3	3	1	1	2	3	0
Krasnodar krai	3	0	3	0	1	2	0	1	2	0	1	2	0	1	2	0	1	1	1	1	3	0	0	2	1
Kurgan oblast	3	0	2	1	1	2	0	0	1	2	1	1	1	0	1	2							0	0	3
Kursk oblast	5	1	3	1	0	3	2	0	3	2				1	1	3	2	2	1	1	1	3	1	2	2
Lipetsk oblast	6	1	4	1	1	4	1	1	4	1	3	2	1	2	2	2	2	3	1	2	1	3	2	2	2

Note: "N" denotes the number of neighboring regions; "MR," "R" and "NO" denote different types of capture of the neighboring regions: multiregional, regional, and no capture, respectively. When MR+R+NO>N, some of the neighbors are classified as captured by both regional and multiregional groups.

Table A.2. Number of neighbors by types of capture (continued)

		1996			1997			1998			1999			2000			2001			2002			2003		
Region	N	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO	MR	R	NO
Magadan oblast	3	1	1	1	0	1	2	0	2	1	0	2	1	1	1	1	1	2	0	0	3	0	1	1	1
Mari-El republic	4	0	3	1	0	2	2	0	2	2	0	4	0	0	3	1	0	2	2	1	1	2	1	2	1
Mordovia republic	5	0	2	3	2	1	2				1	3	1	0	2	3	0	2	3	0	2	3	1	2	2
Moscow city	1	0	0	1	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	1
Moskow oblast	8	1	4	3	2	4	2	1	4	3	1	5	2	1	3	4	1	6	1	1	3	4	2	4	2
Murmansk oblast	1	0	0	1				0	1	0	0	0	1				0	0	1	0	0	1			
Nizhny Novgorod oblast	8	0	6	2	1	6	1	0	4	4	0	6	2	0	6	2	1	4	3	2	4	2	2	5	1
Novgorod oblast	3	1	1	1	0	0	3	1	1	1	0	2	1	1	1	1	0	1	2				1	2	0
Novosibirsk oblast	4	1	2	1	1	1	2	3	1	0	3	1	0				2	2	0	2	2	0	1	3	0
Omsk oblast	3	0	3	0	1	2	0				1	1	1	1	1	1	0	2	1	0	2	1	1	1	1
Orenburg oblast	5	1	3	1	1	4	0	1	4	0	2	3	0	1	3	1	2	2	1				1	1	3
Oryol oblast	5	1	1	3	0	3	2	1	2	2	1	1	3	1	2	2	1	3	1	1	2	2	1	4	0
Penza oblast	5	0	3	2	2	2	1	2	2	1	2	2	1	1	2	2	1	2	2	1	2	2	1	2	2
Perm oblast	5	0	3	2	1	5	0	1	3	1	2	3	0	2	1	2	0	1	4	1	1	3	2	1	2
Primorskii krai	1	0	1	0	0	1	0	0	1	0	0	1	0	0	0	1	0	1	0	0	1	0	0	1	0
Pskov oblast	3	0	1	2	0	1	2	0	3	0	0	3	0	0	1	2	0	3	0	0	1	2	1	1	1
Rostov oblast	5	1	2	2	1	2	2	1	3	1	2	3	0	1	2	2	1	3	1	1	2	2	2	1	2
Ryazan oblast	8	0	5	3	1	4	3	1	4	3	0	7	1	0	7	1	0	7	1	0	6	2	1	6	1
Sakha (Yakutia) republic	6	0	2	4	0	3	3	0	2	4	1	3	2	1	1	4	0	3	3	0	3	3	0	1	5
Samara oblast	4	1	2	2	2	3	0	2	1	1	3	2	0	1	1	2	2	1	1						
Saratov oblast	7	3	3	2	2	5	1	2	4	1	4	4	0	0	4	3	1	5	1	1	3	3	2	1	4
Smolensk oblast	5	0	1	4	0	2	3	0	3	2	0	3	2	0	2	3	0	3	2	0	2	3	1	3	1
Stavropol krai	5	0	1	4	0	2	3	0	3	2	0	5	0	0	4	1	0	2	3	1	2	3	1	1	3
Sverdlovsk oblast	7	0	4	3	1	3	3	0	4	3	0	5	2	1	2	4	1	1	5	1	1	5	1	2	3
Tambov oblast	5	0	3	2	3	1	1	2	1	2	2	1	2	1	2	2	1	3	1	2	2	1	3	1	1
Tatarstan republic	8	2	3	4	2	7	1	2	3	3	4	4	1	1	4	3	1	3	4	1	2	5	1	3	4
Tomsk oblast	6	1	2	3	2	1	3	1	1	4	2	3	1	3	1	2	2	1	3	2	2	2	2	1	2
Tula oblast	5	0	3	2	1	2	2	0	2	3	1	1	3	1	2	2	1	3	1	0	3	2	0	2	3
Tver oblast	6	2	2	2	1	2	3	2	3	1	1	4	1	2	1	3	1	3	2	2	2	2	1	3	2
Udmurtia Republic	4	0	3	1	0	3	1	0	4	0	0	4	0	0	3	1	0	2	2				1	1	2
Ulyanovsk oblast	6	1	2	3	2	3	1	2	3	1	2	4	0	1	5	0	1	5	0	1	3	2	2	2	2
Vladimir oblast	5	1	3	1	2	2	1	1	2	2	1	3	1	1	2	2	1	2	2	1	2	2	1	2	2
Volgograd oblast	5	0	3	2	1	3	1	2	2	1	2	3	0	1	3	1	1	3	1	3	2	1	2	1	2
Vologda oblast	7	1	2	4	2	2	3	1	5	1	1	4	2	2	2	3	2	3	2	3	2	2	5	2	0
Voronezh oblast	7	3	3	1	1	3	3	2	3	2	2	3	2	2	4	1	3	3	1	3	4	1	2	2	3
Yaroslavl oblast	6	1	3	2	0	4	2	1	4	1	0	5	1	1	4	1	1	4	1	2	3	1	2	3	1

Table A.3. Summary statistics for performance and the extent of capture

Variable	Obs	Mean	Std. Dev.	Min	Max
Firms*years:					
Log sales	102 221	8.24	2.23	-1.34	16.92
Log employment	102 226	4.93	1.39	0.00	11.59
Log fixed assets	94 281	8.61	2.34	-1.70	17.67
Log productivity	102 230	3.32	1.31	-7.61	10.79
Return on Sales	78 575	-0.03	0.25	-1.00	1.00
Regions*years:					
Concentration of PTs	429	0.45	0.30	0.20	1.00
Sum of PTs	429	2.04	2.17	0.00	12.00