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SURVEY OF LAND AND REAL ESTATE TRANSACTIONS IN THE RUSSIAN FEDERATION

Statistical Analysis of Selected Hypotheses

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Abstract: This paper analyzes land transactions between municipalities and private businesses, based on official data and on business surveys in 15 regions of the Russian Federation. Since the Russian Federation passed the new Land Code in 2001, land privatization has been officially encouraged by the federal government and in particular, land under previously privatized buildings was supposed to be privatized to the owner at a nominal price. The paper shows that many sub-national authorities (which own or control the vast majority of land of interest to businesses) appear to use a combination of high statutory land buy-out prices and administrative barriers to deter land privatization and to offer "long-term leases" (which are not fully marketable) instead. On the other hand, regions that have established low buy-out prices and taken steps to remove unnecessary administrative barriers to land privatization appear to have higher rates of land ownership by businesses, and to face lower levels of corruption in the privatization process. The paper concludes that further reductions in the statutory prices for privatization of land under buildings and elimination of unnecessary administrative barriers should help to encourage further land privatization and the development of a competitive, secondary market in commercial land.

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[1] This paper was prepared by Gregory Kisunko (World Bank PRMPS) and Jacqueline Coolidge (World Bank Group FIAS), in conjunction with projects in the Russian Federation carried out at the request of the Ministry of Economic Development of Trade and the Federal Anti-monopoly Service. The projects were supported financially by the Foreign Investment Advisory Service of the World Bank Group, the European Union, and the Swiss Economic Cooperation Agency.

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1. Executive Summary

This paper provides a statistical analysis of a survey carried out by the Foreign Investment Advisory Service (FIAS, a multi-donor facility of the World Bank Group) in the Russian Federation about businesses' access to land and real estate. The survey was carried out at the request of the Ministry of Economic Development and Trade and the Federal Anti-Monopoly Service. The survey data were used to test a number of hypotheses about the administrative procedures for businesses' access to land, as described below.

The "Survey of Land and Real Estate Transactions in the Russian Federation"[2] investigated the problems faced by businesses in carrying out land and real estate transactions. The survey covered 15 regions which represent all 7 Federal districts of the Russian Federation. In the course of the survey information was collected from 517 business intermediaries that helped clients with land and real estate transactions in 2004 and 1188 legal entities and sole proprietors that attempted, underwent or completed locating procedures (i.e. land and real estate transactions) in 2004.

The Survey, in turn was inspired by past FIAS projects investigating administrative barriers to investment, including businesses' access to land and real estate, and by a report on "Privatization of Enterprise Land in the Russian Federation: 1992 – 2003"[3] prepared by Khakhalin and Butler for USAID, which described the legal history and economics of the issue and its implications for further policy development.

Between the survey, past research and a mass of anecdotal evidence about businesses' access to land in the Russian Federation, we developed a number of "stylized facts" as follows:

- Land privatization in the Russian Federation has a checkered history, with a clear policy in favor of land privatization not firmly established until the enactment of the 2001 Land Code. Even after the enactment of the Land Code, many vital parameters of land privatization, including pricing parameters, are still not settled.

- The new Land Code of the Russian Federation explicitly calls for land to be privatized as follows:

    - Land under buildings that were privatized earlier is supposed to be sold (or leased) to the owner of the building at an administered price within parameters set by federal legislation; (this category accounts for the great majority of land transactions involving businesses in the Russian Federation);
    - Vacant land intended for new construction is supposed to be privatized by transparent auction or tender procedures (although there have been relatively few transactions of this type to date).

[2] http://www.fias.net/ifcest/fias.nsf/Content/FIAS_Resources_Country_Reports

[3] Khakhalin, Andre A. and Stephen B. Butler, "Privatization of Enterprise Land in the Russian Federation: 1992-2003" prepared for USAID.

- While the large variations (both in pricing and in formulas for distribution of revenues between Federal, Regional and Local levels of government) were certainly problematic from the standpoint of policy stability, the responses of the relevant stakeholders showed clearly that the basics of economic behavior were following predictable patterns (e.g., when normative prices for land were low, businesses responded by increasing applications for land privatization, while public bodies, as sellers, were reluctant to conclude such transactions; conversely during periods when normative prices were relatively high, there were fewer applications from businesses for land privatization even as many public bodies were trying to encourage it).

- To date, most land of interest to businesses is still owned or controlled by municipal governments. This gives municipal governments strong "market power" as near-monopolist land lords, while greater legal flexibility over land rents (compared to land buy-out prices and land taxes) provides a strong fiscal incentive to municipalities to try to maintain their ownership rights. In addition, there is still considerable evidence of municipalities abusing their market power through administrative barriers, not necessarily to keep rents high[4], but more often to favor some firms over others and/or exercise undue influence over local business development.

- Businesses continuously complain that there has been very little land privatization to date, and that the limited amount of privatization that has taken place has suffered from severe inconsistencies, non-transparency, and outright favoritism. The business surveys reinforce these findings with complaints about "need to rely on connections", excessive discretion and a higher degree of corruption associated with real-estate transactions than most other administrative procedures. According to businesses' ranking of their problems with administrative barriers in general, access to land, real estate and construction permits are rated as the most severe obstacles, especially for medium-sized firms[5]. While this problem is not unique to Russia, cross country comparisons suggest that businesses in Russia are even more likely to perceive "access to land" as an obstacle, relative to many other emerging markets.[6] Another FIAS survey of "potential and runaway investors" from Kaliningrad, Novgorod and Tomsk Oblasts also found that potential foreign investors, in particular, were concerned about access to land.[7]

- One of the most important procedures covered by the survey is the privatization of land under buildings that had previously been privatized. This relatively straightforward procedure involves an average of:

    - 11 stages
    - 8 different agencies,
    - 17 different documents,
    - 220 days, and
    - about 70,000 Rubles (about US$2,400) of official fees.

[4] In fact, there is significant evidence that many municipalities keep rental rates relatively low and sales prices relatively high also to deter land privatization.
[5] See Chapter I and Chapter IV of the 2004 FIAS Administrative Barriers report.
[6] See, e.g., Muir and Shen, "Land Markets: Promoting the Private Sector by Improving Access to Land", World Bank Group Viewpoint Note, available at http://rru.worldbank.org/PublicPolicyJournal/Summary.aspx?id=300.
[7] FIAS, 2004: Russia's Runaway Investors.

The range, however, is quite large, from low figures of about 50 days in Rostov Oblast and 10,000 Rubles in Novgorod Oblast to high figures of over 400 days in Novosibirsk and 360,000 Rubles in Moscow Oblast.

- While many regions and municipalities have instituted mechanisms to privatize real estate, most are not yet transparent or fair. Unfortunately, left to their own devices, they have little incentive to improve their procedures and advance the reforms.

The authors then developed and tested a number of hypotheses, using the survey data, with findings as outlined below.

The principal factor influencing the level of land privatization in a region (for land under privatized buildings) is the pricing policy pursued by local authorities. The analysis demonstrates that in those surveyed regions where the local government pricing policy is at the low end of the range allowed by Federal law, the rate of land privatization transactions is higher (even though rental rates for long-term leases may often appear more beneficial). Within the examined model, all other factors being equal, a modification of the pricing policy from the higher end of the range allowed by Federal law to the lower end is associated with a significant increase in the rates of land privatization (more than doubling for some regions).

Excluding the pricing policy from consideration, the length of time required to complete the relevant procedures becomes the main factor influencing the level of land privatization (for all types of land privatization). Although the survey data don't show it explicitly, it is understood that most market participants are generally aware of the time required for such transactions, *ex ante*, within their jurisdiction. The longer the duration of the procedure, the lower the rate of the privatized land in a region. A decrease in the average procedure duration by one month (30 days) or by approximately 14%, other things being equal, increases the number of land privatization transactions per 100,000 residents by about 11%.

Delays associated with land privatization procedures in turn lead to an increase in the proportion of transactions for long term land leases as opposed to land ownership (leases in the Russian Federation are less than fully marketable, relative to, say, Hong Kong). If the delays are reduced by 25% from their mean length, other things being equal, the rate of land lease transactions would decrease by about 15 percentage points in favor of land privatizations.

A second factor influencing land privatization is frequency of refusals by government agencies in the course of a procedure. The analysis demonstrates that while processing land privatization applications, government agencies tend to refuse the completion of such transactions twice as much, on average, as land lease procedures, even though the procedures and criteria are supposed to be the same.

Procedures in which applicants have significant sunk costs are much longer in comparison to the "reversible" ones. On average, other things being equal, "sunk cost procedures" take about 34% more time than procedures where the applicant usually does not have sunk costs.

Procedures where applicants have sunk costs (e.g., they have already purchased their land) are more prone to corruption as compared to the "reversible" ones. The share of stages involving unofficial payments while passing sunk cost procedures is higher by 11% on average.
More complex land procedures are more prone to corruption. Other things being equal, each extra stage added to the procedure (as specified in legislative documents regulating a particular procedure) increases the percentage share of stages in which unofficial payments were reported by about 4 percentage points.

However, the procedure duration, controlling for complexity and official fees, does not significantly affect the level of unofficial payments for a land-related procedure.

The official cost of the procedures, along with the complexities associated with them, has a significant effect on the level of unofficial payments – holding other variables constant, the higher the official cost, the higher the level of unofficial payments.

Established relationships with government officials may help to reduce the duration of the process somewhat, although their effect is not significant. However, such connections cost money to maintain – intermediaries who have connections that they think can help in facilitation of their work charge more for completion of procedures.

The use of auctions or tenders is still not very common in many regions, and while the data suggest that use of such mechanisms is associated with higher rates of land privatization, there is not yet clear evidence that they are associated with other positive outcomes such as fewer delays or unofficial payments.

Policy implications to consider for the Government of the Russian Federation, in light of the findings, including the following:

- Unnecessary complexity (e.g., unnecessary steps in procedures) should be reduced in administrative procedures for businesses' access to land. Regions with the simplest procedures should serve as a positive example for regions with more complex procedures.

- Keeping land privatization prices low (i.e., administered prices for land under buildings that have already been privatized) helps to encourage land privatization transactions and helps to develop a competitive secondary market in land. At the same time, if municipalities can not obtain revenues from land rents, they may need some compensating source of revenue (e.g., enhanced land taxes) to maintain their fiscal balances and to encourage their cooperation with land privatization.

- For many administrative procedures, a policy of "silent consent" with time limits should be introduced. Officials should be required to provide a written explanation, against established legal or administrative criteria, for any refusal of applications for land privatization, within a stipulated time limit. If no decision has been rendered by the time limit, it should be deemed approved, with enforcement available through the courts if necessary.

- Auctions and tenders for land privatization should be further encouraged, but need to be monitored closely for transparency and fairness.

2. Background and Methodology

Project Background and Objectives

In 2005, FIAS received a request from the Ministry of Economic Development and Trade and the Federal Antimonopoly Service to conduct a survey on land and real estate accessibility for enterprises in 15 regions of the Russian Federation, and provide recommendations for improvement.[8]

This paper aims to carry out a detailed statistical analysis of one set of the results of the recent survey of administrative procedures for land and real estate transactions in 15 regions of the Russian Federation conducted by FIAS.

Between the survey, past research and a mass of anecdotal evidence about businesses' access to land in the Russian Federation, we developed a number of "stylized facts" as follows:

- Land privatization in the Russian Federation has a checkered history, with a clear policy in favor of land privatization not established until the enactment of the 2001 Land Code. Even after the enactment of the Land Code, many vital parameters of land privatization, including pricing parameters, are still not settled.

- The new Land Code of the Russian Federation explicitly calls for land to be privatized as follows:

    - Land under buildings that were privatized earlier is supposed to be sold (or leased) to the owner of the building at an administered price within parameters set by federal legislation (this category accounts for the great majority of land transactions involving businesses in the Russian Federation).
    - Vacant land intended for new construction is supposed to be privatized by transparent auction or tender procedures (although there have been relatively few transactions of this type to date).

- While the large variations (both in pricing and in formulas for distribution of revenues between Federal, Regional and Local levels of government) were certainly problematic from the standpoint of policy stability, the responses of the relevant stakeholders showed clearly that the basics of economic behavior were following predictable patterns (e.g., when normative prices for land were low, businesses responded by increasing applications for land privatization, while public bodies, as sellers, were reluctant to conclude such transactions; conversely during periods when normative prices were relatively high, there were fewer applications from businesses for land privatization even as many public bodies were encouraging it).

[8] *See FIAS/EU Report on Access of Enterprises to Land (prepared for MEDT) and FIAS/EU Report on Land and Real Estate Transactions (prepared for FIAS) at* www.worldbank.org/russia/fias

- At the moment, most land of interest to businesses is still owned or controlled by municipal governments. This gives municipal governments strong "market power" as near-monopolist land lords, while greater legal flexibility over land rents (compared to land buy-out prices and land taxes) provides a strong fiscal incentive to municipalities to try to maintain their ownership rights. In addition, there is still considerable evidence of municipalities abusing their market power through administrative barriers, not necessarily to keep rents high[9], but more often to favor some firms over others and/or exercise undue influence over local business development.

- Businesses continuously complain that there has been very little land privatization to date, and that the limited amount of privatization that has taken place has suffered from severe inconsistencies, non-transparency, and outright favoritism. The business surveys reinforce these findings with complaints about "need to rely on connections", excessive discretion and a higher degree of corruption associated with real-estate transactions than most other administrative procedures[10]. According to businesses' ranking of their problems with administrative barriers in general, access to land, real estate and construction permits are rated as the most severe obstacles, especially for medium-sized firms[11]. While this problem is not unique to Russia, cross country comparisons suggest that businesses in Russia are even more likely to perceive "access to land" as an obstacle, relative to many other emerging markets.[12]

- One of the most important procedures covered by the survey is the privatization of land under buildings that had previously been privatized. This relatively straightforward procedure involves an average of:

    - 11 stages
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    The range, however, is quite large, from low figures of about 50 days in Rostov Oblast and 10,000 Rubles in Novgorod Oblast to high figures of over 400 days in Novosibirsk and 360,000 Rubles in Moscow Oblast.

- While many regions and municipalities have instituted mechanisms to privatize real estate, most are not yet transparent or fair. Unfortunately, left to their own devices, they have little incentive to improve their procedures and advance the reforms.

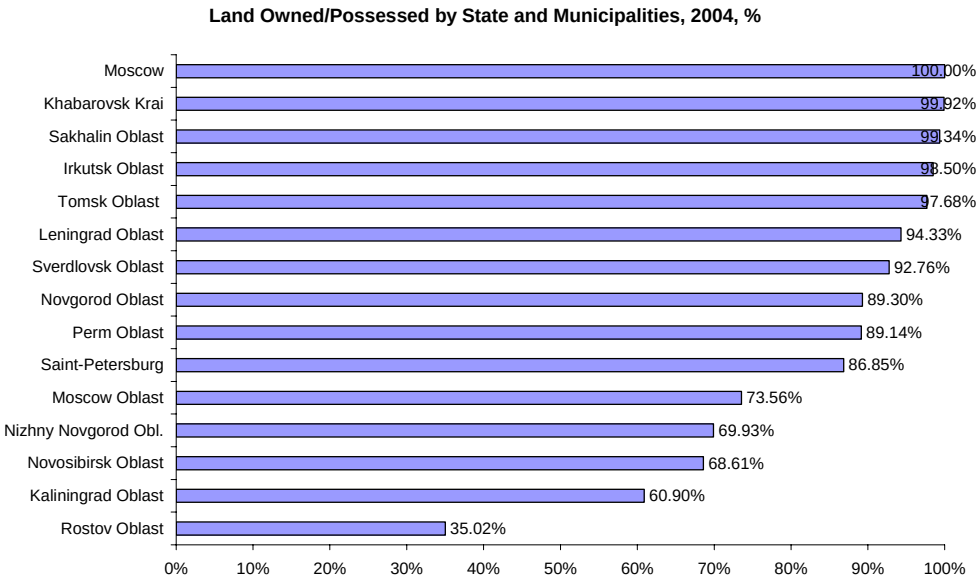
Chart 1 shows what proportion of land in 15 regions is owned by state and municipalities. As can be seen in the Chart 1, in 10 out of 15 regions, more then 3/4 of land is owned or is in possession of state or municipalities. In only 1 of these 15 regions (in Rostov Oblast) the share of state and municipal lands is less than 50%. Moscow City stands out with 100% of land still

[9] In fact, there is significant evidence that many municipalities keep rental rates relatively low and sales prices relatively high also to deter land privatization.
[10] See Chapter I and Chapter IV of the 2004 FIAS Administrative Barriers report.
[11] See Chapter I and Chapter IV of the 2004 FIAS Administrative Barriers report.
[12] See, e.g., Muir and Shen, "Land Markets: Promoting the Private Sector by Improving Access to Land", World Bank Group Viewpoint Note, available at http://rru.worldbank.org/PublicPolicyJournal/Summary.aspx?id=300.

publicly owned. Overall, the data clearly indicate that municipalities (which are in fact administering the privatization and lease applications for state lands as well) are still monopoly holders of this resource.

Of the remainder of the land in the 15 regions, some is owned by legal entities and some by individuals. St. Petersburg has the highest proportion of land owned by legal entities, at 11%, and Rostov Oblast has the highest proportion of land owned by individuals, at just under 65%. Moscow City has 0% of its land in private ownership of any kind, while Khabarovsk Krai has less than 1%.

Chart 1 Land owned/possesses by state and municipalities, 2004, %



Source: Based on data from Roskadastr State (National) Report on the Status and Use of Lands in the RF in 2004.

Data from recent surveys reinforce this message: Among SMEs surveyed by CEFIR in 2005, only 6% own land. From FIAS' surveys for the current project in 15 regions of the Russian Federation of firms that have carried out land or real estate transactions in 2004 (i.e., mostly medium-sized firms), the proportion of respondents reporting ownership rights in land was about 18% (Table 1).

The survey also showed a large range of responses across regions, from zero private land ownership in Moscow City to a high of 47% in Irkutsk. Respondents in most regions indicated less than 25% of respondents owned land. ***Fully one-third of all survey respondents reported that they wanted to buy land but were deterred from doing so by local authorities.***

While many firms had officially applied for land ownership rights in 2004, the success rate ranged from zero in Moscow City to a reported 97% in Rostov Oblast. By contrast, applications for lease-hold rights were usually much more successful, ranging from a low of 50% in Moscow Oblast to a high of 93% in Rostov Oblast.

Table 1. Average Proportion of Survey Respondents' Land Rights in 2004, %

	Ownership	Lease	No Land
SMEs (General) /1	6	34	57
Firms involved in land/real estate transactions /2	18	45	43

Sources: 1/ CEFIR, 2/ FIAS (note figures sum > 100% because some respondents have more than one parcel of land and may have ownership rights on some and lease rights on others)

Research task

Using the results of the "Survey of Land and Real Estate Transactions in the Russian Federation"[13], FIAS outlined a number of hypotheses regarding the influence of the policies and administrative barriers in the area of privatization and leasing of land plots as follows:

1. Demand for land is influenced by the pricing policy implemented by sub-national authorities, and also by non-market factors, such as administrative barriers, e.g. duration and cost of completing the relevant procedures.
2. Russian businesses often apply to lease land because the procedure for land privatization (purchase of land from municipalities and other public sector bodies) is often accompanied by higher administrative costs, delays, and by frequent refusals by bureaucrats.
3. Procedures where companies have already incurred significant sunk costs are characterized by longer duration and higher reported frequency of unofficial payments.
4. Regions where more land tenders and auctions are held will have a higher rate of land privatization transactions, and land transactions that are conducted through tenders will be less prone to corruption and bureaucratic delays.
5. Excessively complicated, longer, and costly procedures are associated with more frequent unofficial payments.
6. Having "good connections" with government officials reduces costs and delays for carrying out procedures.

In this paper we assemble simple models reflecting the above hypothesis and test them econometrically using OLS regression analysis.

Previous Research

We were unable to find other examples of survey data on land transactions, so our research in this area appears to be quite unique. However, we did draw upon several other studies about businesses' access to land and real estate, including various sections of the World Bank's *Land Policies for Growth and Poverty Reduction*,[14] and *Doing Business 2007* (Chapter on "Registering Property")[15], and Land Markets: Promoting the Private Sector by Improving Access to Land[16]

[13] FIAS, op.cite.
[14] World Bank Land Policies for Growth and Poverty Reduction, 2003, Oxford University Press.
[15] http://www.doingbusiness.org.
[16] Muir and Shen, available at http://rru.worldbank.org/PublicPolicyJournal/Summary.aspx?id=300

More specifically, the work benefited from Khakhalin and Butler, "Privatization of Enterprise Land in the Russian Federation: 1992 – 2003"[17], which clearly describes the legal history and economics of businesses trying to privatize the land under their buildings (which were mostly privatized during the early-mid 1990s). This paper describes the many changes in policy, pricing, and procedures for land privatization both before and after the enactment of the Land Code in 2001, and how the main stakeholders reacted to the shifting incentives and parameters affecting the land market.

The Khakhalin/Butler paper points out that while land rents are almost entirely at municipal discretion, both land purchase prices and land taxes (and the formulas for their distribution between Federal/regional/and municipal levels of government) are established by law. In particular, land purchase prices are currently set within minimum and maximum parameters, established as a multiple of the land tax rate (which itself is set administratively, based on cadastral values that are also established administratively).

While there is some evidence that some public sector bodies were more willing to privatize land when they were allowed to charge and keep the full revenues from the highest land prices (especially when they were facing enactment of new laws that would force them to accept lower revenues in the future), the more general pattern suggests that even the highest land privatization prices stipulated during the period between 1992 – 2003 "were apparently not high enough to induce localities to promote or even cooperate with further land privatization."[18] Further, since land rental rates are much less constrained, most municipalities still seem to prefer it for the sake of "greater long term control over revenue."[19]

Finally, they note extensive anecdotal evidence that municipalities exploit vague administrative procedures to refuse or delay applications for land privatization, including designation of large amounts of land as being in "water protection" or "sanitary protection" zones or reserved by "master plans" for "future public use."[20]

Sources of information

The following sources of information were used in the course of this research:

1. Data collected by the Survey of Land and Real Estate Transactions in the Russian Federation[21]; and
2. Data from open sources of information:
    - Descriptive statistics on Russian regions from the Russian Statistical Agency (RosKomStat) web-site;
    - Art. 2 of the Federal Law on Enactment of the Land Code;
    - statistics of land transactions in Russia regions in 2004 year (Form #3-zem) obtained from the Russian Statistical Agency.

[17] Khakhalin and Butler, op cite.
[18] Ibid., pg. 13.
[19] Ibid., pg. 26
[20] Ibid., pg. 27.
[21] The survey was conducted by the marketing agency Media Navigator on behalf of FIAS.

Survey

The "Survey of Land and Real Estate Transactions in the Russian Federation" investigates the problems faced by businesses in carrying out land and real estate transactions. The survey covered 15 regions which represent all 7 Federal districts of the Russian Federation, 17% of the territory, 33% of the population and 44% of the GDP of Russian Federation. They are Kaliningrad oblast, Leningrad Oblast and Saint-Petersburg, Moscow Oblast and Moscow, Sverdlovsk Oblast, Novgorod Oblast, Tomsk Oblast, Khabarovsk Krai, Irkutsk Oblast, Rostov Oblast, Perm Oblast, Novosibirsk Oblast, Nizhny Novgorod Oblast and Sakhalin Oblast.

The survey included two questionnaires:

- The "Business Intermediary Survey" (BIS)
- The "Administrative and Regulatory Cost Survey" (ARCS)

In the course of the survey information was collected from 517 business intermediaries that helped clients with land and real estate transactions in 2004 (further referred to as BIS companies) and 1188 legal entities and sole proprietors that attempted, underwent or completed locating procedures (i.e. land and real estate transactions) in 2004 (referred to as ARCS companies).

The information was collected on the following types of locating procedures:

Procedure no. 1: Obtaining a short term lease for a land plot, which is currently state or municipal property, for purposes of construction, with a preliminary agreement on the object location.

Procedure no. 2A and 2B: Obtaining (by purchase (2A) or long term lease (2B)) a land plot, which is currently state or municipal property for purposes of construction, without a preliminary agreement on the object location, during auctions or tenders.

Procedure no. 3A and 3B: Obtaining ownership (3A) or long term lease (3B) rights on land plots that are currently state or municipal property, with premises, buildings or constructions, which are private property.

Procedure no. 4: Lease of a real estate object (premise, building or construction) which is currently municipal property, without the procedure of tender (including purposive appointment).

Procedure no. 5: Lease of a real estate object (premise, building or construction) which is currently the municipal property during tenders or auctions.

Procedure no. 6: Transferring a premise (building) from the residential use to non-residential.

Procedure no. 7A and 7B: State registration of rights on real estate and real estate transactions (in the cases of (7A) buying or selling a real estate object (land plot, building or premise) in the secondary market, (7B) drawing a contract of a real estate object (land plot, building or premise) lease for the term of more than 12 months in the secondary market).

Procedure no. 8: Transferring a land plot from one category into another, or changing the designated use of a land plot.

Procedure no. 9: Privatization of a real estate object (building or premise) which is currently municipal property.

For the purposes of this paper we have used only procedures guiding land transactions, i.e. Procedures nn. 1, 2A, 2B, 3A, 3B, and 8. Table 2 shows the number of relevant responses collected in each of the 15 surveyed regions.

Table 2. Number of respondents that carried out locating procedures

	Land and Real estate procedures		Land procedures	
	BIS	ARCS	BIS	ARCS
Kaliningrad oblast	58	100	53	93
Saint-Petersburg	17	44	7	3
Leningrad oblast	12	29	11	21
Moscow	47	60	25	24
Moscow oblast	24	18	19	20
Sverdlovsk oblast	26	99	24	29
Novgorod oblast	14	100	13	70
Tomsk oblast	37	100	53	41
Khabarovsk Krai	42	70	41	58
Irkutsk oblast	51	100	47	92
Rostov oblast	18	100	43	48
Perm oblast	73	100	53	76
Novosibirsk oblast	49	100	53	42
Nizhny Novgorod oblast	37	100	43	76
Sakhalin oblast	12	68	9	60
Total	517	1188	494	722

Nature of the analysis

This paper is the first attempt to apply econometric tools to the analysis of the survey dataset. We purposely limited ourselves to basic models both due to the limited number of observations in some of the models we have tested for this paper and to avoid, where possible, overly complex models that might complicate interpretation of the results. This paper can be seen as a "teaser" and introduction to the wealth of information collected via the Survey of Land and Real Estate Transactions in the Russian Federation.

Three of six hypotheses outlined above (see page 8) are dealing with regional policy environment (e.g. in hypotheses 1, 2, and 4), the others are aimed at testing how specific administrative procedures affect individual land transactions in the surveyed regions (e.g. hypotheses 3, 5, and 6). The variety of models, hypotheses and data used is a result of the exploratory ("teaser") nature of this paper. The future further and deeper analysis will, probably, concentrate on one-two hypothesis related to one of specific issues outlined above.

The number of observations was sufficient when the models were based on individual transactions. In case of regional models based on the survey results we had only 15 observations (hypotheses 1 and 2)[22], thus we tried to supplement our survey-based estimates with analysis of publicly available data for all regions of Russian Federation. While our survey-based conclusions stood up to these tests, it is important to point out those variables in the survey-based models where not identical, although rather similar, to the ones used in the all-Russia models. One model (hypothesis 4) was entirely based on the publicly available regional information.

3. Analysis of Impact of Regional Price Policy, Administrative Barriers and Other Factors of Demand for Land

Hypothesis 1: *Demand for land ownership is influenced by the pricing policy*[23] *implemented by regional authorities, and also by non-price factors, such as administrative barriers, duration and cost of procedures, etc.*

In the Russian Federation, as mentioned above, most businesses, even those who own their own buildings, do not own the land under their buildings, which is usually owned by the municipal authorities (or owned by another public sector body and administered by the municipality). In this context, land sales prices and rental rates, as *administered prices*, are constrained by law. While data on land prices are readily available, rental rates are both more variable and less accessible. Therefore, the full range of information one would want for a thorough analysis was not available. Thus while there are some opportunities to study factors affecting demand, one can not look for a normal, market-driven supply curve.

To explain the variation in *the number of land parcel sales (i.e., completed transactions) in Russian regions in 2004,* we tested several variables. Since only land privatization procedures are relevant for the substantiation of this hypothesis, only observations related to those procedures were selected (Procedure 3A, see Page 10 for the list of procedures). Consequently, any observations related to procedures for leasing a land plot were not included in the regression model.[24]

Initially, we tried to fit models with the data from the 15 regions where the surveys were conducted (see, for example, Table 2 above for the list of surveyed regions). Due to a limited number of observations, we had to restrict ourselves to the following three simple models that each tested for the dependent variable γ, where:

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[22] Due to limited availability of regional data, this number was even less, mostly 14 or 13 observations depending on a model.

[23] Federal policy allows sub-national authorities to set the price of land for privatization between specified minima and maxima. According to the Article 2 of the Federal Law on Enactment of the Land Code, "the RF Subject shall adopt the following land prices in the settlements with the following population numbers:
(i) More than 3 million inhabitants – in the amount from five to thirty times the land tax for one square unit of a land plot;
(ii) From 500 thousand to 3 million inhabitants – in the amount from five to seventeen times the land tax for one square unit of a land plot;
(iii) Up to 500 thousand inhabitants, as well as out of the borders of the settlements – in the amount from three to ten times the land tax for one square unit of a land plot (for the beginning of the current tax year)."

[24] Also, while pricing policies for land privatization are Federally regulated and relevant data are available, rental rates for land owned by sub-national authorities is subject to less regulation and comparable data are not available.

γ = The number of land privatizations in a region (sales by the state and municipal authorities) to legal entities per 100,000 residents.[25]

$$\gamma = \alpha_{01} + \alpha_{11}\rho + \alpha_{21}\theta + \varepsilon \quad \text{(Model 3.1.1)}$$
$$\gamma = \alpha_{02} + \alpha_{12}\tau + \alpha_{22}\theta + \varepsilon \quad \text{(Model 3.1.2)}$$
$$\gamma = \alpha_{03} + \alpha_{13}\rho + \alpha_{23}\tau + \varepsilon \quad \text{(Model 3.1.3),}$$

where:

ρ is the land pricing factor (set administratively) in the regional capital;

τ is the logarithm of duration of land sale transaction procedure (ARCS); and

θ is a control variable (e.g., a logarithm of the gross regional product) from a list shown in the Annex.

However, these necessary simplifications still do not prevent a potential overspecification of the models.

Taking into account the limited number of observations, we used regional GDP per capita as the control for both price policy and procedure duration models (see Table 3.1. below), assuming that it would represent the broadest measure of regional development and realized potential. This control variable turned out to be insignificant in both model settings.

The results in Table 3.1 show that administrative pricing policy enacted by regional authorities affects the number of privatizations (sales of land under privatized structures by regional and municipal authorities) significantly and negatively (Model 3.1.1). The time it takes to complete a procedure of land privatization has negative influence on the number of sales, but this influence is not statistically significant (Model 3.1.2). When both the duration of a relevant procedure and the pricing police indicator are entered in the model (Model 3.1.3), only the pricing factor is statistically significant (but the significance level somewhat weakens to 5.5%), although both variables affect number of privatizations negatively.

[25] More specifically, these are legal entities that privatized land "for industrial and other special use and for other purposes." The definition excludes agricultural entities or land for agricultural use. While the data available is aggregate, and not limited to land under privatized buildings, according to experts on commercial real estate in the Russian Federation, and supported by strong anecdotal evidence and FIAS' own experience during the survey, the number of transactions involving greenfield sites and therefore using prices set by auction or tender are a very small fraction of the total.

Table 3.1. OLS results

Dependent variable: Number of sales to legal entities per 100,000 residents for industrial and other special uses and purposes

	Model 3.1.1	Model 3.1.2	Model 3.1.3
Constant	41.71 (52.02)	55.42 (59.25)	39.37*** (9.51)
Administrative land pricing factor in the regional capital	-0.55** (0.20)		-0.79* (0.36)
Ln duration of land sale transaction procedure (Proc. 3A, ARCS)		-3.86 (2.43)	-2.62 (2.11)
Ln regional GDP per capita	-2.40 (4.59)	-2.22 (5.21)	
Adj. R^2	0.345	0.069	0.356
N	14	13	13
Mean of the dependent variable	8.99	9.68	9.68

*, **, *** Significance level of 10%, 5%, and 1%, respectively

In order to validate the above results, we used a larger set of data collected from official statistical sources. Unfortunately, only a limited number of variables used in the previous models were available from official sources, so where possible, we tried to confirm the survey results with approximation variables available from the official statistics. Using official data, we tested the following model as an extension of the Model 3.1.1 described above:

$$\gamma = \alpha_{02} + \mathrm{A}_{12}\Theta + \alpha_{22}\rho + \varepsilon \qquad \text{(Model 3.2)}$$

where:
Θ is a vector of control variables from a list shown in the Annex; and
ρ is still the administrative land pricing factor in the regional capital.

Table 3.2 shows that the pricing factor imposed by regional authorities is still highly significant (actually this variable has a higher significance in "whole country" setting than in the smaller sample of surveyed regions). Increases in the level of the pricing factor negatively influence the number or privatized land plots. In this larger set of observations the significance of other controls is also increasing. The only unexpected result is the change of sign for regional income (Ln of regional GDP) which becomes positive instead of negative in the earlier models. This, perhaps, can be explained by the rather limited number of observations used to test Models 3.1.1 through 3.1.3.

For the models in Table 3.2, the main factor influencing the land privatization level in any region is the pricing policy implemented by authorities. This policy is expressed as a multiple of the land tax rate per square unit (meter) of a land plot (i.e. a land price factor of 17 means that municipal authorities price a square meter of land at seventeen times the land tax rate for this land plot). The latter means that, other things being equal, a reduction in the land price factor by one standard deviation, (e.g., from about 10 to about 6), would increase the number of land

privatizations by legal entities by at least 23% (based on the data for all Russian regions) or from 6.4 transactions to 7.9 transactions per 100,000 residents.

Table 3.2. OLS results

Dependent variables: Number of land privatizations in a region (sales to legal entities for industrial and other special uses and purposes) per 100,000 residents
(all Russian regions for which this data is available)

	Model 3.2.1	Model 3.2.2	Model 3.2.3
Constant	-11.53 (9.98)	-15.81* (9.957)	-15.00 (12.03)
Administrative land pricing factor in the regional capital	-0.37*** (0.12)	-0.38*** (0.12)	-0.44*** (0.14)
Ln regional GDP per capita	1.91** (0.89)	2.42*** (0.86)	2.38** (1.08)
Distance from the regional capital to Moscow City (in thousand km)		-0.59*** (0.20)	-0.41* (0.23)
Ratio of per m^2 prices of land sold to legal entities for industrial and other special use to land sold to legal entities for other purposes			0.36** (0.16)
Adj. R^2	0.124	0.213	0.277
N	73	73	55
Mean of the dependent variable	6.43	6.43	7.63

*, **, *** Significance level of 10%, 5%, and 1%, respectively

For the surveyed regions, this can be illustrated with the example of Novosibirsk region where the land price factor equals 17 - the maximum allowed by law and the reported number of land sales is reported at 4.31 per 100,000 or regional population. If the Novosibirsk authorities were to reduce their land price factor by half to 9, then, other things being equal, their land sales would more than double to 8.7 transactions per 100,000 residents. If they were to reduce the price factor to the minimum allowed by the law for cities with a population of over 500,000 residents, i.e. to a factor of five, then the number of privatizations of municipal land would be expected to reach about 11 per 100,000 residents.

Chart 3.1 shows how many more land privatization transactions could potentially be achieved in the surveyed regions by reducing land price policy factor to the minimum allowed by law.

Another key factor influencing the number of land privatization transactions in regions is the duration of land privatization procedures. The longer the duration, the lower the number of land privatization transactions occurring in any given region (see Chart 3.2 below). Unfortunately, official Russian statistics do not collect information on procedure duration. Therefore, the following example is based on the information on procedure duration collected in the 15 regions surveyed by FIAS. A decrease in the average procedure duration by one month (30 days) or by approximately 14%, other things being equal, increases the number of land privatization transactions per 100,000 residents by about 11%.

Chart 3.1. Dependence of the level of land privatization (existing and potential transactions per 100,000 residents) on the administrative land price factor, by region

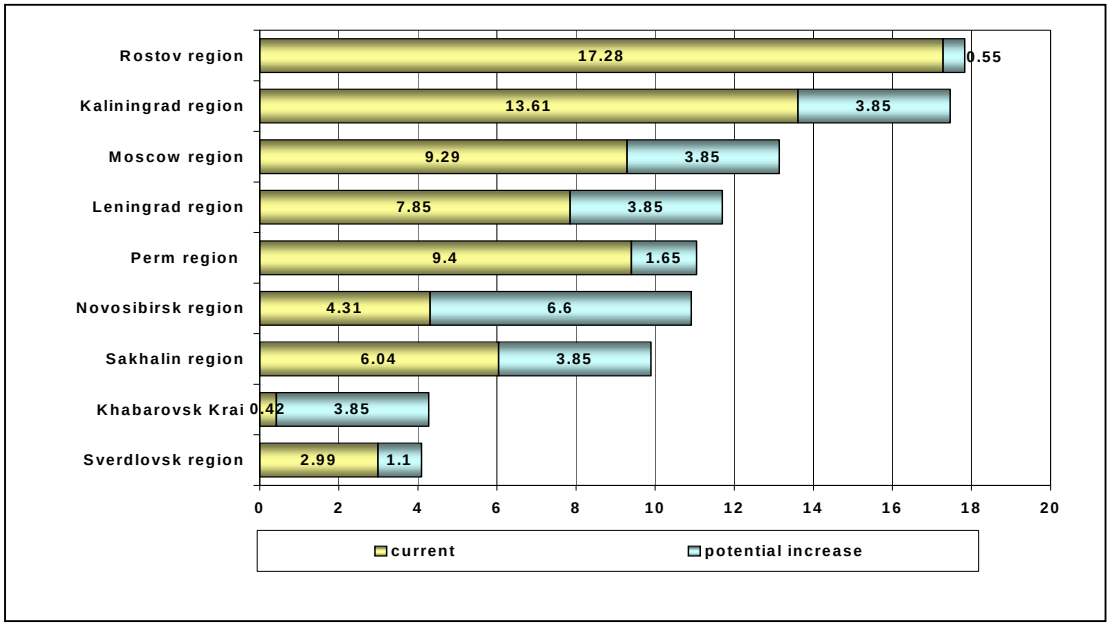
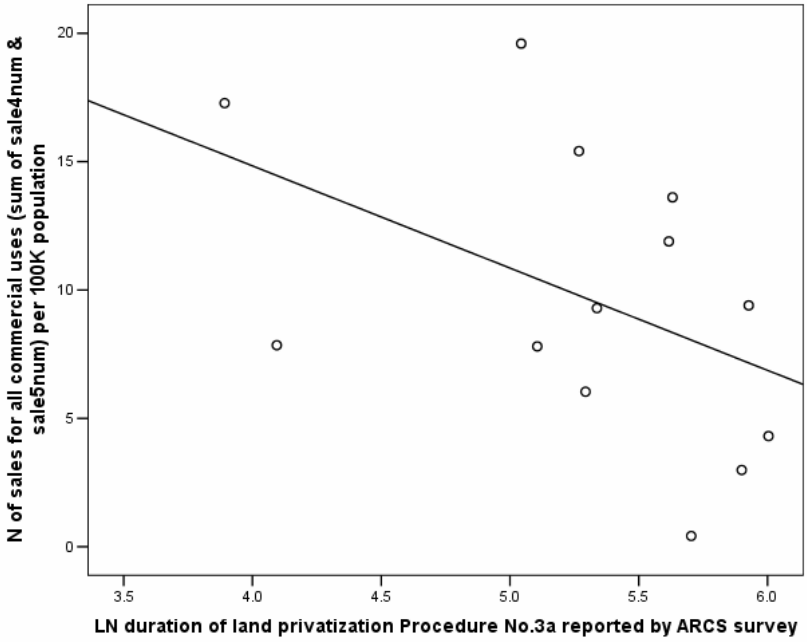


Chart 3.2. Dependence of the land privatization transactions on the procedure duration



4. Choice of Leasing vs. Buying (Privatizing) Land from the State by Russian Enterprises

Hypothesis 2: *Russian enterprises often prefer to apply to lease land (rather than to purchase it) because obtaining ownership of land is accompanied by higher administrative outlays, longer delays, and frequent refusals by bureaucrats.*

In this hypothesis we constructed a model to explain the variation in the dependent variable: *rate of land lease transactions* (Υ_3). This variable was constructed using the information reported by respondents to the ARCS survey as the ratio of the number of land lease transactions to the total number of land transactions (lease plus privatization) in each of the surveyed regions.

The first step in testing the above mentioned hypothesis was the construction of a correlation matrix to examine simple paired relations between the variable of interest and other potential explanatory variables (and to examine the extent to which the explanatory variables are interrelated). The following administrative barriers were considered: procedure duration, number of stages, the cost of a procedure, frequency of unofficial payments etc. (for the list of variables see Annex).

Although Procedure No.2 (purchase of land for construction – see Page 10 for the list of procedures) deals with both leasing (Procedure No.2.B) and privatization of land (Procedure No.2.A), all the following analysis is limited to Procedure No.3 (lease or privatization of land under privatized buildings). This is because the number of observations for Procedure No.2 is not sufficient to produce regional averages[26]. From the correlation matrix we have concluded that the duration of the procedure, its official cost, total cost, and rate of refusal are all significantly correlated with the rate of land lease transactions.

In its generic form, the tested models look as follows:

$$\Upsilon_3 = \alpha_{03} + A_{13}\Theta + \alpha_{23}\tau_A + \varepsilon \qquad \text{(Model 4)}$$

where:
Θ is a vector of control variables from a list shown in the Annex; and
τ_A is the logarithm of duration of land plot privatization procedure No. 3.a. by ARCS companies.

Table 4.1 shows that the most pronounced administrative barrier influencing the decision of a business either to buy or to lease the land in the surveyed regions is the procedure duration. This variable is significant in all settings with a positive coefficient.

[26] Procedure No.1 is not included because it is dealing only with temporary leasing of land plots, i.e. it does not have a "twin" procedure covering privatization of the state and municipal lands.

Table 4.1. OLS results

Dependent variable: the rate of land lease transactions in the total number of land transactions by region (%)

	Model 4.1	Model 4.2	Model 4.3	Model 4.4
Constant	55.96 (204.81)	-37.234 (-0.867)	-89.87* (48.81)	203.28 (173.48)
Ln duration of land plot privatization procedure No. 3.a. by ARCS companies	18.37** (8.41)	15.21* (8.37)	26.16** (8.65)	31.71*** (8.49)
Ln regional GDP per capita	-8.40 (18.02)			-28.72 (16.43)
Land pricing factor in the regional capital		1.57 (1.44)		
Rate of refusals by government authorities under the Procedure No.3A			1.03* (0.57)	1.53** (0.60)
Adjusted R squared	0.190	0.260	0.375	0.482
N	13	13	13	13
Mean of the dependent variable	57.61	57.61	57.61	57.61

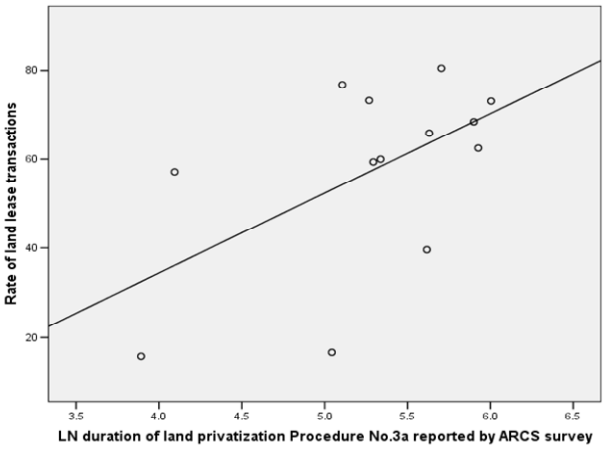
*, **, *** Significance level of 10%, 5%, and 1%, respectively

The importance of the procedure duration can be illustrated using Model 3.3 results. If the procedure duration is reduced from its mean length of approximately 200 days, to 150 days, (i.e. by 25%) other things being equal, then the rate of land lease transactions would go down by about 15 percentage points. Therefore, the rate of land privatization would, presumably, rise by the same number of percentage points.

It is also worth noting the level of influence of the variable for the rate of refusals for applications to privatize land on the rate of land lease (see models 3.3 and 3.4 in Table 4.1). Although this variable is significant only in the settings controlled for the procedure duration and is less significant than the latter one, its absolute influence on the dependent variable is rather striking. For example, from model 3.3, one can see that each percentage point increase in refusals to privatize land, other things being equal, causes slightly more than one percentage point increase in the rate of land lease (presumably at expense of land privatization). In other words, refusals not only discourage existing applicants, but also negatively influence potential applicants. The latter relation is even more pronounced in the Model 3.4 setting.

Thus, lengthy land privatization procedures create a strong incentive for businesses to apply to lease the land, rather than to apply for privatization. At the same time, refusals to approve of land privatization procedures by government authorities, have a similar effect, i.e., to encourage businesses to apply for a lease rather than ownership of land (see Chart 4.1 below). Table 4.2 below shows results of the paired t-test analysis of the mean aimed to establish whether the latter statements can be supported by the survey results.

Chart 4.1: Dependence of the rates of land privatization vs. land leasing on the duration of land privatization procedures and shares of refusals



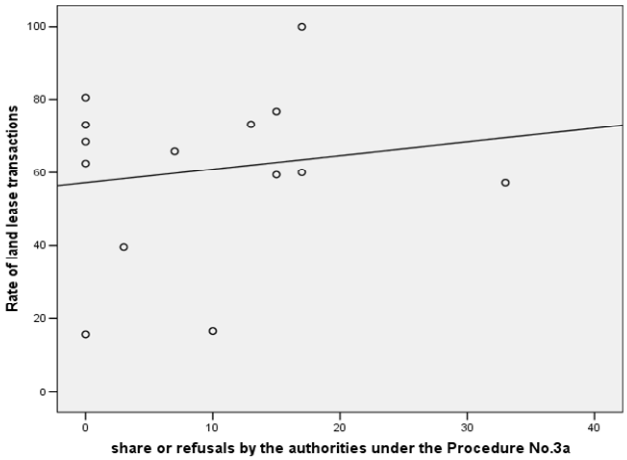


Table 4.2. Paired samples test

	Mean	N	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
Ln duration of the procedure no. 3A (from ARCS survey)	5.294	13	0.656	0.182	
Ln duration of the procedure no. 3B (from ARCS survey)	4.955	13	0.750	0.208	
Paired Differences	***0.339***		***0.528***	***0.146***	***0.039****
Rate of refusals by government authorities under the Procedure No.3A	9.286	14	9.754	2.607	
Rate of refusals by government authorities under the Procedure No.3B	4.071	14	8.974	2.398	
Paired Differences	***5.214***		***5.214***	***2.494***	***0.057****

*, **, *** Significance level of 10%, 5%, and 1%, respectively

The analysis of mean values for the procedure duration variable shows that at least in its logarithmic form the mean duration of procedure 3.A is significantly different (at the 5% level) from the duration of procedure 3.B. In other words, it takes, on average, 60 days longer (35% longer) to buy a plot of land than it does to lease it, even though the steps and criteria are the same[27]. Considering the importance of time factor for business development, it is more convenient for companies to obtain a lease for the land than to wait an additional two months or more, and incur losses (or at least opportunity cost) related to the purchase of land.

[27] The direct comparison of procedure 3.A and 3.B durations (expressed in days) still has a statistically significant difference, although at 10% level. It is interesting to notice that duration of the same procedures measured through the business intermediaries survey do not have any significant difference neither in the logarithmic form, nor when expressed in days.

The significance level of the mean difference is lower in the case of the rate of refusals, but it is still close to the 5% level. A business is more than twice as likely to receive a refusal from the government when applying to purchase a land plot, compared to an application to lease it.

5. Specific Features of Procedures Related to "Sunk" Costs

Hypothesis 3: In cases when a company has made unrecoverable investments (e.g., has already purchased its land), bureaucrats appear to exploit these situations by imposing longer delays and thereby increasing the reported frequency of unofficial payments.

This hypothesis can be divided into two separate "sub-hypothesis":

3.1. *Procedures where companies have made unrecoverable investments are characterized by a longer durations.*

3.2. *Procedures where companies have made unrecoverable investments are characterized by higher reported frequency of unofficial payments.*

To test the hypothesis 3.1 we used a model with the procedure duration (τ) as the dependent variable. The equation of linear regression, describing the model, is as follows:

$$\tau = \alpha_{05} + \alpha_{15}\Theta + \alpha_{25}v_8 + \varepsilon \qquad \text{(Model 5.1)}$$

where
Θ is a vector of control variables from a list shown in the Annex; and
v_8 is a dummy variable for procedure No.8.

The above model is limited to the relevant procedures, i.e. procedures No.1, 2a, 2b, 3a, 3b, and procedure No.8 (see Page 10 for the list of procedures). This hypothesis is tested at the level of individual transactions, thus the number of observations allows for using a large number of controls. This is why we decided to use regional dummies to control for regional specifics, rather than use gross regional product as in earlier models. Table 5.1 shows results of regression analysis.

The analysis was initially done for sunk cost procedure No.8 (Transferring a land plot from one category into another, or changing the designated use of a land plot) vs. all other land-related procedures described above (models 5.1.1 through 4.1.3 in the table below), which are usually not characterized by significant sunk costs. One can see that the existence of sunk costs has a significant positive influence on the amount of time one would spend on its completion. On average, other things being equal, sunk cost procedures take about 34% more time than procedures where the applicant usually does not have sunk costs.

More importantly, the regression coefficient for procedure 8 is the highest among the five land-related procedures included in Model 5.2, and other things being equal, the duration of procedure 8 is the longest in comparison to any other land-related procedure[28].

[28] Model 5.2 in the Table 5.1 shows that all land-related procedures, including leasing procedures, also take more time than procedure 2.A (obtaining a land plot from state or municipal property for construction, during auctions or tenders). In other words, it appears that tenders reduce the duration of land purchasing procedures. We will address this issue in greater detail later in the paper.

Models 5.1.2, 5.1.3, 5.2.1, and 5.2.2 in the Table 5.1 show that neither the size of land plot nor the way in which the procedure was completed (by intermediary alone or with participation of the client) has any significant influence on the procedure duration. Although judging from the sign of regression coefficients alone, both the size of the land plot and clients' abstention from the procedure, (i.e. if the procedure is conducted solely by an intermediary) increases the duration of the procedure.

The second sub-hypothesis is that land-related procedures where companies have unrecoverable costs are characterized by higher frequency of reported unofficial payments. This sub-hypothesis was tested using the following model:

$$E = \alpha_{05} + \alpha_{15}\Theta + \alpha_{25}v_8 + \varepsilon \qquad \text{(Model 5.2)}$$

where:
Θ is a vector of control variables from a list shown in the Annex.

The dependent variable here is the *reported frequency of unofficial payments.* This variable is constructed as a ratio of the number of stages of a procedure passed by companies using unofficial payments to the total number of stages required to complete the procedure. We used the same set of independent variables as in the case of Model 5.1 (for the list of variables see Annex).

The data used in the regression analysis for this model are also limited to land-related procedures and observations. The results are presented in Table 5.2 below. The results show that the presence of sunk cost suggests a higher frequency of reported unofficial payments and this effect is statistically significant. In other words, the bureaucrats have an opportunity to create situations (e.g., delays) that companies try to resolve by making unofficial payments. On average, other things being equal, the frequency of unofficial payments is about 11 percentage points higher for land-related procedures with sunk costs (based on the Model 5.2.1 in the Table 5.2)[29].

[29] If values of all variables, except the dummy for procedure 8, are fixed at their mean values and the value of the procedure 8 dummy variable is changing from zero to one then the resulting value of the dependent variable will increase by 10.7 percentage points from 36% to 47% (i.e., from 0.36 to 0.47 in the share terms).

Table 5.1. OLS results

Dependent variable: Logarithm of time (calendar days) spent in order to complete a procedure of land transaction (procedures No. 1, 2A, 2B, 3A, 3B and 8)

	Model 5.1.1	Model 5.1.2	Model 5.1.3	Model 5.2.1	Model 5.2.2	Model 5.2.3
Constant	4.187*** (0.108)	4.059*** (0.198)	4.037*** (0.205)	4.984*** (0.441)	3.953*** (0.137)	3.947*** (0.136)
Procedure 1				0.454*** (0.143)	0.480*** (0.132)	0.477*** (0.131)
Procedure 2B				0.225 (0.186)	0.285* (0.171)	0.288* (0.171)
Procedure 3A				0.223 (0.151)	0.241* (0.137)	0.242* (0.137)
Procedure 3B				0.081 (0.153)	0.100 (0.143)	0.101 (0.143)
Procedure 8	0.289*** (0.101)	0.320*** (0.115)	0.322*** (0.115)	0.583*** (0.166)	0.570*** (0.148)	0.568*** (0.148)
Kaliningrad oblast	1.226*** (0.143)	1.033*** (0.167)	1.043*** (0.169)	-0.054 (0.395)	1.220*** (0.144)	1.203*** (0.142)
Saint-Petersburg	1.455*** (0.396)	1.308*** (0.408)	1.326*** (0.411)		1.244*** (0.392)	1.218*** (0.390)
Leningrad oblast	0.935*** (0.244)	0.844*** (0.302)	0.845*** (0.303)	-0.328 (0.465)	0.835*** (0.243)	0.830*** (0.242)
Moscow	0.938*** (0.186)	0.772*** (0.207)	0.777*** (0.207)	-0.315 (0.413)	0.927*** (0.191)	0.919*** (0.190)
Moscow oblast	0.991*** (0.201)	0.775*** (0.223)	0.773*** (0.224)	-0.352 (0.420)	0.929*** (0.198)	0.933*** (0.198)
Sverdlovsk oblast	1.443*** (0.189)	1.291*** (0.209)	1.300*** (0.211)	0.194 (0.413)	1.417*** (0.189)	1.402*** (0.188)
Novgorod oblast	0.587** (0.235)	0.457* (0.269)	0.477* (0.273)	-0.630 (0.447)	0.631*** (0.239)	0.594** (0.234)
Tomsk oblast	0.570*** (0.141)	0.399** (0.166)	0.420** (0.174)	-0.752* (0.401)	0.559*** (0.152)	0.521*** (0.142)
Khabarovsk krai	1.132*** (0.152)	1.013*** (0.167)	1.020*** (0.168)	-0.107 (0.396)	1.105*** (0.155)	1.093*** (0.154)
Irkutsk oblast	1.055*** (0.150)	0.949*** (0.184)	0.951*** (0.184)	-0.193 (0.404)	0.996*** (0.149)	0.992*** (0.149)
Rostov oblast				-1.087*** (0.403)		
Perm oblast	1.507*** (0.142)	1.354*** (0.162)	1.362*** (0.163)	0.250 (0.393)	1.483*** (0.143)	1.470*** (0.141)
Novosibirsk oblast	1.802*** (0.142)	1.663*** (0.159)	1.675*** (0.162)	0.537 (0.391)	1.765*** (0.147)	1.745*** (0.144)
Nizhny Novgorod oblast	1.194*** (0.158)	1.027*** (0.176)	1.039*** (0.179)	-0.081 (0.399)	1.182*** (0.159)	1.162*** (0.156)
Sakhalinsk oblast	1.332*** (0.256)	1.251*** (0.268)	1.249*** (0.268)	0.053 (0.447)	1.225*** (0.253)	1.225*** (0.253)
Size of the land plot		0.035 (0.023)	0.034 (0.023)	0.026 (0.023)		
Not Obtained by BIS			-0.032 (0.077)		-0.052 (0.071)	
adj. R2	0.329	0.305	0.303	0.336	0.360	0.361
N	427	380	380	380	427	427
Mean of the dependent variable	5.31	5.34	5.34	5.34	5.31	5.31

*, **, *** Significance level of 10%, 5%, and 1%, respectively

Table 5.2. OLS results

Dependent variable: Share of stages with unofficial payments in total (procedures No. 1, 2A, 2B, 3A, 3B and 8)

	Model 5.2.1	Model 5.2.2	Model 5.2.3	Model 5.2.4
Constant	0.105 (0.217)	0.011 (0.218)	0.040 (0.229)	0.341** (0.152)
Procedure 1		0.094** (0.041)	0.064 (0.044)	0.015 (0.058)
Procedure 2A		0.065 (0.060)	0.107 (0.065)	-0.133 (0.083)
Procedure 2B		0.157** (0.064)	0.118* (0.068)	0.005 (0.090)
Procedure 3B		0.001 (0.054)	-0.020 (0.055)	0.006 (0.062)
Procedure 8	0.107** (0.042)	0.165*** (0.050)	0.128** (0.055)	0.110 (0.068)
Kaliningrad oblast	0.282 (0.221)	0.341 (0.219)	0.335 (0.216)	-0.192** (0.090)
Saint-Petersburg	0.628** (0.250)	0.659*** (0.247)	0.649*** (0.243)	0.024 (0.151)
Leningrad oblast	0.617** (0.250)	0.648*** (0.247)	0.645*** (0.243)	0.169 (0.126)
Moscow	0.400* (0.225)	0.422* (0.223)	0.420* (0.220)	-0.070 (0.099)
Moscow oblast	0.395* (0.227)	0.428* (0.224)	0.388* (0.222)	-0.146 (0.118)
Sverdlovsk oblast	0.391* (0.230)	0.415* (0.228)	0.408* (0.227)	-0.119 (0.206)
Tomsk oblast	0.031 (0.222)	0.060 (0.219)	0.062 (0.217)	-0.356*** (0.075)
Khabarovsk krai	0.075 (0.222)	0.120 (0.220)	0.112 (0.216)	-0.372*** (0.094)
Irkutsk oblast	0.333 (0.221)	0.365* (0.218)	0.355 (0.217)	-0.013 (0.071)
Rostov oblast	0.449** (0.220)	0.484** 0.218)	0.479** (0.216)	
Perm oblast	0.218 (0.225)	0.248 (0.223)	0.230 (0.219)	-0.328*** (0.124)
Novosibirsk oblast	0.077 (0.221)	0.084 (0.219)	0.077 (0.215)	-0.419*** (0.072)
Nizhny Novgorod oblast	0.263 (0.223)	0.327 (0.221)	0.309 (0.217)	-0.244* (0.077)
Sakhalinsk oblast	0.058 (0.242)	0.082 (0.239)	0.075 (0.235)	-0.402 (0.125)
Ln Size of the object			0.0002 (0.010)	
Ln amount of the official payments				0.020 (0.016)
Adj. R2	0.334	0.353	0.352	0.397
N	240	240	213	119
Mean of the dependent variable	0.38	0.38	0.37	0.37

*, **, *** Significance level of 10%, 5%, and 1%, respectively

6. Specific Features of Procedures Involving Tenders or Auctions

Hypothesis 4: Regions where relatively more land tenders and auctions are held have higher levels of land privatization; and land transactions that are conducted through tenders are less prone to corruption and take less time to complete than other types of procedures.

This hypothesis can be divided into three separate "sub-hypothesis":

4.1. *Regions where more land tenders and auctions occur have higher levels of land privatization;*

4.2. *Land transactions that are conducted through tenders are less prone to corruption; and*

4.3. *Land transactions that are conducted through tenders take less time to complete.*

These hypotheses were based on the assumption that some jurisdictions are governed in a more enlightened fashion that others. We expected that more enlightened authorities would be interested in more private ownership of land, through procedures that are relatively transparent and efficient. Unfortunately, the data do not fully support these hypotheses.

To test hypothesis 4.1 *Regions where more land tenders and auctions occur have higher incidence of land privatization;* we used official statistics for all regions of the Russian Federation and a model with a total number of land privatizations per 100,000 residents in a region (N_{total}) as a dependent variable. The equation of linear regression, describing this model, is as follows:

$$N_{total} = \alpha_{05} + \alpha_{15}\Theta + \alpha_{25} n_{tenders} + \varepsilon \qquad \text{(Model 6.1)}$$

where:
Θ is a vector of control variables from a list shown in the Annex; and
$n_{tenders}$ is the number of land privatization transactions via tenders

The results below show (Table 6.1) that the use of tender procedures for land privatization has a significant and positive effect on the overall number of land privatizations.

It is also worth noticing that the distance of the regional capital from Moscow has a significant negative effect on the number of land privatizations completed in a region. For example based on Model 6.1.7 in Table 6.1 below, all other things being equal, each "extra" thousand miles (1,656 kilometers) between Moscow and a given regional capital reduces the number of land privatizations per 100,000 residents by about one (0.87), or by about 15%. One might call it an "effect of provincial mentality".

The other two sub-hypotheses, Sub-hypothesis 4.2 *Land transactions that are conducted through tenders are less prone to corruption* and sub-hypothesis 4.3 *Land transactions that are conducted through tenders take less time to complete,* were tested but were not borne out by the data.

Table 6.1. OLS results

Dependent variable: Total number of land privatizations per 100,000 residents

	Model 6.1.1	Model 6.1.2	Model 6.1.3	Model 6.1.4	Model 6.1.5	Model 6.1.6	Model 6.1.7
Constant	0.081 (0.701)	-1.979 (8.064)	-2.896 (8.067)	-4.159 (8.114)	5.740*** (0.784)	5.910*** (0.798)	-1.348 (4.353)
Number of sales though tender per 100,000 of regional population	5.271*** (1.471)	4.489*** (1.486)	4.772*** (1.497)	4.542*** (1.506)	4.661*** (1.482)	4.921*** (1.498)	4.581*** (1.495)
Ln Regional GDP per capita	0.417 (0.725)	0.703 (0.722)	0.804 (0.724)	0.398 (0.797)			
Distance from the regional capital to Moscow (in 1000 kilometers)		-0.393** (0.184)	-0.408** (0.184)	-0.521** (0.206)	-0.352* (0.181)	-0.362** (0.181)	-0.530** (0.205)
Federal okrug capital dummy			-2.130 (1.682)	-1.742 (1.708)		-1.871 (1.676)	-1.521 (1.670)
Ln of regional territory in km sq				0.545 (0.455)			0.689* (406)
Adj. R2	0.117	0.154	0.160	0.165	0.156	0.158	0.177
N	85	85	85	85	86	86	86
Mean of the dependent variable	5.80	5.80	5.80	5.80	5.73	5.73	5.73

*, **, *** Significance level of 10%, 5%, and 1%, respectively

7. Analysis of Reasons Companies Use Unofficial Payments

Hypothesis 5: Excessively complicated, longer and costly procedures are associated with more frequent unofficial payments.

The dependent variable for this hypothesis was constructed as a ratio of the number of specific steps in which unofficial payments were recorded to the total number of the steps to complete a specific procedure (E). The variables of interest were (i) different measures of procedure complexity and length, such as the official number of steps in each of the procedures or the number of documents necessary to collect in order to complete the procedure; and (ii) measures of a procedure's official cost. Other standard control variables included in the model were regional and procedure dummies.

When testing this hypothesis, we concentrated only on the first three procedures and did not include procedure 8 in the estimates. This decision is made based on the nature of procedure 8, which is a secondary procedure dealing with a land plot when it is already owned/leased by a private entity. The current hypothesis focuses on the primary procedures – transfer of ownership or lease rights from a government entity to a private entity.

For all practical purposes we are going to test three simple "sub"-hypotheses:

1. *More complex procedures are more prone to corruption.*

2. *Costlier procedures (in terms of the official cost of the procedure) are more prone to corruption.*
3. *Longer procedures are more prone to corruption.*

The set of regression models we have tested is as follows:

$$E = \alpha_0 + \alpha_1 \delta + \alpha_2 \Theta_1 + \alpha_3 \Theta_2 + \alpha_4 Z + \varepsilon \qquad \text{(Model 7)}$$

where:
δ is one of the variables of interest mentioned above;
Θ_1 is a vector of regional dummies;
Θ_2 is a vector of procedure dummies;
Z is a vector of other controls used in the hypothesis testing.

The summary of regression results is shown in the Table 7.1.

Model 7.1.1 demonstrates that more complex procedures are, indeed, more prone to corruption. Other things being equal, each extra stage added to the average procedure duration increases the percentage share of stages in which unofficial payments were reported by about 4 percentage points. It is also worth noting that neither the total number of documents, the number of documents required for each stage, the time spent to complete a stage of a procedure, nor the total time spent on completion of a whole procedure significantly affect the level of corruption measured in the model (see Models 7.1.2 through 7.1.5 for details).

Table 7.1. LS results

Dependent variable: Share of stages with unofficial payments in total (procedures No. 1, 2A, 2B, 3A and 3B)

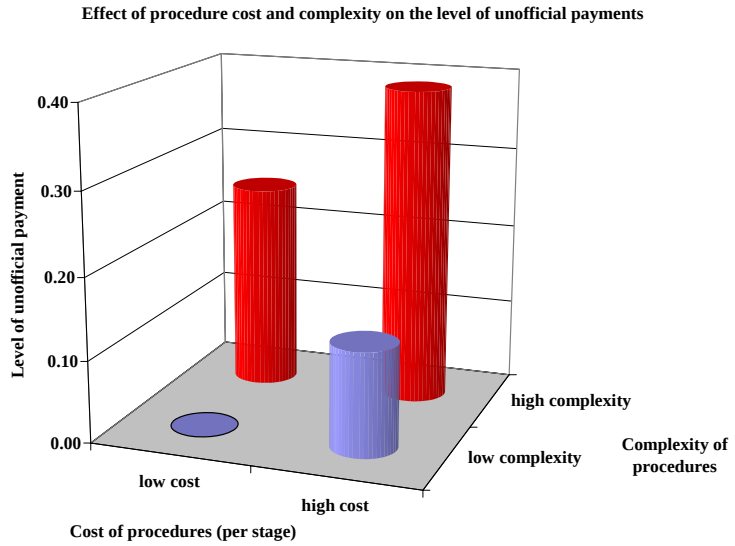
	Model 7.1.1	Model 7.1.2	Model 7.1.3	Model 7.1.4	Model 7.1.5
Constant	-0.219** (0.095)	-0.248** (0.103)	-0.318** (0.137)	-0.243** (0.111)	-0.182 (0.132)
Number of stages by law	0.014*** (0.004)	0.011*** (0.004)	0.015*** (0.004)	0.015*** (0.004)	0.011*** (0.004)
Number of documents obtained by respondent		0.005 (0.004)			
Number of documents per stage			0.077 (0.070)		
Ln of total time divided by number of stages by law (templates)				0.012 (0.018)	
Ln time required to complete a procedure with a land plot					0.009 (0.019)
Procedure 2A	0.017 (0.045)	0.005 (0.048)	0.003 (0.048)	0.019 (0.046)	-0.022 (0.048)
Procedure 2B	0.128** (0.051)	0.131** (0.053)	0.132** (0.053)	0.122** (0.052)	0.090 (0.054)
Procedure 3A	0.120** (0.054)	0.120** (0.057)	0.118** (0.057)	0.113** (0.055)	0.072 (0.058)
Procedure 3B	0.091* (0.054)	0.085 (0.056)	0.083 (0.056)	0.086 (0.055)	0.038 (0.058)
Kaliningrad oblast	0.179** (0.070)	0.202*** (0.077)	0.209*** (0.079)	0.172** (0.073)	0.169** (0.079)
Saint-Petersburg	0.346*** (0.104)	0.418*** (0.114)	0.430*** (0.116)	0.301*** (0.112)	0.447*** (0.147)
Leningrad oblast	0.220** (0.100)	0.258** (0.109)	0.268** (0.114)	0.216 (0.102)	0.212** (0.105)
Moscow	0.301*** (0.079)	0.338*** (0.088)	0.349*** (0.094)	0.300*** (0.081)	0.331*** (0.089)
Moscow oblast	0.239*** (0.091)	0.257*** (0.097)	0.269*** (0.100)	0.235** (0.093)	0.249** (0.099)
Sverdlovsk oblast	0.111 (0.082)	0.109 (0.091)	0.120 (0.093)	0.104 (0.085)	0.155* (0.092)
Tomsk oblast	0.046 (0.072)	0.059 (0.078)	0.069 (0.080)	0.050 (0.075)	0.050 (0.080)
Khabarovsk krai	0.036 (0.073)	0.070 (0.081)	0.082 (0.083)	0.039 (0.076)	0.043 (0.081)
Irkutsk oblast	0.250*** (0.073)	0.286*** (0.080)	0.296*** (0.083)	0.255*** (0.076)	0.259*** (0.081)
Rostov oblast	0.353*** (0.077)	0.374*** (0.084)	0.384*** (0.087)	0.364*** (0.081)	0.409*** (0.087)
Perm oblast	-0.087 (0.077)	-0.057 (0.085)	-0.047 (0.087)	-0.095 (0.081)	-0.064 (0.085)
Novosibirsk oblast	0.013 (0.070)	0.029 (0.077)	0.041 (0.080)	0.003 (0.075)	0.011 (0.080)
Nizhny Novgorod oblast	0.120 (0.076)	0.140* (0.082)	0.151 (0.084)	0.115 (0.079)	0.139 (0.086)
Sakhalinsk oblast	0.040 (0.100)	0.092 (0.115)	0.103 (0.117)	0.033 (0.102)	0.026 (0.109)
Adj. R	0.277	0.277	0.276	0.270	0.288
N	405	375	375	398	358
Mean of the dependent variable	0.20	0.22	0.22	0.20	0.20

*, **, *** Significance level of 10%, 5%, and 1%, respectively

Model 7.2.1 demonstrates that when cost enters into the model, complexity becomes insignificant (see Table 7.2 for results).[30] The official cost of the procedures, along with the complexities associated with them, has a significant effect on the level of unofficial payments – The higher the official cost is, the higher the level of unofficial payments is.

Chart 7.1 below (based on the model 7.2.3 in the Table 7.2) shows how the effect of complexity and cost interact to affect levels of unofficial payments. When both cost and complexity are low, the predicted unofficial payments are negligible. Unofficial payments predicted from highly complex procedures with low official cost are twice the level of unofficial payments predicted in case of highly expensive procedures of low complexity. And, unsurprisingly, if both complexity and official payments are high, the level of unofficial payments is the highest.

Chart 7.1 Dependence of the level of unofficial payment on the complexity and cost of procedures



As mentioned earlier, neither the duration of a procedure, (whether absolute or average), the length of a stage nor the average time required to obtain a specific document, significantly affect the level of unofficial payments for a land-related procedure. This is confirmed by results shown in Table 7.3. It is possible that such results are due to the likelihood that some applicants manage to reduce delays by paying bribes while others are unwilling or unable to do so. However, testing the latter and similar hypotheses is out of the scope of this exploratory paper.

The ideal approach for testing the latter hypothesis would be to have some exogenous measure of this phenomenon, but unfortunately, while country-wide propensity to bribe may be found in other survey work, e.g. BEEPS[31], sub-national or micro-level estimates are not available. Any exogenous instrument on the length of land privatization procedures is even less likely to be available in the near future – this would require that data on the procedure duration would be collected by regional authorities.

[30] This insignificance can be reversed, at least partially, by replacing the absolute number of stages by its logarithmic transformation (see model 7.2.2). In the latter setting, complexity stays significant, although only at the 10% level. Complexity becomes significant at the 5% level when the logarithm of an overall official cost of a procedure is replaced by a logarithm of an official cost per stage, i.e. the unit cost of the process.

[31] The Business Environment and Enterprise Performance Survey (BEEPS), http://info.worldbank.org/governance/beeps/

Table 7.2. OLS results

Dependent variable: Share of stages with unofficial payments in total (procedures No. 1, 2A, 2B, 3A and 3B)

	Model 7.2.1	Model 7.2.2	Model 7.2.3	Model 7.2.4
Constant	-0.308* (0.165)	-0.552** (0.257)	-0.552** (0.257)	-0.390 (0.248)
Number of stages by law	0.007 (0.006)			
Ln official payments for all documents	0.024** (0.010)	0.022** (0.010)		
Ln number of stages by law		0.138* (0.082)	0.160** (0.082)	0.141* (0.082)
Ln official cost per official (by template) stage			0.022** (0.010)	
Ln of total cost per square meter of the land plot				0.005 (0.007)
Procedure 2A	-0.128** (0.062)	-0.117* (0.062)	-0.117* (0.062)	-0.054 (0.067)
Procedure 2B	0.062 (0.074)	0.083 (0.074)	0.083 (0.074)	0.067 (0.075)
Procedure 3A	0.057 (0.083)	0.078 (0.077)	0.078 (0.077)	0.103 (0.076)
Procedure 3B	0.053 (0.080)	0.074 (0.074)	0.074 (0.074)	0.082 (0.074)
Kaliningrad oblast	0.136 (0.094)	0.122 (0.094)	0.122 (0.094)	0.148 (0.091)
Saint-Petersburg	0.489*** (0.139)	0.467*** (0.140)	0.467*** (0.14)	0.500*** (0.138)
Leningrad oblast	0.502*** (0.126)	0.481*** (0.127)	0.481*** (0.127)	0.507*** (0.125)
Moscow	0.302*** (0.107)	0.293*** (0.107)	0.293*** (0.107)	0.408*** (0.106)
Moscow oblast	0.223* (0.115)	0.232** (0.115)	0.232** (0.115)	0.268** (0.112)
Sverdlovsk oblast	0.017 (0.119)	0.007 (0.119)	0.007 (0.119)	0.031 (0.117)
Tomsk oblast	0.061 (0.088)	0.057 (0.088)	0.057 (0.088)	0.044 (0.089)
Khabarovsk krai	0.007 (0.094)	-0.010 (0.095)	-0.010 (0.095)	0.018 (0.093)
Irkutsk oblast	0.341*** (0.098)	0.319*** (0.099)	0.319*** (0.099)	0.354*** (0.100)
Rostov oblast	0.413*** (0.097)	0.393*** (0.098)	0.393*** (0.098)	0.412*** (0.104)
Perm oblast	-0.008 (0.104)	-0.026 (0.104)	-0.026 (0.104)	-0.016 (0.103)
Novosibirsk oblast	-0.004 (0.090)	-0.024 (0.091)	-0.024 (0.091)	0.013 (0.090)
Nizhny Novgorod oblast	0.108 (0.095)	0.093 (0.095)	0.093 (0.095)	0.119 (0.093)
Sakhalinsk oblast	0.089 (0.138)	0.070 (0.138)	0.070 (0.138)	0.099 (0.136)
Adj. R	0.391	0.396	0.396	0.398
N	203	203	203	188
Mean of the dependent variable	0.19	0.19	0.19	0.18

, **, ** **Significance level of 10%, 5%, and 1%, respectively**

Table 7.3. OLS results

Dependent variable: Share of stages with unofficial payments in total (procedures No. 1, 2A, 2B, 3A and 3B)

	Model 7.3.1	Model 7.3.2	Model 7.3.3
Constant	-0.010 (0.118)	0.075 (0.078)	0.099 (0.081)
Ln time required to complete a procedure with a land plot	0.017 (0.019)		
Ln total time divided by number of stages by law (templates)		-0.003 (0.017)	
Ln time per document			-0.013 (0.019)
Procedure 2A	-0.054 (0.047)	-0.029 (0.045)	-0.053 (0.047)
Procedure 2B	0.011 (0.047)	0.014 (0.045)	0.018 (0.046)
Procedure 3A	-0.062* (0.032)	-0.067** (0.032)	-0.069** (0.033)
Procedure 3B	-0.095*** (0.033)	-0.093*** (0.032)	-0.099*** (0.033)
Kaliningrad oblast	0.169** (0.080)	0.191** (0.074)	0.210*** (0.079)
Saint-Petersburg	0.411*** (0.148)	0.280** (0.114)	0.352*** (0.124)
Leningrad oblast	0.207* (0.106)	0.220** (0.104)	0.233** (0.109)
Moscow	0.351*** (0.090)	0.338*** (0.082)	0.350*** (0.087)
Moscow oblast	0.232** (0.100)	0.212** (0.095)	0.222** (0.098)
Sverdlovsk oblast	0.206** (0.091)	0.194** (0.084)	0.194** (0.091)
Tomsk oblast	0.063 (0.081)	0.060 (0.076)	0.065 (0.079)
Khabarovsk krai	0.079 (0.081)	0.098 (0.076)	0.122 (0.081)
Irkutsk oblast	0.288*** (0.081)	0.309*** (0.076)	0.329*** (0.080)
Rostov oblast	0.484*** (0.084)	0.443*** (0.080)	0.444*** (0.082)
Perm oblast	0.022 (0.081)	0.041 (0.075)	0.072 (0.081)
Novosibirsk oblast	0.032 (0.080)	0.059 (0.075)	0.074 (0.080)
Nizhny Novgorod oblast	0.203** (0.084)	0.216*** (0.077)	0.234*** (0.080)
Sakhalinsk oblast	0.038 (0.110)	0.060 (0.104)	0.100 (0.117)
Adj. R	0.274	0.242	0.240
N	358	398	373
Mean of the dependent variable	0.20	0.20	0.22

*, **, *** Significance level of 10%, 5%, and 1%, respectively

8. Identification of Factors influencing Duration and Cost of a Procedure

Hypothesis 6: Maintaining of well established connections between an intermediary and government officials reduces the costs and time necessary to carry out procedures.

This hypothesis will be tested in two independent "steps", i.e. divided into two separate sub-hypotheses:

1. *Established relations with the government authorities reduce time to carry out a procedure (τ).*
2. *Established relations with the government authorities reduce the costs to carry out a procedure (M).*

The first sub-hypothesis was tested using a model depicted in the equation of model 7.1 below. A description of the variables can be found in the Annex at the end of this paper.

$$\tau = \alpha_{07} + \alpha_{17}\Theta + \alpha_{27}\Psi + \varepsilon \qquad \text{(Model 8.1)}$$

where:
Θ is a vector of control variables from a list shown in the Annex;
Ψ is a dummy variable depicting relations, which helped facilitate carrying the procedure.

The regression results shown in Table 8.1 below clearly show the lack of a significant relationship between the duration of land-related procedures and the existence of established relationships between an intermediary working on behalf of a client and the government authorities. The sign of the coefficient for the relation variable is negative in all settings except for when combined with the number of documents necessary to obtain in order to complete a procedure, i.e., established relationships may help to reduce the duration of the process somewhat, although their effect is not significant.

The second sub-hypothesis was tested using a model depicted in the equation for model 7.2 below. A description of variables can be found in the Annex at the end of this paper.

$$\mathrm{M} = \alpha_{07} + \alpha_{17}\Theta + \alpha_{27}\Psi + \varepsilon \qquad \text{(Model 8.2)}$$

where:
Θ is a vector of control variables from a list shown in the Annex.

The regression results in the Table 8.2 below show that there is a significant relationship between the total cost of land-related procedures and the existence of established relations between an intermediary dealing with the procedure on behalf of a client and the government authorities. The sign of the coefficient is positive in all settings, i.e., established relationships cost a significant amount of money, but do not necessarily yield significant benefits (e.g., reduction in delays). Another interesting result is if a client company participates in a process, it may save some money (positive coefficient for the client input dummy in the model 7.2.7), although this effect is not statistically significant.

One potential hypothesis that may explain the results may be the practice of hiring intermediaries only for more complex cases. In order to test at least some approximation of the latter hypothesis

we tried a setting (not shown in the paper) where the size of a land plot was used as a dependent variable, while independent variables were the same as in model 8 above. No significant relationship with participation of intermediaries was found. As in the case of hypothesis 5, in the ideal situation, some exogenous measure of difficulty of specific cases within the same procedure may be used as a dependent variable, but unfortunately at the moment these measures are not available.

Table 8.1. OLS results

Dependent variable: Logarithm of time (calendar days) spent in order to complete a procedure of land transaction (procedures No. 1, 2A, 2B, 3A and 3B)

	Model 7.1.1	Model 7.1.2	Model 7.1.3	Model 7.1.4	Model 7.1.5	Model 7.1.6
Constant	4.531*** (0.145)	4.225*** (0.162)	4.101*** (0.179)	4.441*** (0.154)	4.519*** (0.144)	4.549*** (0.149)
Relations, which helped facilitate carrying out the procedure	-0.024 (0.073)	0.005 (0.075)	-0.020 (0.071)	-0.046 (0.074)	-0.006 (0.073)	-0.025 (0.073)
Number of documents obtained by respondent		0.043*** (0.009)				
Number of stages by law			0.040*** (0.010)			
Number of stages with unofficial payments				0.016* (0.009)		
Center of the city					0.240*** (0.089)	
Dummy variable for absence of input from a client (1= BIS only)						0.057 (0.072)
Procedure 1	-0.084 (0.110)	-0.617*** (0.149)	-0.672*** (0.183)	-0.118 (0.111)	-0.125 (0.110)	-0.103 (0.115)
Procedure 2A	-0.561*** (0.150)	-1.005*** (0.166)	-1.028*** (0.188)	-0.585*** (0.150)	-0.580*** (0.149)	-0.580*** (0.153)
Procedure 2B	-0.275* (0.158)	-0.511*** (0.164)	-0.576*** (0.172)	-0.302** (0.158)	-0.300* (0.157)	-0.290* (0.160)
Procedure 3A	-0.322*** (0.115)	-0.457*** (0.120)	-0.394*** (0.114)	-0.315*** (0.115)	-0.347*** (0.114)	-0.343*** (0.121)
Procedure 3B	-0.462*** (0.122)	-0.587*** (0.127)	-0.538*** (0.121)	-0.456*** (0.122)	-0.513*** (0.123)	-0.485*** (0.129)
Kaliningrad oblast	1.192*** (0.145)	1.337*** (0.144)	1.384*** (0.150)	1.267*** (0.151)	1.195*** (0.144)	1.203*** (0.146)
Saint-Petersburg	1.211*** (0.393)	1.297*** (0.380)	1.552*** (0.395)	1.219*** (0.392)	1.172*** (0.390)	1.213*** (0.393)
Leningrad oblast	0.827*** (0.244)	1.137*** (0.246)	1.040*** (0.245)	0.916*** (0.248)	0.751*** (0.243)	0.827*** (0.244)
Moscow	0.904*** (0.195)	0.996*** (0.203)	1.046*** (0.195)	0.980*** (0.199)	0.889*** (0.194)	0.911*** (0.196)
Moscow oblast	0.929*** (0.199)	1.058*** (0.195)	1.153*** (0.204)	0.991*** (0.202)	0.922*** (0.198)	0.963*** (0.209)
Sverdlovsk oblast	1.397*** (0.189)	1.243*** (0.207)	1.396*** (0.186)	1.441*** (0.190)	1.379*** (0.188)	1.400*** (0.190)
Novgorod oblast	0.595** (0.235)	0.466* (0.237)	0.814*** (0.237)	0.703*** (0.243)	0.581** (0.233)	0.600** (0.236)
Tomsk oblast	0.504*** (0.153)	0.561*** (0.150)	0.649*** (0.155)	0.581*** (0.159)	0.519*** (0.152)	0.519*** (0.155)
Khabarovsk krai	1.083*** (0.157)	1.003*** (0.161)	1.163*** (0.155)	1.166*** (0.163)	1.053*** (0.156)	1.089*** (0.157)
Irkutsk oblast	0.995*** (0.151)	1.026*** (0.149)	1.096*** (0.151)	1.048*** (0.154)	0.991*** (0.150)	0.998*** (0.151)
Perm oblast	1.461*** (0.144)	1.251*** (0.151)	1.371*** (0.143)	1.549*** (0.153)	1.458*** (0.143)	1.467*** (0.145)
Novosibirsk oblast	1.740*** (0.145)	1.790*** (0.141)	1.854*** (0.145)	1.842*** (0.156)	1.759*** (0.144)	1.751*** (0.147)
Nizhny Novgorod oblast	1.156*** (0.158)	1.035*** (0.164)	1.124*** (0.155)	1.214*** (0.161)	1.096*** (0.158)	1.163*** (0.159)
Sakhalinsk oblast	1.252*** (0.269)	1.383*** (0.303)	1.390*** (0.266)	1.348*** (0.274)	1.072*** (0.275)	1.254*** (0.269)
Adj. R2	0.359	0.405	0.382	0.362	0.369	0.358
N	423	384	423	423	423	423
Mean of the dependent variable	5.31	5.26	5.31	5.31	5.31	5.31

*, **, *** Significance level of 10%, 5%, and 1%, respectively

Table 8.2. OLS results

Dependent variable: Logarithm of total costs required to complete a procedure with a land plot (procedures No. 1, 2A, 2B, 3A and 3B)

	Model 7.2.1	Model 7.2.2	Model 7.2.3	Model 7.2.4	Model 7.2.5	Model 7.2.6	Model 7.2.7
Constant	8.629*** (0.370)	7.700*** (0.423)	8.308*** (0.391)	8.703*** (0.366)	8.489*** (0.373)	7.944*** (0.507)	8.574*** (0.382)
Relations, which helped facilitate carrying out the procedure	0.403*** (0.131)	0.426*** (0.132)	0.388*** (0.130)	0.333** (0.132)	0.450*** (0.132)	0.327** (0.138)	0.408*** (0.132)
Number of documents obtained by respondent		0.085*** (0.016)					
Number of stages by law			0.044** (0.019)				
Number of stages with unofficial payments obtained by respondent				0.051*** (0.017)			
Center of the city					0.364** (0.162)		
Ln size of the object						0.127*** (0.041)	
Dummy variable for absence of input from a client (1= BIS only)							0.076 (0.131)
Procedure 1	0.892*** (0.165)	0.121 (0.224)	0.325 (0.290)	0.783*** (0.167)	0.911*** (0.164)	0.855*** (0.170)	0.886*** (0.166)
Procedure 2A	1.093*** (0.246)	0.464* (0.263)	0.644** (0.309)	0.991*** (0.246)	1.133*** (0.245)	1.084*** (0.259)	1.092*** (0.247)
Procedure 2B	0.994*** (0.271)	0.664** (0.272)	0.704** (0.295)	0.854*** (0.272)	1.038*** (0.270)	0.800*** (0.289)	1.003*** (0.271)
Procedure 3A	0.467*** (0.180)	0.442** (0.181)	0.475*** (0.179)	0.468*** (0.178)	0.500*** (0.179)	0.434** (0.191)	0.469*** (0.180)
Procedure 8	0.465** (0.214)	0.705*** (0.215)	0.554** (0.215)	0.458** (0.211)	0.533** (0.214)	0.542** (0.235)	0.460** (0.214)
Kaliningrad oblast	1.220*** (0.386)	1.508*** (0.408)	1.179*** (0.384)	1.125*** (0.383)	1.247*** (0.384)	0.870** (0.431)	1.247*** (0.389)
Saint-Petersburg	2.811*** (0.806)	2.892*** (0.783)	2.759*** (0.801)	2.647*** (0.798)	2.902*** (0.802)	2.530*** (0.828)	2.790*** (0.808)
Leningrad oblast	1.167** (0.578)	1.811*** (0.587)	1.105* (0.575)	1.001* (0.574)	1.171** (0.575)	0.951 (0.653)	1.224** (0.587)
Moscow	2.185*** (0.460)	2.645*** (0.498)	2.139*** (0.457)	2.133*** (0.455)	2.211*** (0.457)	2.060*** (0.505)	2.216*** (0.463)
Moscow oblast	2.672*** (0.490)	3.176*** (0.504)	2.757*** (0.488)	2.557*** (0.486)	2.657*** (0.487)	2.280*** (0.527)	2.719*** (0.497)
Sverdlovsk oblast	2.337*** (0.442)	2.666*** (0.482)	2.123*** (0.448)	2.154*** (0.441)	2.326*** (0.439)	2.018*** (0.485)	2.369*** (0.446)
Tomsk oblast	0.784** (0.394)	0.946** (0.414)	0.704* (0.393)	0.682* (0.391)	0.853** (0.393)	0.883* (0.451)	0.776* (0.395)
Khabarovsk krai	2.085*** (0.391)	2.160*** (0.415)	1.942*** (0.392)	1.999*** (0.387)	2.064*** (0.388)	1.940*** (0.432)	2.111*** (0.393)
Irkutsk oblast	1.143*** (0.404)	1.384*** (0.423)	1.013** (0.405)	0.961** (0.404)	1.176*** (0.401)	1.241*** (0.464)	1.183*** (0.410)
Rostov oblast	0.753* (0.391)	0.857** (0.409)	0.532 (0.399)	0.411 (0.403)	0.785** (0.389)	0.894** (0.447)	0.797** (0.399)
Perm oblast	1.478*** (0.389)	1.488*** (0.419)	1.149*** (0.410)	1.398*** (0.385)	1.526*** (0.387)	1.191*** (0.433)	1.508*** (0.393)
Novosibirsk oblast	2.894*** (0.384)	3.138*** (0.405)	2.799*** (0.384)	2.868*** (0.380)	2.952*** (0.383)	2.713*** (0.426)	2.910*** (0.386)
Nizhny Novgorod oblast	1.964*** (0.405)	1.905*** (0.426)	1.686*** (0.419)	1.837*** (0.402)	1.903*** (0.403)	1.686*** (0.445)	1.982*** (0.407)
Sakhalinsk oblast	1.212* (0.622)	1.446** (0.679)	1.169* (0.617)	1.136* (0.615)	0.906 (0.633)	1.139* (0.651)	1.266** (0.629)
Adj. R2	0.419	0.481	0.427	0.432	0.426	0.397	0.417
N	341	312	341	341	341	305	341
Mean of the dependent variable	11.00	11.02	11.00	11.00	11.00	11.00	11.00

***,** **, *** Significance level of 10%, 5%, and 1%, respectively

9. Conclusions and implications for reform

On the basis of the analysis described above, the authors have reached the following conclusions:

1. As hypothesized, the principal factor influencing the level of land privatization in a region (for land under privatized buildings) is the pricing policy pursued by local authorities. The analysis demonstrates that in those surveyed regions where the local government pricing policy is at the low end of the range allowed by federal law, the rate of land privatization transactions is higher (even though rental rates for long-term leases may often appear more beneficial to the owner of the building). Within the examined model, all other factors being equal, a modification of the pricing policy from the higher end of the range allowed by federal law to the lower end is associated with a significant increase in the rates of land privatization (more than doubling for some regions).

2. Excluding the pricing policy from consideration, the length of time required to complete the relevant procedures becomes the main factor influencing the level of land privatization (for all types of land privatization). Although the survey data do not show it explicitly, it is understood that most market participants are generally aware of the time required for such transactions, *ex ante*, within their jurisdiction. The longer the duration of the procedure, the lower the rate of the privatized land in a region, presumably because businesses factor the costs and risks of the delays into their decisions. A decrease in the average procedure duration by one month (or by approximately 14%), other things being equal, increases the number of land privatization transactions per 100,000 residents by about 11%.

3. Delays associated with land privatization procedures in turn lead to an increase in the proportion of transactions for long term land leases as opposed to land ownership (leases in the Russian Federation are less than fully marketable, relative to, say, Hong Kong and therefore not a complete substitute for land ownership in terms of security of property rights). If the delays are reduced by 25% from their mean length, other things being equal, the rate of land lease transactions would decrease by about 15 percentage points in favor of land privatizations.

4. The second factor influencing land privatization is the frequency of refusals by government agencies in the course of a procedure. As mentioned above, the earlier research by Khakhalin and Butler has provided evidence that officials exploit vaguely worded administrative procedures to their own benefit. The analysis demonstrates that while processing land privatization applications, government agencies tend to refuse the completion of such transactions twice as much, on average, as land lease procedures, even though the procedures and criteria are supposed to be the same.

5. Procedures in which applicants have significant sunk costs are much longer in comparison to the "reversible" ones. On average, other things being equal, "sunk cost procedures" take about 34% more time than procedures where the applicant usually does not have sunk costs. As hypothesized, it follows that procedures where applicants have sunk costs are also more prone to corruption as compared to the "reversible" ones. The share of stages involving unofficial payments while passing sunk cost procedures is higher by 11% on average. It appears that the delays are used by bureaucrats to extract the bribes as "speed payments."

6. More complex land procedures are more prone to corruption. Other things being equal, each extra stage added to the procedure (as specified in legislative documents regulating a particular procedure) increases the percentage share of stages in which unofficial payments were reported by about 4 percentage points. This

finding supports the view that some municipal policy makers, beyond their desire to deter land privatization and preserve revenues from land rents, may be also creating (or maintaining) opportunities for corruption.

7. However, the procedure duration, controlling for complexity and official fees, does not significantly affect the level of unofficial payments for a land-related procedure (except perhaps in conjunction with procedures associated with "sunk costs" for investors, as noted above).

8. The official cost of the procedures, along with the complexities associated with them, has a significant effect on the level of unofficial payments – holding other variables constant, the higher the official cost, the higher the level of unofficial payments.

9. Established relationships with government officials may help to reduce the duration of the process somewhat, although their effect is not significant. However, such connections cost money to maintain – intermediaries who have connections that they think can help in facilitation of their work charge more for completion of procedures. In other words, it appears that many intermediaries may market themselves as "facilitators", but the data suggest that the benefits of using a facilitator might not be worth the extra cost. It is still possible that facilitators are hired precisely in the most difficult cases (that may be more expensive in order to deal with the complexity), but our efforts to control for such situations (e.g., using the size of a land parcel as a proxy for complexity) did not yield significant results. Other proxies (e.g., the market value of a land parcel) might be more appropriate for this analysis, but are not yet available.

10. The use of auctions or tenders is still not very common in many regions, and while the data suggest that use of such mechanisms is associated with higher rates of land privatization, there is not yet clear evidence that they are associated with other positive outcomes such as fewer delays or unofficial payments. Here the biggest story is simply the fact that very few such transactions have taken place, as reflected both by the FIAS survey, official data published by Roskomstat and anecdotal evidence (e.g. interviews within several different regions). While we hoped an expected to find a correlation between regions who rely more heavily on auctions and other indicators of market-friendly efficiency and "transparency", the data do not (yet) support such a conclusion.

11. Policy implications to consider, in light of the findings, including the following:

- Unnecessary complexity (e.g., unnecessary steps in procedures) should be reduced in administrative procedures for businesses' access to land. This is likely to reduce both unnecessary delays and corruption. Regions with the simplest procedures should serve as a positive example for regions with more complex procedures. There appears to be little evidence from any source that simpler procedures, already within operation within the Russian Federation, are associated with any failure to preserve state interests or public welfare.

- Keeping land privatization prices low (i.e., administered prices for land under buildings that have already been privatized) helps to encourage land privatization transactions and helps to develop a competitive secondary market in land. This in turn allows for much more flexibility in real estate markets, which is associated with higher rates of investment and productivity. Most businesses also note that ownership of land helps them secure medium-longer time finance (e.g., mortgages) more easily than a long-term lease, which (in practice in the Russian Federation) is less than fully marketable. At the same time, if municipalities can not obtain revenues from land rents, they may need some compensating source of revenue (e.g., enhanced land taxes) to maintain their fiscal balances.

- For many administrative procedures, a policy of "silent consent" with time limits should be introduced. Officials should be required to provide a written explanation, against established legal or administrative criteria, for any refusal of applications for land privatization, within a stipulated time limit. If no decision has been rendered by the time limit, it should be deemed approved, with enforcement available through the courts if necessary. Silent consent is most suitable for relatively simple procedures with the fewest issues regarding, e.g., health/safety or the environment. A good example would be basic registration of property rights (which is also a procedure normally associated with "sunk costs" and therefore a frequent target of corruption, as noted above).

- Auctions and tenders for land privatization should be further encouraged, but need to be monitored closely for transparency and fairness. There have still been relatively few such transactions in most regions of the Russian Federation. While municipalities complain they are relatively costly to prepare, it may be possible to "bundle" many parcels into a set offered to the public and administered as a group. The federal authorities should require full disclosure of the final terms of sales, for monitoring purposes, on a regular basis.

Annex

1.1. Hypothesis 1 - Description of variables

Dependent variable

γ - number of sales to legal entities per 100,000 residents for industrial and other special use and for other purposes. The variable represents the number of land privatization transactions in each region[32].

Independent variables

ρ - land pricing factor. The variable represents the land price applied to the land tax (number of land taxes).

τ - logarithm[33] of duration of land sale transaction procedure (ARCS[34]). The variable represents the duration of completion of land plot privatization procedures by BIS and ARCS companies.

θ - logarithm of regional GDP per capita (control variable).

Other control variables Θ for the extended model (all Russian regions) :

Θ_1 - logarithm of regional GDP per capita.

Θ_2 - distance from the regional capital to Moscow City (in thousand km).

Θ_3 - ratio of per m^2 prices of land sold to legal entities for industrial and other special uses to land sold to legal entities for other purposes.

1.2. Hypothesis 2 - Description of variables

Dependent variable for model based on 15 regions data (Model 3)

Υ_3 - rate of land lease transactions. This variable represents the ratio of the number of land lease transactions to the total number of land transactions in each region[35] (transactions under The Procedure No.3). The variable takes the value from "0" to "100" depending on the percentage of land privatization procedures in the region in the total number of land transactions.

Independent variables for model based on 15 regions data (Model 3)

τ_A - logarithm of duration of land plot privatization procedures by ARCS companies (mean of all completed Procedures No.3A reported by ARCS companies in any specific region is used).[36].

Control variables Θ :

Θ_1 - logarithm of regional GDP per capita.

[32] Based on the official statistical data
[33] Here and further "logarithm" means a natural logarithm, if not otherwise specified.
[34] Results of the Administrative and Regulatory Cost Survey (ARCS) in the Russian Federation – an establishment survey.
[35] Based on statistical data on the completed procedures, Survey of ARCS Companies
[36] Results of the Survey of Land and Real Estate Transactions in the Russian Federation (Survey of ARCS companies)

Θ_2 - land pricing factor. The variable represents land price applied to the land tax (number of land taxes).

Θ_3 - share of refusals by government authorities under the Procedure No.3A. The variable shows the ratio of Procedures No.3A which were not completed due to refusals by government authorities to the number of submitted applications[37].

Dependent variable for model based on all Russia regions data (Model 4)

Υ_{leased} - percentage share of areas leased to industry, transport, communications, and construction in the regional territory.

Independent variables for model based on all Russia regions data (Model 4)

ρ - land pricing factor. The variable represents land price applied to the land tax (number of land taxes).

Control variables Θ:

Θ_1 - logarithm of regional GDP per capita.

Θ_2 - dummy variable for federal okrug capital cities.

Θ_3 - percentage of businesses who think that unofficial payments have low occurrence[38].

1.3. Hypothesis 3 - Description of variables

Dependent variables

E - share of stages with reported occurrence of unofficial payments - ratio of the number of stages where a respondent reported unofficial payment to the total number of stages which were passed by a respondent in order to complete the procedure[39].

τ – logarithm of duration of land plot privatization procedures by BIS companies.[40].

Independent variables

ν_8 - dummy variable for the sunk cost procedure (The Procedure No.8[41]). If the variable takes the value of "1", than the procedure with unrecoverable costs exists, and "0" otherwise.

Control variables Θ:

Θ_1 - dummy variables for procedures 1, 2a, 2b, 3a, 3b.

[37] Based on statistical data on the completed procedures, survey of ARCS companies
[38] As reported by OPORA – an NGO representing small businesses in Russian Federation.
[39] Results of the Survey of Land and Leal Estate Transactions in the Russian Federation (Survey of BIS Companies)
[40] Ibid
[41] Procedures No.6 and No.8 are characterized by unrecoverable costs due to the fact that in case of refusal to transfer a land plot or a building from one category to another, any company shall incur losses in the amount of the purchasing price of a site

Θ_2 - regional dummies.

Θ_3 - logarithm of size of a land plot.

Θ_4 - logarithm of amount of the official payments.

Θ_5 - *not* obtained by BIS. This is a dummy variable that takes value "1" if a procedure was *not* carried out exclusively by business intermediaries and "0" otherwise.

1.4. Hypothesis 4 - Description of variables

Dependent variable

N_{total} - Number of land privatization with and without tenders per 100,000 regional population[42].

Independent variables

$N_{tenders}$ - Number of sales in the region through tenders per 100,000 regional population.

Control variables Θ ***:***

Θ_1 - logarithm of regional GDP per capita.

Θ_2 - distance from the regional capital to Moscow City (in thousand km).

Θ_3 - dummy variable for federal okrug capital cities.

Θ_4 - logarithm of regional territory.

1.5. Hypothesis 5 - Description of variables

Dependent variable

E - share of stages with reported occurrence of unofficial payments - ratio of the number of stages where a respondent reported unofficial payment to the total number of stages which were passed by a respondent in order to complete the procedure[43].

Independent variables

Variables δ:

N_{law} - number of stages "by law". The number of stages mandated by legislation. This number can vary between regions due to differences of regional legislation.

N_{law}^{ln} - logarithm of number of stages "by law".

O - logarithm of amount of official payments for all documents.

O^{stage} - logarithm of average amount of official payments per one stage by law (logarithm).

τ – logarithm of duration of land plot privatization procedures by BIS companies.

τ^{stage} - logarithm of total time divided by number of stages "by law".

τ^{doc} - logarithm of total time per one document.

[42] Results of the Survey of Land and Real Estate Transactions in the Russian Federation (Survey of ARCS Companies)
[43] Results of the Survey of Land and Leal Estate Transactions in the Russian Federation (Survey of BIS Companies)

Variables Z :

Z_1 - number of documents collected by respondents.

Z_2 - number of documents per stage "by law".

Z_3 - logarithm of amount of official cost per square meter of the land plot.

Variables Θ_1 - procedure dummies for procedures 1, 2A, 2B, 3A, 3B.

Variables Θ_2 - regional dummies.

1.6. Hypothesis 6 - Description of variables

Dependent variables:

τ – logarithm of procedure duration[44].

M - logarithm of total expenses for completing the procedure.[45]

Independent variables:

Ψ - dummy variable for existence of well established contacts. The variable shows whether respondents possess well-established contacts with employees of government agencies that simplify completion of a procedure.

Control variables Θ :

Θ_1 - procedure dummies for procedures 1, 2A, 2B 3A, 3B.

Θ_2 - regional dummies.

Θ_3 - total number of documents obtained by respondent. The variable shows the number of documents collected by respondents in order to complete the procedure.

Θ_4 - number of stages "by law". The number of stages mandated by legislation. This number can vary between regions due to differences of regional legislation.

Θ_5 - total number of stages where a respondent reported making unofficial payments.

Θ_6 - location of the land plot (center of the city or outside of the city).

Θ_7 - logarithm of size of the land plot.

Θ_8 - *not* obtained by BIS. This is a dummy variable that takes value "1" if a procedure was *not* carried out exclusively by business intermediaries and "0" otherwise.

[44] Ibid
[45] Ibid

BIBLIOGRAPHY

EBRD and World Bank, *Business Environment and Enterprise Performance Survey (BEEPS)*, http://info.worldbank.org/governance/beeps.

FIAS (2004), *Administrative Barriers in Subjects of the Russian Federation*, http://www.fias.net/ifcest/fias.nsf/Content/FIAS_Resources_Country_Reports.

FIAS (2004), *Russia's Runaway Investors,* unpublished manuscript.

FIAS, *Privatization of Enterprise Land in the Russian Federation: 1992 – 2003.*

FIAS, *Survey of Land and Real Estate Transactions in the Russian Federation*.

FIAS, *Report on Access of Enterprises to Land (prepared for MEDT) and FIAS/EU Report on Land and Real* Estate *Transactions (prepared for FIAS) at* www.worldbank.org/russia/fias.

Khakhalin, Andre A. and Stephen B. Butler, *Privatization of Enterprise Land in the Russian Federation: 1992-2003,* prepared for USAID, unpublished manuscript.

Muir and Shen, *Land Markets: Promoting the Private Sector by Improving Access to Land,* World Bank Group Viewpoint Note, available at http://rru.worldbank.org/PublicPolicyJournal/Summary.aspx?id=300.

Russian Federation, *Federal Law on Enactment of the Land Code.*

World Bank, *Doing Business*, http://www.doingbusiness.org.

World Bank (2003), *Land Policies for Growth and Poverty Reduction*, Oxford University Press.