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Foreign Direct Investment and Governance Quality in Russia

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Abstract

This paper studies the effect of poor governance quality on foreign direct investment in Russia. Using a survey of businesses across forty administrative districts, we find that higher frequency of using illegal payments and higher pressure from regulatory agencies, enforcement authorities, and criminals, negatively affect foreign direct investment. Our identification strategy builds on the exogenous cross-regional variation in worker strikes during 1895-1914, the period before the October Revolution. We find that moving from the average to the top governance quality across Russian regions more than doubles the FDI stock.

Keywords: foreign direct investment, quality of governance, corruption, Russia

JEL codes: F21, G15, O17

1. Introduction

What are the reasons for the large heterogeneity in investment across cities, regions, and countries? Why do some of them prosper while others struggle in attracting investors and developing in the long term? In this paper, we explore how quality of governance affects a specific type of investment – foreign direct investment. Foreign direct investment is a very important source of economic growth, especially for developing countries. It allows them to overcome the local deficiencies in capital, technologies, and expertise, and has strong and long-lasting effects on growth – through both direct and spillover channels (Borensztein et al., 1998; Javorcik, 2004; Gorodnichenko et al., 2014; among many). The analysis of the determinants of FDI is popular among academic researchers; see Blonigen (2005), Blonigen and Piger (2011) for a review.

The existing empirical research, especially the one based on cross-country variation in governance quality, is not entirely convincing. While Henisz (2000), Wei (2000), and Javorcik and Wei (2009) find a negative correlation between institutional measures, such as corruption and political risk, and foreign direct investment, Wheeler and Mody (1992) and Bevan and Estrin (2004) find no significant relation, and Egger and Winner (2005) suggest that bad institutional quality positively associates with FDI by facilitating its promotion in the presence of abundant regulation and administrative barriers.

We contribute to the empirical literature on institutions and foreign direct investment in three important dimensions. First of all, we establish a causal link between governance quality and foreign direct investment. In particular, we find that bad governance quality, as measured by higher frequency of using illegal payments and higher pressure from regulatory and enforcement agencies, and higher pressure from criminal community as well, negatively affect foreign direct investment. To estimate the impact of governance quality on FDI we propose to use the intensities of worker strikes more than a century ago, across different Russian regions, as a plausible source of exogenous variation. To the best of our knowledge, there are few other studies that show a causal effect of quality of governance on FDI. The only exception is the study of Hines (1996) who uses the passage of the 1977 U.S. Foreign Corrupt

Practices Act to show that US multinational activity fell sharply in bribe-prone countries with the implementation of large penalties for illegal payments.

Second, in our study we rely on cross-regional, rather than cross-country variation in institutions. We measure governance quality within the same country – Russia – therefore allowing for a relatively high homogeneity of expectations and social norms across regions and reducing the concerns for different subjective attitudes of respondents. In this respect, our study is a part of the growing literature that uses cross-regional variation in institutions, such as Boermans et al. (2011) for China, and Ledyaeva et al. (2013) for Russia, which however do not attempt to establish the direction or the presence of a causal link. Our cross-regional governance quality data is also fitting for our research analysis in that it represents the views of actual businesses that deal with institutional problems on a daily basis, rather than those of external experts.

We clean the data on FDI by distinguishing between the real inward FDI and the so called round-tripping investment that first originates as outward FDI from Russia. In particular, we find that the positive effect of governance quality on FDI is only present for FDI that originates from regular, non-offshore countries. In contrast, for FDI that originates from offshore financial centers – countries such as Luxembourg and British Virgin Islands – there is an insignificant and negative effect of governance quality, supporting the view that the motive behind such FDI may be entirely different (e.g. money-laundering). Although such a separation is especially important for Russia, with about half of its foreign direct investment coming from these offshore financial centers, it may also be relevant for other countries. Specifically, our results imply that bundling together FDI flows that have different motives may be one of the reasons for the mixed or insignificant effects of institutions on FDI in the previous literature.

Russia presents an excellent laboratory to analyze the effect of governance quality on FDI. Over the last decade it has accumulated significant amounts of FDI stock, becoming one of the top destination countries. More interestingly, in Russia, which consists of more than 80 administrative districts, there is a considerable heterogeneity within the country in terms of the inward FDI stock, which ranges from just a few cents in some regions to tens of thousands of $US per capita in others. At the same time, many regulatory interactions between investors

and government authorities are delegated to the district level, providing naturally for a large variation in terms of the business climate as well (as documented for example by CEFIR, 2007, and World Bank, 2012, 2013). These differences in governance quality are at least partly responsible for a substantial diversity in FDI flows. We find that FDI increases by more than 150% when the region improves from the average to top level of governance quality. In this regard, our finding on the significant effect of governance quality on foreign direct investment across Russian regions is in line with the "new comparative economics" literature started by Djankov et al. (2003)

Certainly, there may exist other reasons why governance quality and FDI relate to each other in the data. For example, it is likely that richer regions that have attracted lots of FDI can afford to have better governance quality. Such reverse causality concerns illustrate the importance of using some exogenous variation that could help clarify the exact direction of the link – the one from governance quality to FDI.

Fortunately, Russian history provides with an interesting instrumental variable. Specifically, we use the intensity of worker strikes in 1895-1914 as an instrument for current governance quality. Our argument for the use of this variable is that the presence of a conflict of interests between the business owners on the one side and the workers on the other side, which intensified in the 1890s with unprecedented industrial growth, may act as a revealed indicator of government authorities being involved in securing the interests of the business owners. In particular, the fewer worker strikes there are, the less likely it is that the capitalists may have unfairly teamed with the government authorities to act against the workers. In such a case, more trust in the government authorities on the side of both workers and business owners occurs, translating naturally into better governance quality overall, which, as long as such incentives persist, survives over decades (Acemoglu and Robinson, 2006). Our paper thus continues the tradition of using historical arguments in the research on economic development (Hall and Jones, 1999; Nunn, 2008).

Another very important strand of the literature that deals with the historical roots of the state regulation is the legal origin theory (La Porta et al., 2008). Djankov et al. (2002), Botero et al. (2004) provide empirical evidence on the differential effect of legal principles,

namely common versus civil law traditions, on the extent of regulation that governs firms' entry and labor market. The civil law is usually associated with higher burden of regulation outstretched over businesses and markets.

In all political regimes that Russia experienced over last two centuries its legal system were invariantly based on French civil law. So neither historical reference nor cross regional approach of our study deal with the issue of legal origin per se. Nevertheless we find several insights essential to our research. First, La Porta et al. (2008) propose a broad concept of the legal origin as a "style of social control of economic life". Second, legal origin theory considers human capital and beliefs of participants of legal system to be the important means to ensure its persistency over time. These two assumptions can well be applied to the way the same formal regulation is enforced in different regions of the same jurisdiction. Yakovlev and Zhuravskaya (2007) provide evidence of regulatory enforcement differences across Russian regions. Given the same legal framework the differences in enforcement can be a proxy for the extent of social control of economic life. Then, the cross-regional variation in the historical circumstances that shaped the origin of regulatory enforcement and its persistency over time ensured by human capital, believes of participants and social norms generally may work the same way as the legal origin works in cross country setting. CEFIR (2009) survey of state officials in twenty Russian regions provides empirical support for the assumption that the differences in subjective attitudes of individual bureaucrats toward the deregulation reform contribute to the cross regional variation in law implementation and enforcement.

The paper proceeds as follows. Section 2 describes the institutional environment in Russia, with a particular attention to peculiarities of FDI, measures of governance quality, and historical worker strikes and their potential use as an instrument. Section 3 presents our identification strategy and main results. Section 4 performs a series of robustness checks. Section 5 concludes.

2. Data

2.1 Foreign Direct Investment in Russia

In the first decade of transition in 1990s the inflow of foreign direct investment in Russia was low compared to Eastern European countries and other emerging economies. However, this changed dramatically around 2003. As oil prices surged, making investments in the Russian economy more profitable and allowing the government to initiate large infrastructure projects, FDI flows into Russia increased ten-fold within just a few years. As Figure 1 shows, a maximum of $74.8 billion was achieved in 2008 (corresponding to 4.5% of the country's GDP), and Russia became one of the top countries in the world for inward FDI. By 2006, FDI inflows to Russia in per capita terms had surpassed FDI into China.

<FIGURE 1 ABOUT HERE>

Nevertheless, the *stock* of FDI in Russia has remained substantially lower than in some comparable middle-income countries, as these may have had a relatively longer period of macroeconomic stability and investment attraction. The accumulated stock of FDI as a share of GDP (PPP) in Russia was 21% in 2013. This is only slightly more than in Ukraine (18%), and significantly less than 28% in Brazil and 30% in Poland.

The stock of FDI in 2012 was distributed mainly between manufacturing (32%), real estate (15%), mining and quarrying (15%) and financial services (13%). The slowdown of oil price growth after 2008 along with the increased state regulation of resource sectors led to two-fold decline in the share of mining and quarrying in the stock of FDI accompanied by an increase in the shares of financial services, construction, retail and wholesale.

Given the diversity of Russian regions in terms of natural, economic and institutional conditions, we also observe a substantial heterogeneity of foreign direct investment across Russian regions. Table 1 lists all Russian regions as of January 2012 in terms of their accumulated stock of FDI (in US$ million), population (in million), and FDI per capita (in US$), with all the data coming from the Federal Statistical Agency of Russia (Rosstat). These regions cover all administrative units of Russia, except for the Republic of Chechnya and the Republic of Ingushetia, for which there are no FDI data. Khanty–Mansi and Yamalo-Nenets autonomous regions are parts of Tumen region and are included there. Nenets autonomous region is a part

of Arkhangelsk region and is included there. As we can see, the accumulated stock of FDI per capita is only $0.32 in the Republic of Karachaevo-Cherkessia, while reaches a substantial $30,371 in Sakhalin region. The average regional accumulated stock is just above $1,000 per capita. In terms of the total stock, Moscow City is the leader with more than $39 billion of accumulated FDI.

<TABLE 1 ABOUT HERE>

In our study, we use data on inward foreign direct investment from Rosstat, which provides figures on the accumulated stock for all Russian regions and countries of origin in OKVED[1] 4-digit sectoral disaggregation. The accumulation of the investments accounts for the depreciation and reevaluation of the stock. Our choice of the stock of investments over the investment flow is defined by the high volatility of flow data at industry-region-country of origin dimension and few non-zero data for any given period. We limit the list of origin countries to those that are not considered as offshore financial centers by Russian Ministry of Finance.

An important feature of FDI in Russia is a significant share of the so called round-tripping investments. They represent flows of capital that are recorded in Russian financial system as coming from offshore financial centers (OFCs), such as Cyprus or British Virgin Islands, but that essentially originate first from Russia – in the form of outward foreign direct investment. In 2012 $7.5 billion out of $18.5 billion of inward FDI in Russia came from offshore financial centers, with the most important OFC being Cyprus that delivered around 80% of total offshore investments. The accumulated stock of FDI by country of origin in 2012 is reported in Table 2 (offshore countries) and Table 3 (non-offshore countries). As we can see about half of total inward FDI stock in Russia comes from offshore countries.

<TABLES 2 AND 3 ABOUT HERE>

[1] Russian official economic activity classification OKVED follows very closely NACE classification

Many offshore territories are not only the origin countries for inward FDI to Russia, but are also among the top destinations of Russian outward FDI (see Appendix Table 1). For example, Cyprus is the origin of more than $55 billion of inward FDI in Russia, and at the same time, the destination for more than $15 billion of outward FDI. For British Virgin Islands these figures are $8.6 billion and $2.0 billion, respectively.

The top non-offshore position of the Netherlands with about $24 billion of inward FDI deserves further attention. While not in the official list of OFCs, it has many OFC attributes. In 2012 its share in the total outward accumulated FDI was more than 36%. This special position can be explained by the choice made by Russian residents in favor of the Netherlands as an intermediate place for offshore transactions. Convenient and transparent legislation of this country attracted firms to establish Special Purpose Vehicles (SPV) there and use them as a means of arranging Russian project financing from international banks. At the same time, there is also some real FDI from the Netherlands to Russia initiated by such companies as Shell, Unilever, and others. This forces us to identify Dutch investments as the non-offshore ones. To some degree, similar considerations are relevant for Luxemburg (0.7% in inward and 3.1% in outward FDI) and Ireland (0.45% and 0.06%, respectively). Although Netherlands, Luxembourg and Ireland are not officially in the Ministry of Finance list of OFCs, we make sure our results are also robust to treating these countries as offshore centers.

There are several reasons behind the significant role of offshores in external Russian transactions. The traditional cause for using OFC in developed countries is a tax avoidance. While profit concerns are also relevant for Russian law-abiding entrepreneurs there are also other important reasons that force them to use offshore shells for their Russian based enterprises. The possibility to get cheaper international financing and some other financial services for large Russian companies was already mentioned. However, there are many small and medium size businesses in Russia that also rely on this mechanism despite the fact that international banks will hardly provide resources for them. Underdeveloped institutions and poor property right protection often referred to as main driving forces for these companies to go offshore (Ledyaeva et al., 2013; Kheyfets, 2013).

Given the importance of round-tripping investments in Russian economy and the differences in incentives behind the regular FDI and the one from offshores, we need to distinguish between the two types of investments while studying their determinants. On the one hand, poor regulatory governance might be a reason for the higher volumes of round tripping investments, and on the other, they might be a reason for low attractiveness for true foreign investments.

2.2 Governance Quality Indicators

Stable macroeconomic environment in Russia over the last decade has benefited Russian regions in attracting FDI. The diversity of Russian regions in various institutional aspects is, however, recognized in many studies. Yakovlev and Zhuravskaya (2007) report substantial differences in the speed of regulatory reform in twenty Russian regions over 2002-2005. The authors identified government transparency and control over corruption as institutional factors that have a robust, statistically significant, and economically large effect on the implementation of deregulation reform in Russian regions. These factors were shown to be associated with better reform progress both in the regulation of entry and the regulation of businesses already in operation.

A recent subnational survey of firms in 37 Russian regions by the World Bank indicates significant differences in the lists of most severe obstacles for firms' performance across regions (World Bank, 2013). The study of Russian officials conducted by the World Bank in twenty Russian regions in 2008 (CEFIR, 2009) also reports substantial heterogeneity of regions in many aspects of regulatory agencies' performance and one of the results which relevant to our study is a reported link between the subjective attitudes of employees of regulatory agencies and the performance of the agencies. Namely, it was shown that agencies whose employees indicate stronger subjective support toward more liberal regulation demonstrate better compliance with the legislation of the reform package and the differences in subjective attitudes of individual bureaucrats toward the deregulation reform explain some cross-regional variation in how the laws are implemented and enforced (CEFIR, 2009).

The governance quality data for our study come from the Index of Support ("Index Opory") survey conducted in 2011. This is a survey of directors of small and medium Russian

firms that is collected by the Eurasia Competitiveness Institute (a not-for-profit think tank) and Opora Rossii (a non-for-profit organization that supports small business). It includes about 6000 firms and is designed to be a random sample of small businesses, stratified by size, location (urban or rural), and industry (with about two thirds from agriculture and manufacturing industries, and the rest – from infrastructure and services).

Due to the large number of regions in Russia (83 as of 2011), the costs of conducting regionally representative surveys are significant. Therefore, based on a cost-benefit analysis the usual choice is to survey the most economically important half of the regions. Our data hence cover 40 regions. Their list is available in the last column of Table 1. As we can see, the surveyed regions are mostly located in the top of the table, with their economic weight corresponding to 84% of total FDI stock and 83% of GDP in 2011. We are aware of studies that use a different source of governance quality measures, which allows studying all Russian regions, (e.g. Ledyaeva et al, 2013). However we chose to use this smaller set of regions because, first, the other data are available only for the beginning of 2000s, and second, they are based on external expert ranking of regions rather than on survey data collected from the actual businesses registered in the regions. In our opinion, given that these businesses are in fact the economic agents that face problems associated with governance quality, their anonymous answers as a group may present a more objective opinion about the real situation in the region. Additionally, since the significant increase in inward FDIs in Russia started only in 2003 positive investment flows at industry-region-country-of-origin level of disaggregation are very limited before that period.

All respondents of the survey are asked to answer a set of questions related to regional infrastructure, availability of labor, capital, and intermediate goods, and the absence of administrative pressures. Their answers are then aggregated within regions and all regions are ranked according to each criterion.

We use the data coming from the administrative pressure section of the survey. The surveyed regions are ranked according to the average answers on questions relating to the frequency of firms in the region using illegal payments to officials (Bribes to Officials), the frequency of firms facing abuse on the side of inspection authorities (Inspection Agencies

Pressure), on the side of enforcement authorities (Police Pressure), and criminal community (Criminal Pressure).

2.3 Worker strikes in 1895-1914

The common problem in this type of research is the reverse causality between the main variable of interest, quality of governance, and foreign direct investment. Along with the result on the negative effect of poor governance on FDIs (Wei, 2000) there are studies that investigate the negative effect of FDIs on the quality of regional governance (Dang, 2013). The effect of foreign investors might be through better practices they bring from donor to the host country or through legal restrictions imposed by domestic jurisdiction on their business in any country in which they decide to invest. In both cases, wider presence of foreign investors in a district will be associated with higher pressure on the local authorities to improve the governance (Selowski and Martin, 1997). To deal with the reverse causality problem in our study, we rely on instrumental variable approach. As an instrument for governance quality in Russian regions, we choose the intensity of worker strikes in Russian provinces over 1895-1914. We assume that the intensity of strikes in this period can be used as a proxy for the trust between local business and political elites, on the one hand, and ordinary people, on the other.

The choice of the period is not accidental. First, this is a period of unprecedentedly high growth of Russian industry. Over 1887-1900 the production of many industrial goods and fuels in Russia increased by factor 3 to 5 in real terms. Also, every year around five thousand kilometers of railroads were put in operations (Strumilin, 1960). Not surprisingly, the conflicts between workers, on the one hand, and management and owners, on the other, intensified starting from the 1890s. The police was an important instrument that managers and owners relied upon to keep control over the workers. It is important to mention that the situation in Russia in this regard was not different from what happened in other parts of the world. Harring and McMullin (1975) provide a detailed account of the formation of police forces in Buffalo over 1872-1900. The authors emphasize the importance of political and economic conflicts around the time of intensive manufacturing development in urban areas as owners and managers tried establishing a control over workers and workers retaliated with strikes and other forms of resistance. The Buffalo case indicates that police was intensively used at this

period to serve the narrow interests of manufacturers to control strikes and public organization of workers. The important link between local politicians and industrialists were formed to ensure the alignment between the interests of police and business owners. The formation of enforcement agencies was strongly influenced by this alignment. And this alignment in turn defines the level of trust between elites and enforcement agencies and population. In the Russian case with a different political organization under the tsar, this effect was even more pronounced.

Second, before 1897 no law regulated the duration of working hours in Russia. It was on discretion of the factory owners to establish the norms. On June 2, 1897 the first law governing working hours at a level well below the pre-existing level in Russian factories was signed into force. This law was an important first step into improving the living conditions of the workers in Russia. Now the workers could claim their rights against factory management. Factory inspections that were launched earlier around 1882 first were supposed to control over the enforcement of labor regulation in general and new labor law in particular. However, as the conflicts between workers and capital owners and management dramatically intensified, these regulatory agencies were used to control over workers and their organizations (Kupriyanova, 2000).

We interpret the intensity of strikes at the regional level as a measure of the revealed conflict between the state and the owners of existing businesses, or local elite, on one hand, and population on the other. In these conflicts, the enforcement and first regulatory agencies were used to secure the interests of small group of local elites against interests of broad population. In this way we may rely on the intensity of strikes as an inverse proxy for the trust between population and local elites.

Modern research recognizes the importance of history for economic development (Hall and Jones, 1999; Acemoglu et al., 2001; Nunn, 2008). Nunn (2009) indicates several mechanisms that justify the projection of history onto modern life. For our study, two of these mechanisms are especially relevant. One is the historical roots of modern formal institutions. The second is the effect of history on social and cultural norms. Under some circumstances it might be difficult to distinguish between the two and they may act together to define the way

in which the past shapes the current economic interactions (Greif and Tabellini, 2010). As far as the a link between the trust and the quality of governance is concerned, Aghion et al. (2010) build a theoretical model which specifies a mechanism of possible coevolution of trust and regulation: as low trust creates public demand for regulation, regulation in turn discourages investment in social capital which defines the level of trust. One of the implications of this model is that people in low-trust environment want more government intervention even though they are aware of low quality of governance. An empirical test of the link between the trust and the extent of regulation in cross section of transition countries and individuals provides a support of the mechanism. For our study the prediction of this model on the link between the trust and the quality of governance and their coevolution is especially relevant.

One important issue about using our instrument is whether we can reasonably assume the preservation of some institutions or social norms through the two dramatic changes in Russian political regimes. While there is evidence of institutional persistency, some aspects of institutions do change often. Acemoglu and Robinson (2006) address the question of whether changes in certain dimensions of institutions are consistent with overall institutional persistence and build a theoretical model, which analyzes an equilibrium in the economy with endogenous labor market institutions and two types of political regimes: democracy and non-democracy. One of the results of the model is the possible persistence of the institutions that are essential for the allocation of resources in the economy despite the changes in political regime. The essential condition for institutional persistence is the persistence of the incentives of those in the power to distort the economic system for their own benefit. Therefore, as long as the incentives are preserved, the institutions may survive changes in the regime.

A number of empirical studies support this conclusion. Becker et al. (2011) show that hundred years after the fall of the Habsburg Empire, its legacy is still felt today. Namely, individuals with historical Habsburg affiliation have higher trust in public services and report lower corruption in courts and police despite the changes in the borders and sharing of formal institutions with those whose ancestors lived outside of the Empire. On the other hand, Grosfeld and Zhuravskaya (2014) explore the persistence of norms and institutions among Polish population whose ancestors lived in three different empires. Their research shows that

some empire legacies such as religious practices, beliefs in democratic ideals were preserved, presumably through inter-generational within-family transmission while others, such as education, corruption and trust in government institutions disappeared over time. The results of Dower and Markevich (2014) also support our choice of timing. They show that the measure of conflict brought by Stolypin land reform in farmer's communities in Russia about a hundred years ago explains current attitudes in Russian society toward privatization outcomes of the 1990s.

The data for the intensity of worker strikes in Russian regions over 1895-1914 were taken from Kofanov (2013), who collected them from two main sources of historical statistics; Varzar (1905, 1908, 1910) and Reports of labor inspections for years 1909-1913[2]. The availability of statistical information for the period in question was possible due to the formal institute of factory inspections. The Reports are the official statistical bulletins of the Ministry of Finance published over 1900-1914. They contain information based on the records of factory inspectors. The data are provided at the province ("gubernia") level for the number of industrial enterprises under the control of factory inspections, number of workers there, the wage bill, number of strikes, fines on workers and occupational injuries. This is the important source of information about the labor force in Russia in the end of 19th – the beginning of 20th century. Nevertheless, the coverage is not complete and some omissions of relatively big factories are possible. Vasilii Varzar was an important state official behind these publications. He first worked as a factory inspector and then, while in the Ministry of Finance, he launched the publications of labor statistics and then published several reports on worker strikes himself.

2.4 Descriptive Statistics

The database for our analysis consists of four main components: FDI data (at the region-industry-country-of-origin level), governance quality data (at the regional level), historical data on worker strikes (at the regional level) and other regional-level controls, such as railroad density and income per capita.

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[2] Svod otchetov fabrichnih inspektorov for various years (1909 - 1913), SPb, 1911 - 1914

Table 4 reports the summary statistics of the data at the level of 4-digit industry-country-region. Governance quality indicators by construction range from 1 to 40 (one rank per region) and, given the unequal distribution of industries and countries across regions, their means are slightly different from 20.5.

<TABLE 4 ABOUT HERE>

Given that these four rank variables are proxies of governance quality, which are highly correlated with each other, we do not attempt in our analysis to separate which of them may be more important. Instead we create their first standardized component to extract common variation. Appendix Table 2 shows the results of principal component analysis (eigenvectors). As we see, there is a significant amount of common variation in Bribes to Officials, Inspection Agencies Pressure, Police Pressure, and Criminal Pressure. In particular, the first component contains about three quarters of total variation and loads positively and roughly equally on all the four variables. The components were created and standardized out of the original data (one observation per region); hence, their average and standard deviation in the industry-country-region data are slightly different from 0 and 1, respectively.

To give a few examples, the top regions in terms of governance quality are Belgorod and Astrakhan Regions, as well as Stavropol and Krasnodar Territories. For example, Belgorod region is ranked first in terms of police pressure, second in terms of bribes to officials and criminal pressure, and sixth in terms of inspection agencies pressure. This makes it the top region overall. Kaluga region, which is commonly viewed as one of the best regions to invest in Russia, is ranked fifth overall, achieving some of the best positions in all indicators, except for bribes to officials where it is somewhere in the middle (ranked 16th). To give a comparison, Moscow City ranks 27th overall. Interestingly, both Moscow Region and Moscow City rank quite badly in terms of bribes (31st and 28th, respectively). However, Moscow Region does much better in all the other components, achieving the 10th position in the overall ranking. Finally, there are regions that, according to this index, are even worse in terms of governance quality: the bottom five places are taken by Leningrad, Irkutsk, Voronezh, Ryazan, and Rostov Regions.

The total number of worker strikes in the region during 1895-1914, Strikes (in hundreds), is available for all regions, where we have governance quality indicators, except for Kaliningrad region, which during that period was a part of Germany. They range from zero in such regions as Republic of Altai, Novosibirsk Region, or Kamchatka Territory, to several thousands in St.Peterburg, Pskov, or Moscow Regions. The average is about 1,000 strikes, corresponding to about 50 strikes per year. It is also notable that for all of our variables means and medians are very close, suggesting that the variables have nice distributions.

We also use several additional control variables in our specifications. Income per capita, measured in 1990 rubles, is on average about 243 thousand rubles per person per month across different regions. This roughly corresponds to 35 thousand US dollars per person per year (using the 125 rubles/USD rate as of July 1992 when free exchange was opened). Railroad density averages about 359 kilometers per 10,000 square kilometers of area. Distance to foreign capital, which is measured as the distance between the regional capital and the capital of the country where FDI comes from, averages about 3,065 kilometers. This roughly corresponds to the distance between Moscow and Paris or between Krasnoyarsk and Beijing.

3. Foreign Direct Investment and Governance Quality

3.1 Nested Panel Specification

To estimate the effect of governance quality on foreign direct investment we first use the following specification:

$$\ln\text{FDI}_{irc} = \alpha_{ic} + \beta\text{GovQ}_r + X'_{rc}\gamma + \varepsilon_{irc} \tag{1}$$

where $\ln\text{FDI}_{irc}$ is the logarithm of total foreign direct investment that region r has received from country c in the 4-digit industry i by January 2012; α_{ic} are the industry-country fixed effects; GovQ_r is one of the 5 measures of governance quality, described in Section 2; and X_{rc} are region-level and region-country-level control variables.

We use industry-country fixed effects to control for both observable and unobservable characteristics of the industries that could drive variation in FDI across industries (such as size,

skill-intensity, state ownership, etc), as well as any foreign country specialization that may exist across industries. To account for the differences that may exist across regions and correlate with FDI, other than governance quality, we introduce several control variables into our specification. They include regional per-capita income measured in '000 of rubles per month as of 1990 to make sure that its variation across regions does not include endogenous variation from FDI flows that started coming to Russia after the collapse of the Soviet Union – to account for more FDI potentially flowing into richer regions; density of railroads (measured in kilometers per 10000 square kilometers of area as of 1990) – to account for more FDI potentially flowing into more developed and industrial regions; and distance from regional capital to foreign capital (measured in '000 of kilometers based on latitude and longitude data) – to account for potentially more FDI in closer country-region pairs. Finally, we cluster standard errors both at the region level – since the variation in the main independent variable is at the regional level, – and at the same time at the origin-country level to account for possible common shocks that investors from the same country may face when investing in Russia[3]. This means that all our statistics are robust to heteroskedasticity and arbitrary within-region and within-country correlation.

The results of estimating specification (1) for different measures of governance quality are presented in Table 5. Columns 1 to 4 use our rank-based measures of governance quality, as defined in Section 2, as the main independent variable. As the main coefficients of interest indicate, a one-place increase in the rank of governance quality is associated with 1 to 2 percent higher FDI, across different specifications. The coefficient is somewhat lower and less statistically significant for Bribes to Officials and Inspection Agencies Pressure, but higher in magnitude and highly statistically significant for Police Pressure and Criminal Pressure.

<TABLE 5 ABOUT HERE>

[3] As a robustness check we also did double clustering at the region and industry-country level and the results were the same.

Importantly, the effect is large in economic terms as well. The magnitude of the coefficient at Police Pressure, for example, implies that going from Ryazan region (Police Pressure rank = 39) to Tula region (Police Pressure rank = 10) associates with approximately 95% higher FDI. In reality, the two regions are close in their other characteristics, and in particular, in terms of their pre-FDI per-capita income and distance to foreign countries. Interestingly, Tula region has about 3 times higher total inward FDI stock from non-offshore countries than the Ryazan region, with the rest of the difference potentially accountable for by somewhat higher railroad density.

Column 5 reports the results of estimating (1) using the first standardized principal component of the four ranks as the main independent variable. The magnitude in column 5 suggests that a one-standard deviation increase in the principal component is associated with 22.2% higher FDI.

Finally, other coefficients have the predicted signs too. Pre-FDI-era income per capita and railroad density are positively associated with FDI stock across regions. These variables are statistically significant at 1% level in all specifications. Shorter distance to the origin country is weakly associated with higher FDI stock, with every thousand of kilometers adding about 5-6% to FDI[4]. In these OLS specifications this association is not statistically significant, however.

3.2 Instrumental Variable Specification

Our OLS regression results are consistent with the empirical literature: the worse the governance quality is (which in our case is proxied by more corrupted regional authorities and more pressure from regulatory agencies, police, and criminal community), the less foreign investment we observe in this region. A common explanation of this evidence would be that corruption and potential pressure create uncertainty for investors in terms of their future cash flows, acting as an additional tax and increasing the risks of business capture, thereby decreasing the attractiveness of a particular region.

However, it is also possible that FDI flows themselves change the behavior of government officials. For example, the inflow of new (foreign) money may stimulate

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[4] In unreported results we also check that this difference is not an artifact of FDI coming just from non-CIS countries.

incumbent authorities to bribe more overall, since they have a higher 'tax base'. Or, conversely, in order to stay in the office, incumbent officials can promote FDI and facilitate business environment conditions to attract new investors and create new jobs.

In either case, the unobserved component of the error term in specification (1) would be correlated with the regional level of governance quality, so that estimating it using ordinary least squares would yield an inconsistent estimate of β. Furthermore, our governance quality measures may be poorly measured, again biasing the OLS coefficient towards zero.

In order to tackle these potential endogeneity problems, we employ the instrumental variable approach, where we instrument our proxies of governance quality using Strikes – the total number of worker strikes in a region during 1895-1914. On those occasions when the territory of a given region corresponds to several provinces during the tsarist era (the level at which the strikes are measured), we have assigned the average. The results are also quantitatively similar when using the maximum and the minimum. The identification assumption of such a test is that the variation in Strikes, conditional on the regional development, economic size, and location (as proxied by our control variables) is unrelated to variables potentially omitted in (1), i.e. that worker strikes in the 19th century relate to today's FDI only through governance quality.

Although this assumption is untestable, we believe Strikes is likely to be a valid instrument. Because this variable is very-long predetermined, it automatically solves the reverse causality concern. At the same time, once we have included enough control variables that could also be related to our instrument and FDI (such as regional development and economic size), we can argue that Strikes also solve the potential omitted variable problem.

Table 6 reports the results of regressing our proxies for governance quality on the worker strikes instrument, industry-country fixed effects, and region-level and region-country control variables. These regressions correspond to the first stage of the IV-2SLS estimation of (1).

<TABLE 6 ABOUT HERE>

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The coefficient of interest in column 1, 0.701, for example, suggests that every 143 of additional worker strikes in a region are associated with one place lower in the Bribes to Officials ranking. The coefficient has similar magnitudes for other proxies too (columns 2 to 4). The coefficient in column 5 suggests that one standard deviation change in the number of strikes is associated with 0.28 standard deviations in the principal component[5]. All these coefficients are significant at 1% level.

For each first-stage specification we also report the weak-identification Kleibergen and Paap (2006) F-statistic. It largely exceeds the Stock and Yogo (Stock et al., 2002) weak-identification critical value of 16.38 (for 5% maximal size distortion for 1 instrument and 1 endogenous regressor) in all specifications, except for Inspection Agencies Pressure, suggesting that our worker strikes instrument is very strong for all but one of our proxies.

Since the variation in the number of worker strikes is exogenous conditional on the region-level and region-country control variables, the change in governance quality can be entirely attributed to changes in the number of worker strikes, and hence the second-stage results can be interpreted in a causal framework. They are reported in Table 7.

<TABLE 7 ABOUT HERE>

The coefficient in column 1 suggests that a one-place higher ranking in terms of Bribes to Officials leads regions to have 4.6% higher FDI stock. The coefficient has somewhat higher magnitudes for other proxies. The magnitude in column 5 implies that a one-standard deviation increase in the principal component leads regions to have 71.2% higher FDI. Alternatively, we can interpret it as moving from the average to the top governance quality across Russian regions accounts for an increase of 158% in FDI stock.

However, given that there is only one underlying shock – coming from the worker strikes – we do not attempt to claim that either proxy is more important than the others. Quite the opposite, all of the proxies showing qualitatively and quantitatively similar results gives us confidence in our results, and suggests that we can indeed pick well the underlying governance

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[5] 4.607*0.0599=0.276

quality that affects FDI. As for control variables, their magnitudes and significance are similar with those in the OLS specifications, while Distance to Foreign Capital has become significant at 10% level in most specifications.

As we can see, the magnitude of the IV-2SLS coefficient at out governance quality measures is about two to three times higher than the magnitude of the OLS coefficient. This likely accounts for our instrument solving a positive omitted-variable bias problem.

3.3 Offshore vs. Non-offshore FDI

There is a substantial input of OFCs into the inflow of FDI in Russian regions. We have reasons to assume that the mechanism behind this type of investments differs from the one that drives the real FDI. So to illustrate the different motives behind the two types of FDI, we build offshore-originated stocks of FDI in Russian regions and run the specification (1) in the IV-2SLS framework on these data. We report the second-stage results in Table 8. As we expected, the sensitivity of offshore FDI to the quality of governance is not insignificant, with the magnitudes even having opposite signs from the real FDI. It suggests that worse governance quality is weakly positively related to round-tripping FDI. This result is consistent with the hypothesis of round-tripping FDI having a different mechanism, such as for example, money-laundering (Ledyaeva et al, 2013), and illustrates the importance of considering the two separately.

<TABLE 8 ABOUT HERE>

4. Robustness to Alternative Specifications

We now perform a series of robustness checks to make sure our results are not an artifact of choosing particular sets of observations or variables.

We try several alternative FDI definitions. First, we estimate specification (1) using the logarithm of FDI stock per capita as the dependent variable. This accounts for different economic size of the regions. The coefficient of interest remains highly statistically significant in all specifications (not reported). It ranges from 6.3 to 10.5% of FDI per capita for every place in the ranking.

As another measure of economic size of the region, we also use gross regional product, and estimate specification (1) using the logarithm of FDI stock per GRP as the dependent variable. The results are again very similar and for brevity are not reported.

The intensity of strikes in the past could potentially be correlated with the variation in cultural norms and religious composition of population that is likely to be persistent over time and could affect FDI directly. We address this concern by introducing additional control variables, such as religious diversity (the inverse of the HHI of proportions of different religions) and the proportion of orthodox in the region based on the 1897 census data. The results (not reported) are very similar.

Another potential concern is that our strikes variable may simply proxy for the industrial development in the past that, in turn, may be correlated with the prospects for development nowadays. We therefore check that our results are robust to using a normalized instrument – the number of strikes per industrial worker (based on the 1897 census data). It yields a similarly strong first stage and results (not reported for brevity) with the coefficient of interest ranging from 5.0 to 9.6% of FDI per capita for every position in the ranking.

There are reasons to believe that a significant portion of FDI coming from the Netherlands, Ireland, and Luxembourg, may in fact represent round-tripping, rather than genuine investment. Given that there is no way to separate them one from the other, we take a conservative approach and exclude these countries from our main analysis of non-offshore countries. The results (not reported) are qualitatively and quantitatively similar to our main analysis.

Finally, we explore whether our results are robust to including some contemporaneous variables that may be responsible for the variation in FDI stocks. Instead of controlling for income per capita, pre-determined in 1990, we now use the logarithm of gross regional product per capita measured in 2011. The results (not reported) are again very similar to our main findings. Additionally, we observe that across regions the elasticity of FDI stock with respect to GRP per capita is approximately equal to 1.

5. Conclusions

In this paper we test the hypothesis of the negative effect of governance quality on non-offshore originated foreign direct investment into Russian regions. We show that higher administrative burden, higher pressure of enforcement and regulatory agencies, poor criminal situation and higher corruption reported by businesses in Russian regions contribute to lower investments of foreign residents there. Using instrumental variable which proxies the conflict between elites and people at the time when the regulatory agencies were formed a century ago we prove the causal effect of governance quality on foreign investment. As an additional test we study the effect of governance on offshore-elated direct investments. We show that the sensitivity of offshore investments to governance quality is positive and non-significant. These results confirm our assumption that poor quality of governance decreases the reward to investment and is an important determinant of economic activity. In particular, moving from the average governance quality to the top one increases FDI by 158%. This suggests that there are large returns to improving the quality of the governance at the regional level.

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Figures and Tables

Figure 1

Note: This figure plots the evolution of foreign direct investment in Russia in 1992-2012. The blue line measures net inflows in current US$ billions (the scale corresponds to the left axis), and the red line measures net inflows as the percentage of GDP (the scale corresponds to the right axis). These data come from the World Bank (http://databank.worldbank.org/).

Table 1. Russian Inward FDI Stock by Region (as of January 2012)

Region	FDI stock ($US mln)	Population (mln)	FDI per capita ($US)	Governance Data Availability
Moscow City	39058.96	11.86	3294.29	Y
Sakhalin Region	15045.76	0.50	30370.81	N
Moscow Region	14621.31	6.96	2102.26	Y
Lipetsk Region	12970.87	1.17	11125.05	Y
Krasnodar Territory	10865.92	5.28	2056.20	Y
St. Petersburg	8069.47	4.95	1629.14	Y
Tumen Region including KhMAO and YNAO	4116.55	3.46	1189.95	Y
Kaluga Region	2911.68	1.01	2887.92	Y
Leningrad Region	2830.57	1.73	1632.48	Y
Chelyabinsk Region	2081.64	3.48	598.15	Y
Novgorod Region	2063.47	0.63	3276.66	Y
Nizhny Novgorod Region	1538.65	3.30	466.69	Y
Sverdlovsk Region	1526.30	4.31	354.33	Y
Vladimir Region	1500.02	1.43	1047.55	Y
Samara Region	1201.38	3.21	373.79	Y
Amur Region	1040.83	0.82	1266.87	N
Rostov Region	914.25	4.26	214.58	Y
Republic of Komi	901.63	0.89	1013.25	N
Tomsk Region	820.08	1.06	775.31	Y
Krasnoyarsk Territory	770.50	2.84	271.45	Y
Perm Territory	755.29	2.63	287.06	Y
Republic of Tatarstan	708.75	3.80	186.36	Y
Orenburg Region	703.55	2.02	347.66	Y
Tula Region	669.12	1.54	433.22	Y
Kaliningrad Region	659.78	0.95	696.85	Y
Republic of Bashkortostan	595.61	4.06	146.55	Y
Tver Region	557.61	1.34	415.45	Y
Kemerovo Region	520.63	2.75	189.26	N
Republic of Khakassia	490.18	0.53	921.16	N
Khabarovsk Territory	437.16	1.34	325.63	Y
Omsk Region	423.51	1.97	214.45	Y
Novosibirsk Region	419.07	2.69	155.97	Y
Zabaikalie Territory	406.62	1.10	369.85	N
Irkutsk Region	395.36	2.42	163.08	Y
Volgograd Region	391.13	2.59	150.74	Y
Belgorod Region	388.01	1.54	252.60	Y
Saratov Region	385.80	2.51	153.78	N
Arkhangelsk Region including NAO	371.76	1.21	306.34	Y
Stavropol Territory	353.53	2.79	126.85	Y
Primorie Territory	341.22	1.95	174.94	Y
Kostroma Region	327.41	0.66	494.76	N
Yaroslavl Region	299.28	1.27	235.47	Y
Magadan Region	291.36	0.15	1885.98	N
Republic of Karelia	289.37	0.64	452.36	N
Republic of Chuvashia	242.89	1.25	194.77	Y
Ryazan Region	217.28	1.15	189.19	Y
Pskov Region	175.46	0.67	263.09	N
Ivanovo Region	171.33	1.05	162.55	N
Republic of Sakha	162.11	0.96	169.60	N
Voronezh Region	150.84	2.33	64.70	Y
Ulyanovsk Region	145.21	1.28	113.26	N
Altai Territory	125.88	2.41	52.29	N
Vologda Region	123.83	1.20	103.32	N
Kurgan Region	120.28	0.90	134.20	N
Smolensk Region	116.61	0.98	118.94	N
Republic of Adygeya	116.25	0.44	262.75	N
Jewish Autonomous Region	115.99	0.17	665.06	N
Republic of Udmurtia	115.05	1.52	75.79	N
Kursk Region	113.16	1.12	100.89	N
Republic of Dagestan	103.21	2.93	35.22	N
Chukotka Autonomous Area	93.41	0.05	1832.02	N
Murmansk Region	80.03	0.79	101.57	Y
Orel Region	78.18	0.78	100.07	N
Kamchatka Territory	77.11	0.32	240.84	N
Penza Region	76.70	1.38	55.72	N
Tambov Region	72.88	1.08	67.32	N
Republic of North Ossetia-Alania	69.07	0.71	97.42	N
Astrakhan Region	62.16	1.01	61.24	Y
Bryansk Region	55.07	1.26	43.55	N
Kirov Region	52.91	1.33	39.85	N
Republic of Tuva	35.96	0.31	116.25	N
Republic of Mordovia	17.88	0.83	21.66	N
Republic of Mariy El	9.79	0.69	14.14	N
Republic of Kabardino-Balkaria	8.05	0.86	9.37	N
Republic of Buryatia	7.43	0.97	7.65	Y
Republic of Kalmykia	5.45	0.29	19.02	N
Republic of Altai	1.60	0.21	7.68	N
Republic of Karachaevo-Cherkessia	0.15	0.47	0.32	N
Sum	139 150.15	141.32	80 574.37	40
Mean	1 783.98	1.81	1 033.00	
Median	347.38	1.23	214.52	
St.Dev	5 258.85	1.76	3 647.50	
N of regions	78	78	78	

Notes: The data cover all regions in Russia as of January 2012 except for the Republic of Chechnya and the Republic of Ingushetia, for which there are no FDI data available. Autonomous regions that are officially parts of other regions are included in the latter. All data come from the Federal Statistical Agency of Russia (Rosstat).

Table 2. Russian Inward FDI Stock by Country of Origin (as of January 2012): Offshore Countries

Country	FDI stock ($US mln)	Share of total FDI stock (%)
Cyprus	55729.374	40.05
Virgin Islands (British)	8643.075	6.21
Bahamas	2072.678	1.49
Liechtenstein	1269.645	0.91
Seychelles	514.063	0.37
Belize	337.821	0.24
Cayman Islands	310.670	0.22
Gibraltar	299.815	0.22
Hong Kong	135.665	0.10
Panama	132.615	0.10
St. Kitts and Nevis	102.219	0.07
Dominica	86.125	0.06
UAE	19.731	0.01
Jersey	19.494	0.01
Bermuda	12.427	0.01
St. Vincent and the Grenadines	9.443	0.01
Isle of Man	9.174	0.01
Marshall Islands	9.040	0.01
Monaco	3.877	0.00
Malta	3.615	0.00
San Marino	3.296	0.00
Aruba	3.254	0.00
Turks and Caicos Islands	3.125	0.00
Brunei	2.726	0.00
Netherlands Antilles	2.174	0.00
St. Lucia	1.022	0.00
Samoa	0.880	0.00
Maldives	0.811	0.00
Mauritius	0.801	0.00
Niuz	0.351	0.00
Liberia	0.307	0.00
Anguilla	0.051	0.00
Guernsey	0.004	0.00
Grenada	0.003	0.00
Bahrain	0.001	0.00
Sum	69 739.37	50.12
Mean	1 992.55	1.43
Median	9.04	0.01
St.Dev	9 468.27	6.80
N of countries	35	35

Notes: The data cover all offshore countries that have ever invested in Russia as of January 2012. All data come from the Federal Statistical Agency of Russia (Rosstat). The list of offshore countries is according to the Ministry of Finance of Russia.

Table 3. Russian Inward FDI Stock by Country of Origin (as of January 2012): Non-Offshore Countries

Country	FDI stock ($US mln)	Share of total FDI stock (%)	Country	FDI stock ($US mln)	Share of total FDI stock (%)
Netherlands	23667.703	17.01	Kyrgyzstan	1.073	0.00
Germany	11361.152	8.16	Iran	0.784	0.00
United Kingdom	3566.619	2.56	Honduras	0.690	0.00
USA	3374.963	2.43	Yemen	0.607	0.00
Austria	3125.523	2.25	Uruguay	0.426	0.00
France	2690.811	1.93	Montenegro	0.400	0.00
India	2422.726	1.74	New Zealand	0.294	0.00
Switzerland	2361.799	1.70	Brazil	0.283	0.00
Finland	2297.490	1.65	Georgia	0.269	0.00
South Korea (Republic of Korea)	1596.669	1.15	Syria	0.188	0.00
Spain	1407.463	1.01	Macedonia	0.175	0.00
China	1388.868	1.00	Abkhazia	0.158	0.00
Japan	1135.446	0.82	Romania	0.128	0.00
Sweden	1114.461	0.80	Taiwan	0.096	0.00
Belgium	1053.327	0.76	Dominican Republic	0.061	0.00
Luxembourg	944.903	0.68	Bosnia and Herzegovina	0.052	0.00
Italy	785.362	0.56	Tajikistan	0.049	0.00
Denmark	631.796	0.45	Cuba	0.038	0.00
Ireland	622.771	0.45	Pakistan	0.032	0.00
Vietnam	550.455	0.40	Sri Lanka	0.031	0.00
Turkey	512.090	0.37	Afghanistan	0.024	0.00
Poland	445.989	0.32	Zaire	0.020	0.00
Canada	340.334	0.24	Bangladesh	0.019	0.00
Kazakhstan	276.350	0.20	Colombia	0.016	0.00
Czech Republic	187.126	0.13	American Samoa	0.015	0.00
Lithuania	130.174	0.09	Jordan	0.009	0.00
Norway	125.155	0.09	Mongolia	0.006	0.00
Hungary	115.742	0.08	Venezuela	0.005	0.00
Israel	109.616	0.08	Turkmenistan	0.004	0.00
Azerbaijan	100.161	0.07	Nepal	0.002	0.00
Malaysia	81.526	0.06	Mexico	0.002	0.00
Ukraine	78.158	0.06	Algeria	0.002	0.00
Estonia	74.878	0.05	Mali	0.002	0.00
Belarus	73.830	0.05	Angola	0.002	0.00
Slovenia	73.589	0.05	Qatar	0.001	0.00
Kuwait	73.258	0.05	Morocco	0.001	0.00
Latvia	68.435	0.05	Laos	0.001	0.00
Bulgaria	67.337	0.05	Costa Rica	0.000	0.00
Singapore	54.099	0.04	Iraq	0.000	0.00
Virgin Islands (U.S.)	51.110	0.04	United States Minor Outlying Islands	0.000	0.00
British Indian Ocean Territory	45.468	0.03	Peru	0.000	0.00
Serbia	43.913	0.03	Oman	0.000	0.00
Greece	28.460	0.02	Albania	0.000	0.00
Croatia	21.532	0.02	Indonesia	0.000	0.00
North Korea (DPRK)	18.042	0.01	Nigeria	0.000	0.00
Australia	15.994	0.01	Cameroon	0.000	0.00
Lebanon	14.516	0.01	Thailand	0.000	0.00
Portugal	12.888	0.01	Ivory Coast	0.000	0.00
Moldova	11.132	0.01	Argentina	0.000	0.00
Armenia	10.261	0.01			
Uzbekistan	9.731	0.01			
Egypt	8.403	0.01			
Slovakia	8.151	0.01	Sum	69 410.78	49.88
South Africa	4.978	0.00	Mean	1 196.76	0.86
Ecuador	4.814	0.00	Median	104.90	0.08
Saudi Arabia	3.031	0.00	St.Dev	3 447.94	2.48
Iceland	2.361	0.00	N of countries	107	107
Surinam	1.871	0.00			

Notes: The data cover all onshore countries that have ever invested in Russia as of January 2012. All data come from the Federal Statistical Agency of Russia (Rosstat). The list of offshore countries is according to the Ministry of Finance of Russia.

Table 4. Descriptive Statistics

Notes: The sample includes all industry-country-regions for which all data are available. ln FDI is the logarithm of the stock of inward foreign direct investment in Russia from non-offshore countries as of January 2012 in $US mln; ln FDI per capita is the logarithm of the stock of inward foreign direct investment in Russia from non-offshore countries as of January 2012 in $US per person; ln FDI/GRP is the logarithm of the stock of inward foreign direct investment in Russia from non-offshore countries as of January 2012 per gross regional product as of 2011; Governance quality indicators (Bribes to Officials, Inspection Agencies Pressure, Police Pressure, Criminality Pressure) are ranks ranging from 1 for the best region to 40 for the worst region, and 1st Principal Component is standardized of all ranks; Strikes is the total number of worker strikes, in '00, in the region during 1895-1914; Income per Capita is in '000 rubles per month as of 1990; Railroad Density is in kilometers per 10000 square kilometers of area as of 1990; and Distance to Foreign Capital is in '000 kilometers from the regional capital.

Variable	Mean	Median	Std. dev.	Min	Max	N
ln FDI	-4.367	-5.621	4.049	-11.513	7.384	5777
ln FDI per capita	-5.803	-6.833	4.038	-13.986	6.137	5777
ln FDI/GRP	-15.207	-16.225	4.100	-24.232	-2.776	5777
Governance Quality Indicators:						
Bribes to Officials	25.341	28	10.367	1	40	5777
Inspection Agencies Pressure	17.992	15	10.843	1	40	5777
Police Pressure	22.653	29	11.640	1	40	5777
Criminal Pressure	22.871	29	10.640	1	40	5777
1st Principal Component	0.170	0.481	0.927	-1.761	1.747	5777
Instrument:						
Strikes	9.989	9.010	9.287	0	23.535	5574
Additional Variables:						
Income per Capita	242.535	211	60.043	165	345	5777
Railroad Density	359.172	324	187.760	9	583	5777
Distance to Foreign Capital	3.065	2.680	2.202	0.152	15.025	5777

Table 5. Foreign Direct Investment and Measures of Governance Quality: OLS Results

	ln FDI				
	1	2	3	4	5
Bribes to Officials	-0.0129* (0.00771)				
Inspection Agencies Pressure		-0.0115 (0.00843)			
Police Pressure			-0.0230*** (0.00732)		
Criminal Pressure				-0.0233*** (0.00677)	
1st Principal Component					-0.222*** (0.0841)
Income per Capita	0.00467*** (0.00123)	0.00532*** (0.00111)	0.00748*** (0.00112)	0.00708*** (0.000678)	0.00628*** (0.000908)
Railroad Density	0.00402*** (0.000819)	0.00331*** (0.000805)	0.00320*** (0.000747)	0.00335*** (0.000750)	0.00341*** (0.000755)
Distance to Foreign Capital	-0.0588 (0.0512)	-0.0622 (0.0494)	-0.0658 (0.0456)	-0.0625 (0.0451)	-0.0639 (0.0474)
Observations	5777	5777	5777	5777	5777
Adjusted R-squared	0.333	0.333	0.336	0.336	0.335
Industry-Country FE	Y	Y	Y	Y	Y

Notes: This table reports the results of regressing FDI (the logarithm of the stock of inward foreign direct investment in Russia from non-offshore countries as of January 2012 in $US mln) on the governance quality indicators (ranks ranging from 1 for the best region to 40 for the worst region) and control variables. The governance quality indicators include: Bribes to Officials, Inspection Agencies Pressure, Police Pressure, Criminality Pressure, and the 1st Principal Component of all ranks (standardized). Regional control variables include Income per Capita (in '000 rubles per month as of 1990), Railroad Density (in kilometers per 10000 square kilometers of area as of 1990), and Distance to Foreign Capital (in '000 kilometers from the regional capital). Standard errors are two-way clustered at the region and country level and are reported below the coefficients. * indicates 10% significance; ** 5% significance; *** 1% significance.

Table 6. Foreign Direct Investment and Measures of Governance Quality: 1st-stage IV Results

	Bribes to Officials	Inspection Agencies Pressure	Police Pressure	Criminal Pressure	1st Principal Component
	1	2	3	4	5
Strikes	0.707***	0.427***	0.653***	0.629***	0.0599***
	(0.09825)	(0.139)	(0.0810)	(0.0770)	(0.00869)
Income per Capita	-0.0360**	0.0413	0.0933***	0.0671***	0.00437***
	(0.0148)	(0.0205)	(0.0161)	(0.0151)	(0.00122)
Railroad Density	0.00802	-0.0487***	-0.0379***	-0.0273***	-0.00270***
	(0.00538)	(0.00505)	(0.00582)	(0.602)	(0.000381)
Distance to Foreign Capital	0.303	-0.0901	0.106	0.0969	0.0101
	(0.351)	(0.280)	(0.196)	(0.293)	(0.0168)
Observations	5574	5574	5574	5574	5574
F-statistic	51.77	9.51	64.93	66.74	47.52
Adjusted R-squared	0.285	0.338	0.395	0.303	0.289
Industry-Country FE	Y	Y	Y	Y	Y

Notes: This table reports the results of regressing the governance quality indicators (Bribes to Officials, Inspection Agencies Pressure, Police Pressure, Criminality Pressure, and the 1st Principal Component of all ranks (standardized)) on the instrument Strikes (defined as the total number of worker strikes, in '00, in a region during 1895-1914) and regional control variables, that include Income per Capita (in '000 rubles per month as of 1990), Railroad Density (in kilometers per 10000 square kilometers of area as of 1990), and Distance to Foreign Capital (in '000 kilometers from the regional capital). These regressions correspond to 1st-stage of the IV specification. Standard errors are two-way clustered at the region and country level and are reported below the coefficients. * indicates 10% significance; ** 5% significance; *** 1% significance.

Table 7. Foreign Direct Investment and Measures of Governance Quality: 2nd-stage IV Results

	ln FDI				
	1	2	3	4	5
Bribes to Officials	-0.0456*** (0.0150)				
Inspection Agencies Pressure		-0.0755** (0.0377)			
Police Pressure			-0.0494*** (0.0156)		
Criminal Pressure				-0.0513*** (0.0158)	
1st Principal Component					-0.538*** (0.184)
Income per Capita	0.00388*** (0.000924)	0.00864*** (0.00303)	0.0101*** (0.00198)	0.00897*** (0.00140)	0.00788*** (0.00139)
Railroad Density	0.00498*** (0.000951)	0.000941 (0.00173)	0.00274*** (0.000747)	0.00321*** (0.000701)	0.00316*** (0.000747)
Distance to Foreign Capital	-0.0922 (0.0582)	-0.113** (0.0563)	-0.101* (0.0527)	-0.101* (0.0524)	-0.101* (0.0535)
Observations	5574	5574	5574	5574	5574
Industry-Country FE	Y	Y	Y	Y	Y

Notes: This table reports the results of regressing FDI (the logarithm of the stock of inward foreign direct investment in Russia from non-offshore countries as of January 2012 in $US mln) on the governance quality indicators (ranks ranging from 1 for the best region to 40 for the worst region), instrumented by the total number of worker strikes in the region during 1895-1914. The governance quality indicators include: Bribes to Officials, Inspection Agencies Pressure, Police Pressure, Criminality Pressure, and the 1st Principal Component of all ranks (standardized). Regional control variables include Income per Capita (in '000 rubles per month as of 1990), Railroad Density (in kilometers per 10000 square kilometers of area as of 1990), and Distance to Foreign Capital (in '000 kilometers from the regional capital). Standard errors are two-way clustered at the region and country level and are reported below the coefficients. * indicates 10% significance; ** 5% significance; *** 1% significance.

Table 8. Foreign Direct Investment and Measures of Governance Quality: 2nd-stage IV Results for Offshore Countries

	ln FDI				
	1	2	3	4	5
Bribes to Officials	0.0893				
	(0.0611)				
Inspection Agencies Pressure		0.0224			
		(0.0244)			
Police Pressure			0.0182		
			(0.0221)		
Criminal Pressure				0.0194	
				(0.0244)	
1st Principal Component					0.188
					(0.220)
Income per Capita	0.00941***	0.00814***	0.00701*	0.00725**	0.00796***
	(0.000858)	(0.00225)	(0.00374)	(0.00356)	(0.00255)
Railroad Density	0.00435***	0.00556***	0.00526***	0.00514***	0.00504***
	(0.000329)	(0.00156)	(0.00130)	(0.00121)	(0.00103)
Distance to Foreign Capital	-0.0690*	-0.0698*	-0.0451	-0.0276	-0.0526
	(0.0395)	(0.0384)	(0.0635)	(0.0860)	(0.0547)
Observations	1809	1809	1809	1809	1809
Industry-Country FE	Y	Y	Y	Y	Y

Notes: This table reports the results of regressing FDI (the logarithm of the stock of inward foreign direct investment in Russia from offshore countries as of January 2012 in $US mln) on the governance quality indicators (ranks ranging from 1 for the best region to 40 for the worst region), instrumented by the total number of worker strikes in the region during 1895-1914. The governance quality indicators include: Bribes to Officials, Inspection Agencies Pressure, Police Pressure, Criminality Pressure, and the 1st Principal Component of all ranks (standardized). Regional control variables include Income per Capita (in '000 rubles per month as of 1990), Railroad Density (in kilometers per 10000 square kilometers of area as of 1990), and Distance to Foreign Capital (in '000 kilometers from the regional capital). Standard errors are two-way clustered at the region and country level and are reported below the coefficients. * indicates 10% significance; ** 5% significance; *** 1% significance.

Appendix

Appendix Table 1. Russian Outward FDI Stock by Country of Destination (as of January 2012): Offshore and Non-Offshore Countries

Country	FDI stock ($US mln)	Share of total FDI stock (%)
Cyprus	15447.670	22.12
Virgin Islands (British)	2029.921	2.91
Bermuda	250.612	0.36
Liberia	62.882	0.09
Belize	34.675	0.05
Panama	16.800	0.02
Malta	15.023	0.02
UAE	4.080	0.01
Hong Kong	0.313	0.00
Marshall Islands	0.239	0.00
Isle of Man	0.076	0.00
Sum	17 862.29	25.58
Mean	1 623.84	2.33
Median	16.80	0.02
St.Dev	4 624.00	6.62
N of countries	11	11
Netherlands	25376.347	36.35
USA	6700.551	9.60
Belarus	5193.596	7.44
Switzerland	2900.606	4.15
United Kingdom	2563.321	3.67
Luxembourg	2194.376	3.14
Armenia	1299.792	1.86
Turkey	810.923	1.16
Ukraine	649.834	0.93
India	577.944	0.83
Uzbekistan	552.827	0.79
Germany	474.269	0.68
Austria	465.559	0.67
Bosnia and Herzegovina	459.446	0.66
Denmark	334.641	0.48
Georgia	210.476	0.30
Lithuania	191.971	0.27
Greece	162.977	0.23
Moldova	151.837	0.22
Latvia	109.848	0.16
Kazakhstan	81.814	0.12
France	68.457	0.10
Finland	67.032	0.10
Italy	51.863	0.07
South Korea (Republic of Korea)	46.711	0.07
Tajikistan	45.414	0.07
Ireland	40.185	0.06
Czech Republic	29.659	0.04
Serbia	26.882	0.04
Estonia	23.178	0.03
China	20.595	0.03
Poland	18.180	0.03
Iran	12.057	0.02
Angola	9.798	0.01
Spain	9.255	0.01
Bulgaria	5.757	0.01
Azerbaijan	5.585	0.01
Hungary	3.188	0.00
Mongolia	2.679	0.00
Singapore	2.616	0.00
Sweden	1.637	0.00
Belgium	0.893	0.00
Kyrgyzstan	0.845	0.00
Brazil	0.573	0.00
Israel	0.549	0.00
Japan	0.284	0.00
Slovakia	0.268	0.00
Colombia	0.245	0.00
Vietnam	0.216	0.00
Thailand	0.101	0.00
Turkmenistan	0.068	0.00
Morocco	0.023	0.00
Australia	0.013	0.00
Abkhazia	0.005	0.00
Canada	0.000	0.00
Sum	51 957.76	74.42
Mean	944.69	1.35
Median	29.66	0.04
St.Dev	3 576.91	5.12
N of countries	55	55

Notes: The data cover all countries where Russia has ever invested as of January 2012. The top panel list offshore countries, and the bottom panel lists non-offshore countries. All data come from the Federal Statistical Agency of Russia (Rosstat). The list of offshore countries is according to the Ministry of Finance of Russia.

Appendix Table 2. Principal Component Analysis (Eigenvectors)

Variable	Comp1	Comp2	Comp3	Comp4
Bribes to Officials	0.4645	0.5842	0.6589	0.0944
Inspection Agencies Pressure	0.4902	0.3884	-0.7296	0.2766
Police Pressure	0.5549	-0.2467	-0.0589	-0.7923
Criminality Pressure	0.4859	-0.6686	0.1736	0.5355
Proportion of explained variation	0.7413	0.1491	0.0899	0.0197
Cumulative	0.7413	0.8904	0.9803	1