IF FOREIGN INVESTMENT IS NOT FOREIGN: ROUND-TRIP VERSUS GENUINE FOREIGN INVESTMENT IN RUSSIA

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Abstract

This paper focuses on a virtually unexplored empirical phenomenon: round-tripping of Russian capital via offshore financial centers to Russia as foreign investment. In this study, utilizing a unique firm-level dataset, we empirically test potential differences in investment behavior between round-trip and genuine foreign investors. Our main results can be summarized as follows. For medium and large firms (by capital size at registration date) we find rather convincing evidence that round-trip investments locate in Russian regions with higher resource potential and higher levels of corruption than genuine foreign investments. However, the result for corruption is opposite for small firms, i.e. genuine foreign investors establish more small firms in corrupt Russian regions than round-trip investors. This might indicate that in corrupt Russian regions foreign investors try to minimize their risks associated with regional corruption by establishing small and micro firms. Furthermore, small firms might be used for adoption of business ideas in unstable and corrupt business environment.

JEL codes: F21, F23

Key words: Russia, capital flight, foreign investment**,** round-trip investment, institutions

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1. INTRODUCTION

A distinctive feature of foreign investment patterns of the Russian Federation is the correlation of inward and outward investment flows between Russia and offshore financial centers (OFCs). According to Russian statistics, the key offshore destinations of Russian registered capital outflows, Cyprus and British Virgin Islands (BVI), are persistently among the major source countries of inward foreign investment into Russia. In Appendix 1 we present official Rosstat (Russian State Statistical Agency) statistics on geographical structure of cumulative inward and outward foreign investment of Russia in the period of 1999-2008. As can be seen, Cyprus and BVI – both well-known OFCs – are among main investing countries into Russia as well as among main destinations of Russian outward investment.

The other OFC, the Netherlands is also a popular location among Russian natural resource companies to set up their financial subsidiaries and, at the same time, is one of the most important source countries of foreign investment into Russia. Moreover, part of investment directed to two non-offshore countries – both important recipients of Russian capital and key source countries of investment into Russia, the US and the UK, can be targeted to offshore locations in these countries (certain states in the US, and London in the UK).

These figures can be viewed as evidence for the "round tripping" phenomenon, i.e. the transfer of funds abroad in order to bring some or all of the investment back as foreign investment (Kalotay, 2005).[1] Hence, a large share of investment flows into Russia cannot be classified as real foreign investment but rather as asset round-tripping by Russian investors for different reasons.[2] This suggests that empirical results of previous studies on determinants of foreign investment distribution/location across Russia (see, e.g., Iwasaki and Suganuma (2005) and Ledyaeva (2009))

[1] Also comparison with foreign trade can be used to prove the round-trip nature of foreign investment from such countries as Cyprus and BVI. E.g. according to Rosstat statistics in 2007 the fraction of foreign trade between Russia and Cyprus (export plus import) in total foreign trade was only 1% vs. 17% of Cyprus investment into Russia in total foreign investment. The corresponding numbers for Germany, e.g., are 11 and 4%.

[2] Round-trip investment can be also compared to pure domestic investment. Their ratio to domestic investment is quite high: e.g. in 2007 the ratio of foreign investment from Cyprus and BVI to domestic investment into physical capital (according to Rosstat) was approximately 9%.

could be considerably biased as they do not distinguish between round-trip and genuine foreign investors, whose investment strategies might be very different.[3]

The role of tax havens and offshore financial centers (OFCs) in the foreign investment behavior of firms from emerging economies has started to receive academic attention only recently. Theoretically-driven existing research has, however, empirically drawn almost exclusively from the Chinese context (see e.g. Sutherland et al., 2010; Morck et al., 2008; Boisot & Meyer, 2008).[4] Here, the main emphasis has been on the drivers of Chinese outward FDI (OFDI) to tax havens and offshore financial centers, and its implications to internationalization and FDI theory. Moreover, contributions focusing on Russia are mainly limited to the assessment of the magnitude and determinants of capital flight from Russia (Abalkin & Whalley, 1999; Loungani & Mauro, 2001; Mulion, 2002; Buiter & Szegvari, 2002). Hence, the other side of the round-tripping phenomenon, reinvestment of such capital back to Russia, remains practically unexplored. In this paper we particularly focus on the reinvestment of Russian capital into Russia from OFCs.

Our study contributes to the existing literature in two ways. Firstly, we thoroughly examine round-trip investment phenomenon in Russia and identify its main causes. Secondly, we empirically test how location strategies of round-trip investors across Russia differ from that of genuine foreign investors.

In our empirical analysis we compare location strategies of both types of investors across Russian regions within *zero-inflated negative binomial location choice* model applied to three-dimensional panel data where the dependent variable equals to the number of foreign firms established by an investor of type i (i=1, 2; 1 – round-trip investor and 2 – genuine foreign investor) in a Russian region n (n=1,…,76)[5] in a year t (t=1996,…,2007). Core explanatory variables in the

[3] Though in our earlier study (Ledyaeva et al., mimeo) we study location decisions of genuine foreign investors in Russia (i.e. excluding round-trip investors from the analysis), we do not study the differences in location strategies between the two types of investors in that paper.

[4] The World Bank and other agencies and experts have estimated that the scale of the round tripping could be as high as 25-50% of the total FDI inflows into people`s Republic of China (Xiao, 2004).

[5] At present, there are 83 regions in Russia. Due to a data availability problem, in this study we consider only 76 Russian regions.

location model are corruption and resource potential in Russian regions. The central aim of the location model is to estimate interactions between these two variables and a dummy variable for round-trip investors conditional on the other controls used in the model.

For empirical test the study utilizes the Rosstat dataset of firms with foreign ownership registered in Russia during the period of 1996-2007. Rosstat is Russian State Statistical Agency, the most reliable data source of economic statistics on Russia.

Our central conclusion is that round-trip investors establish more medium and large firms in Russian regions with higher resource potential and higher levels of corruption than genuine foreign investors. However, for small firms (with capital size less than $\approx$125,000 Euros) the result for regional corruption is opposite (while the result for regional resource potential remains the same). In particular, genuine foreign investors tend to establish more small firms in corrupt Russian regions than round-trip investors. The most plausible explanation for this result is that in corrupt Russian regions genuine foreign investors prefer to establish smaller firms in order to minimize the risks associated with regional corruption.

The paper is structured as follows. Section 2 outlines theoretical background of round-trip investment in Russia. Section 3 and 4 describe the data and empirical methodology, respectively. Sections 5 and 6 present the empirical results (baseline and sectoral, respectively). Finally, section 7 concludes and outlines policy implications.

2. THEORY OF ROUND-TRIP INVESTMENT PHENOMENON IN RUSSIA

Round-trip investment consists of two stages: the outward investment from the home country to the foreign country, and the re-investment back to the home country. In this section we examine both directions.

2.1. Capital flight and outward investment from Russia

The emerging literature addressing the role of tax havens and offshore financial centers in foreign investment patterns of emerging economies has mainly focused on the first question, i.e. searching for explanations for the popularity of such locations as OFDI targets for firms from emerging economies (see e.g. Sutherland et al., 2010). The drivers for such behavior identified include purely financial ones, such as tax evasion and the possibility to get access to financial incentives allotted to foreign investors when re-investing the capital back home (Boisot & Meyer, 2008). It is widely acknowledged that Russian businessmen utilize different schemes of hiding profits from taxes via establishing companies in offshore jurisdictions. For example, offshore companies are used for so called "imaginary deals" in export operations, i.e. export via offshore company when the major part of export profits remains in the offshore jurisdiction. Financial incentives for foreign investors as a driver for round-tripping is relatively evident in the case of China, where the government policy towards inward FDI entailed privileged treatment to foreign-owned firms over domestic ones (Sutherland et al., 2010). However, in the case of Russia, in contrast, the state policy towards inward FDI has been less supportive and even restrictive. Moreover, in many Russian regions[6] the regional authorities have rather erected barriers to foreign investors to protect incumbent firms from outside competition than provided incentives for foreign investors (Yakovlev, 2006). Hence, the financial incentives granted to foreign investors are hardly a key explanatory factor for round-tripping behavior.

In this paper we propose that capital flight, particularly in the purpose of its re-investment to Russia, is largely motivated by institutional factors. On the one hand, bad local institutions push Russian investors to invest abroad but good knowledge of local business and institutional environment motivate them to invest back into Russia. On the other hand, laundering the proceeds

[6] The Russian Federation is administratively divided into Federal Subjects, which are commonly referred to as regions. The number of regions was 89 until 2005, after which some of them were merged. The current number of regions is 83.

of corruption via OFCs and hiding investors` identity from corrupt local authorities via "offshore schemes" might be also important institutional motives for round-trip investment.

2.1.1. Institutional motives

The question of home country institutions' influence to OFDI is not new (Buckley et al., 2007), and it has started to receive research attention in the context of emerging economies as well. In the literature there are two views of how the institutional environment in emerging economies influences OFDI. The first one stresses institutional support, such as favorable evolving government policies, as encouraging local firms to expand (Luo et al, 2010). Buckley et al. (2007) proposed that in the case of China, government support in the form of privileged access to raw materials and financing, would be a driver for outward investment. Moreover, Luo et al. (2010) suggest that OFDI promotion policies set by emerging market governments would be institutionally complementary to offsetting competitive disadvantages of emerging market enterprises in global competition. Such disadvantages include, for example less advanced technologies and less sophisticated managerial capabilities due to the short history in operating in market economy conditions. In contrast to China, where the government launched its "go global" policy already in 1999 (Buckley et al., 2007), the Russian government has been less active in this front. The endorsement for Russian companies to go abroad was made only during the 2006 presidential election by the president-elect Dmitry Medvedev, who encouraged Russian firms to acquire the needed technology and resources in the global market (Settles, 2008).

However, a number of other researchers suggest that rather than supportive home country institutions, it would be institutional imperfections that prompt firms to escape home country institutional constraints through OFDI (Witt & Lewin, 2007). It has been shown that firms may relocate their domicile to avoid high home country taxes (Gordon & Hines, 2002; Vernon, 1998) or other burdensome regulation (Schoppa, 2006). Moreover, capital flight from developing countries

has been identified as driven by political instability, economic risk and policy uncertainty (Le & Zak, 2006). The construct of institutional misalignment was proposed by Witt & Lewin (2007: 581) to conceptualize the gap between the firm's needs and the institutional environment, which leads to higher costs of doing business. OFDI would represent an escape response to such misalignment (Witt & Lewin, 2007). In the case of emerging economies, such components of poor institutional environment as rampant corruption, regulatory uncertainty, underdeveloped intellectual property rights protection, and governmental interference (Witt & Lewin, 2007; Yamakawa et al., 2008; Luo et al., 2010), are commonplace. OFDI to a location with more supportive institutions would provide means to escape these institutional constraints. Hence, some emerging economy companies would intent to develop an international presence immediately to safe guard against risks incurring from the domestic business environment (Settles, 2008).

According to Loungani and Mauro (2001) the root causes of capital flight from Russia in the 1990s consist of an unsettled political environment, macroeconomic instability, a confiscatory tax system, an insolvent banking system, and weak protection of property rights. In this context academician Leonid Abalkin has emphasized that the main factor of the capital flight from Russia is "chronic multidimensional crisis of society, economy and state" (Glinkina, 2002). Interviews with many Russian entrepreneurs confirm that at least partly capital outflow in 90s` was a trial to escape country`s risks, the indicator of rational behaviour of new owners (ibid).

2.1.2. Laundering the proceeds of corruption via offshore financial centres

Corruption has obvious connection with money laundering. As it is argued in Financial Action Task Force (FATF) report 2011 "the stolen assets of a corrupt public official are useless unless they are placed, layered, and integrated into the global financial network in a manner that does not raise suspicion". It is further argued in the report that corrupt public officials would seek to move financial proceeds of corruption outside of their home jurisdiction. An examination of the

corruption case studies revealed that in nearly every case foreign bank accounts were being used in part of the scheme. Taking into account persistently high corruption level in Russia, it is reasonable to suggest that Russian corrupt public officials utilize round-trip schemes via OFCs for laundering the proceeds of corruption.

According to Simpson (2005) and Perez et al. (2011) between 7 and 16 billion US dollars of Russian capital flight was allegedly laundered through the Bank of New York between 1996 and 1999. Much of this money was allegedly the proceeds of criminal activity in Russia, and some of it was said to be looted IMF loans to that country. In this context Shelley (2003) also argues that Russia's billions earned through corruption have been laundered in many countries including offshore locations. She further argues that the true extent of Russian organized crime's capital resources will never be known "because much of it is parked in anonymous bank accounts and carefully masked trusts in offshore locations." As common locales of Russian money laundering Shelley (2003) names the Caribbean, Cyprus, Switzerland, Liechtenstein, Austria, Marshall Islands and Nauru Island in the South Pacific.

2.2. Reinvestment to Russia: institutional arbitrage

The discussion above sheds light on the question why Russian firms invest in offshore financial centers. However, there is another question: Why do these firms re-invest capital back to Russia with its unsupportive institutional environment instead of using the financial offshore center as a springboard to other foreign markets? We argue that reinvestment into Russia put them into superior competitive position both vis-à-vis firms established in Russia by genuine foreign investors and incumbent Russian firms which operate on a domestic basis. We maintain that our argument finds theoretical support from both mainstream perspectives of international business strategies, the transaction cost (TC) perspective and the resource-based view, when combined with institutional considerations. Such integrative approach has proved as particularly promising in the context of

emerging economies (see, e.g. Meyer et al., 2009; Karhunen & Ledyaeva, 2012 (in press)). Instead of searching for explanations for firm behavior from the institutional theory only, institutions are increasingly viewed as moderators for transaction costs or resource-based explanations (Karhunen & Ledyaeva, in press).

It has been shown that weak institutions and the associated heightened uncertainty increase transaction costs for firms operating in an emerging economy context (Meyer, 2001). Such costs incur from problems of bounded rationality and the opportunistic behavior that companies face, which are likely increase when crossing national borders (Boisot & Meyer, 2008). Hence, foreign companies are subject to higher transaction costs in comparison to domestic firms (Boisot & Meyer, 2008). In this paper we argue that due to their initial knowledge and experience on the Russian institutional context for business, round-trip investors face lower transaction costs in comparison to genuine foreign investors when investing to Russia, and hence a superior competitive position. This would be a strong motivation to re-invest back to Russia instead of expanding to other foreign markets.

Furthermore, the role of local experience and knowledge is again central when addressing the same question from the resource-based perspective. It has been shown that in emerging economies, intangible assets such as relationship-based networks and knowledge of local business practices are a key resource. Genuine foreign businessmen investing to emerging economies are facing a liability of being foreign (Zaheer, 1995) due to the lack of such resources, and often need to acquire them by entering a partnership with a local company. On the other hand, they are in a superior competitive position in comparison to incumbent firms due to their superior organizational capabilities, and the favorable institutions in the home country. Again, we propose that round-trip investors would be in a superior position against both other foreign investors and incumbent firms in this context. They do not face the liability of being foreign due to their local networks and knowledge. At the same time their access to resources such as foreign banking and financial

expertise (Sutherland et al., 2010) and managerial know-how through the offshore investment puts them in a superior position towards purely domestic firms.

A recent theoretical construct, capturing the situation described above, is that of *institutional arbitrage* (Gaur & Lu, 2007; Boisot & Meyer, 2008), which refers to the situation where a firm is provided opportunities to exploit differences between two institutional environments. Round tripping provides one example of an institutional arbitrage operation (Huang, 2003). Moving abroad first may increase the firm's bargaining power when returning home, as the firm is able to capture advantages of the same legal and economic protections outside of the home country enjoyed by foreign firms operating there (Boisot & Meyer, 2008). At the same time, the round-trip investor possesses the ability to 'manage institutional idiosyncracies' (Henisz, 2003: 174), including the ability to protect against the 'grabbing hand' of government (ibid) and opportunistic behavior of local business partners. It can further actively take advantage of domestic business opportunities (Sutherland et al., 2010). Hence, round-tripping should be viewed not only as means of avoiding taxes but it can represent a deliberate international business strategy (Sutherland et al., 2010).

2.3. Round-trip investment as a mean to secure the secrecy of an investor`s identity

There is another motive of round-trip investment between OFCs and Russia – securing the secrecy of an investor`s identity. Alexei Moiseev, the director of the department of macroeconomic analysis of "VTB Capital"[7] suggests that "Russian businessmen first take out money from Russia, and then return them back in the form of foreign investment, as they find Russian business projects attractive but are afraid for security of investment".[8] Similarly Pavel Gennel, the general director of the "Capital Financial Corporation", in his interview to radio "Finam FM" (16 February, 2009) argue that "many Russian businessmen establish offshore company to hide their identity as owners. Then this offshore company establishes a company in Russia and becomes its full or partial stock-holder.

[7] http://vtbcapital.com/index.php
[8] http://www.banki.ru/news/bankpress/?id=3115440

Hence, dividends are distributed into this offshore low-tax jurisdiction. Furthermore, a stock-holder can spend money as he/she likes and Russian authorities do not know his/her exact identity. In fact this is a sort of "secret ownership". An identity of a real owner can be hidden under the legal body (a company in OFC). For a Russian owner this means that his/her income cannot be easily expropriated by Russian authorities."[9]

2.4. Location strategies of round-trip versus genuine foreign investment: research hypotheses

From the discussion above it can be concluded that location strategies might differ considerably between round-trip and genuine foreign investors. Hence, mixing the two types of investment might considerably bias the estimates of the determinants of foreign investment location across Russia. In this paper we distinguish between these types of investment and empirically aim to determine the principal differences of the location strategies between them.

The distinctive feature of round-trip investment is that the capital can be re-invested into the same Russian region from which it was invested abroad and into another Russian region. In the light of the above discussion the round-tripping of capital between the same Russian region and OFC is more likely in the cases of corruption money laundering, tax evasion and securing the secrecy of investor`s identity via offshores. When Russian investors invest into OFCs from one Russian region and reinvest money back to another region, the motives of round-trip investment are more complicated.

Comparing location strategies of round-trip and genuine foreign investors across Russian regions, we propose that there are at least two significant differences between them. Firstly, we propose that:

Proposition 1: *Round-tip investment is more likely than genuine foreign investment in corrupt Russian regions*.

[9] http://finam.fm/archive-view/741/

We argue that round-trip investors will tend to invest into more corrupt regions than genuine foreign investors, first of all, due to considerable role of corruption money laundering motive and also due to the importance of using round-trip investment as a mean for securing the secrecy of an investor`s identity from corrupt regional authorities. These arguments are especially valid for the round-trip investment between the same Russian region and offshore country. Furthermore, round-trip investors being Russians by origin have better knowledge about corrupt practices in Russia and, hence, how to overcome them and even how to benefit from them.

Secondly, we propose that:

Proposition 2: *Round-trip investment is more likely than genuine foreign investment in Russian regions with higher resource potential*.

This proposition is based on the argument that round-trip investors being Russians by origin have better knowledge and connections with local business networks including those networks which have access to natural resources. Moreover round-trip investors might be themselves full or partial owners of Russian companies in resource-based industries (e.g. they utilize offshore schemes to hide export revenues from local taxes) and hence, round-trip investment is simply the reinvestment of their incomes into the same company and region (e.g. in case of using offshore tax evasion schemes in export operations). Financial transactions, including investment in Russian assets, are then executed from the foreign subsidiary and therefore registered as foreign direct investment (FDI)[10].

[10]To diminish such misclassification errors, FDI statistics in some countries such as the US makes a distinction between the source country (the residence of the firm making an investment) and the original source of funds (the residence of the owners of a firm) (Aykut & Ratha, 2003). Rosstat does not, however, make such distinction.

3. DATA DESCRIPTION

The analysis makes use of the Rosstat dataset (Russian State Statistical Agency), which provides information on the location choice of 21,218 firms with foreign capital registered in Russia in the period between 1990 and 2007 and provided financial reports to Rosstat in 2008. This dataset includes information on firms of five ownership types: full ownership of foreign entities, joint ventures of foreign owners (foreign entities and foreign citizens) with Russian authorities of all levels (federal, regional and municipal) and with Russian private owners (Russian entities and citizens). In this study we do not consider other five types of firms with foreign ownership registered in Rosstat, namely, firms owned by international organizations, foreign states and foreign citizens (three separate categories), firms with mixed foreign ownership (different types of foreign owners) and joint ventures with Russian religious and civic organizations. I.e. we mainly focus on foreign entities as foreign investors. Partly, we also consider foreign citizens as investors if they establish joint ventures with Russian entities or citizens. This is done to make our data more homogenous with respect to the owners` type since such investors as foreign states and international organizations might have quite different investment motives and strategies in Russia than foreign entities.

As for any firm with foreign ownership it is obligatory to be registered in Rosstat, we assume that this dataset includes all firms with foreign ownership (of considered five ownership types) which operated in Russia in this period. For each firm, we use data that Rosstat records on:

- Industry information, including the six-digit OKVED code (Russian equivalent to SIC six-digits codes) of the primary industry in which each firm operates;
- Ownership structure, including information about firms` owners (country of origin, company`s name, share in capital) and ownership status;
- Location information, including the region;
- Year of registration;

- Capital size at the moment of registration.

From this dataset we extract two types of firms. First group consists of firms which foreign ownership is represented by offshore owners (i.e. OFCs). The offshore owners are mainly represented by Cyprus and British Virgin Islands. Firms established by owners from such countries as Panama, Belize, Seychelles, Bahamas, Marshall Islands are also included into this group. We assume that this group represents round-trip investors. We aware that this is an approximation and as was noted by Xiao (2004) "Because of … and the intrinsic secrecy nature of the round-tripping capital, it is almost impossible to obtain a direct and accurate measure on the scale of the round-tripping FDI."

Second group consists of firms which foreign ownership is represented by genuine foreign owners. The genuine foreign (non-offshore) owners are more diversified: the top ten of main investors consists of Germany, USA, Great Britain, Switzerland, Finland, Austria, China, Turkey, France and Sweden.

We also consider firms established by investors from Netherlands, Luxemburg and Liechtenstein as a separate group. These three countries can be considered as offshore countries popular with Russian flight capital. At the same time, a large portion of foreign investment from these countries might have "real foreign" origin. Hence, it is difficult to decide to which group, genuine foreign or round-trip investors of Russian origin, they belong.

In table 1 we present data structure by ownership type of the firm (as defined by Rosstat). Firms, which foreign owners consist of investors from different groups or for which ownership data is not available/clear in full are not excluded from the total number (hence, the sum of the groups does not equal to total) but excluded from the corresponding groups. This is done to introduce the readers with the structure of the whole dataset.

Table 1 Data structure by ownership type: number of firms

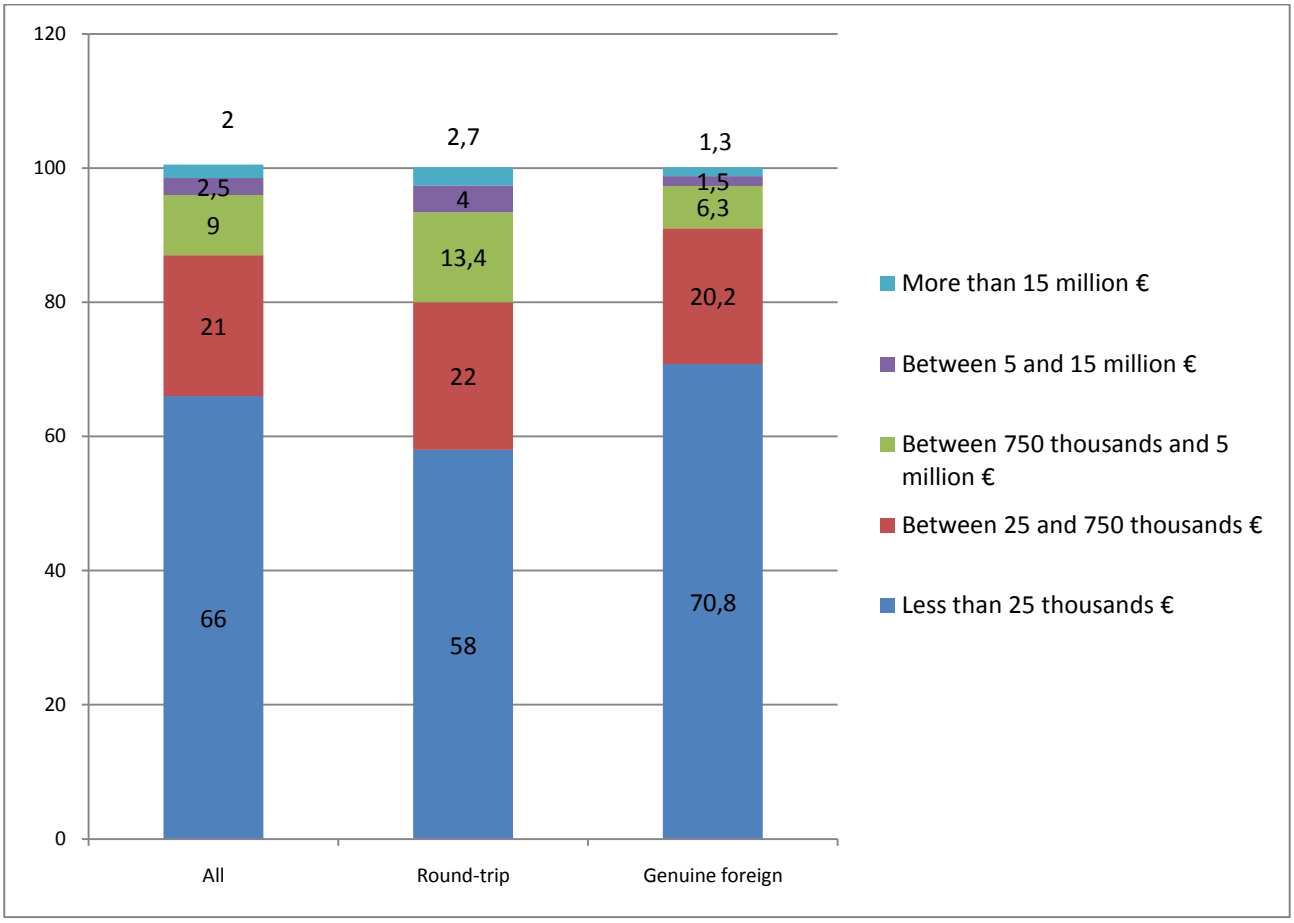
Type code	**Ownership type**	Total		Firms established by round-trip investors (RT)		Firms established by genuine foreign investors (GF)		Netherlands, Luxemburg, Liechtenstein (NLL)		RT/ Total (%)
		N.	%	N.	%	N.	%	N.	%	
23	Full ownership of foreign entities	9 187	43,3	3879	56	3674	35	392	54,4	42,2
31	Joint Russian state (federal)`s and foreign ownership*	320	1,5	41	0,6	163	1,5	11	1,5	12,8
32	Joint Russian regional governments` and foreign ownership*	152	0,7	43	0,6	74	0,7	6	0,8	28,3
33	Joint Russian municipalities` and foreign ownership*	38	0,2	8	0,1	18	0,2	1	0,1	21,1
34	Joint Russian private and foreign ownership*	11 521	54,3	2974	43	6709	63	310	43,1	25,8
	Total number	*21 218*	*100*	*6945*	*100*	*10619*	*100*	*720*	*100*	*32,7*

Source: Rosstat and authors` calculations
Note: RT - firms established by round-trip investors; GF – firms established by genuine foreign investors.
*Foreign ownership is represented by foreign entities and citizens

As can be seen from Table 1 the fraction of joint ventures with Russian authorities of all levels is very low (about 2%) relative to other considered ownership types; wholly owned foreign firms and joint ventures with private foreign owners have almost equal shares with slight dominance of the formers`. It can also be seen that round-trip investors establish relatively more wholly owned enterprises than joint ventures (56% vs. 44%) while genuine foreign investors tend to establish less wholly owned enterprises than joint ventures (35% vs. 65%). Though the ownership type structure of firms established by investors from Netherlands, Luxemburg and Lichtenstein looks more similar to that of round-trip investors, to make the analysis more straightforward we do not to consider them in this study. Hence, we proceed by comparing firms established by round-trip and genuine foreign investors (as defined above).

On figure 1 we present the structure of our data by capital size of established firms. In the original data set the capital size is in roubles. However, in the paper, for convenience, we present the capital size in Euros assuming that 1 Euro equals to 40 roubles.

Figure 1 Data structure by capital size of firms (at registration date, in Euros)



Source: Rosstat and authors` calculations

As can be seen from figure 1 the majority of the established firms (66% in the whole dataset) have capital size (at registration time) less than 25 thousands Euros. This pattern is slightly stronger for firms established by genuine foreign investors. There can be several explanations for such a strong dominance of small firms with foreign capital (at registration date) in Russia. First, small firms are more flexible than larger ones to changing environment in unstable transition economy. Second, in unstable business environment investors might establish firms with small capital size in

different business spheres and later they choose the most profitable sphere (i.e. remain and expand the profitable firm and close the others). Finally, establishing small firms requires fewer permissions, bureaucracy work, etc. than for larger firms which might be also important for investors in such a corrupt and bureaucratic country like Russia. Hence, since investors who establish micro/small firms and larger firms might have very different investment motives, in this paper we also distinguish between micro and larger firms.

On figures 2 and 3 we draw cumulative numbers of established firms by capital size in thousands Euros for round-trip and genuine foreign investors separately and on figures 3 and 4 – corresponding cumulative percentages.

Figure 2 Cumulative numbers of established firms (vertical axis) by capital size (horizontal axis) in thousands Euros

Round-trip **Genuine foreign**

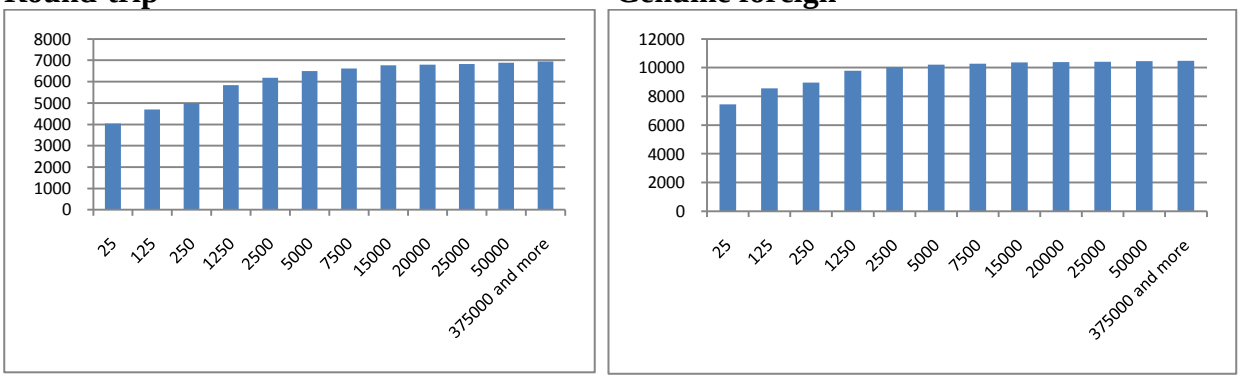
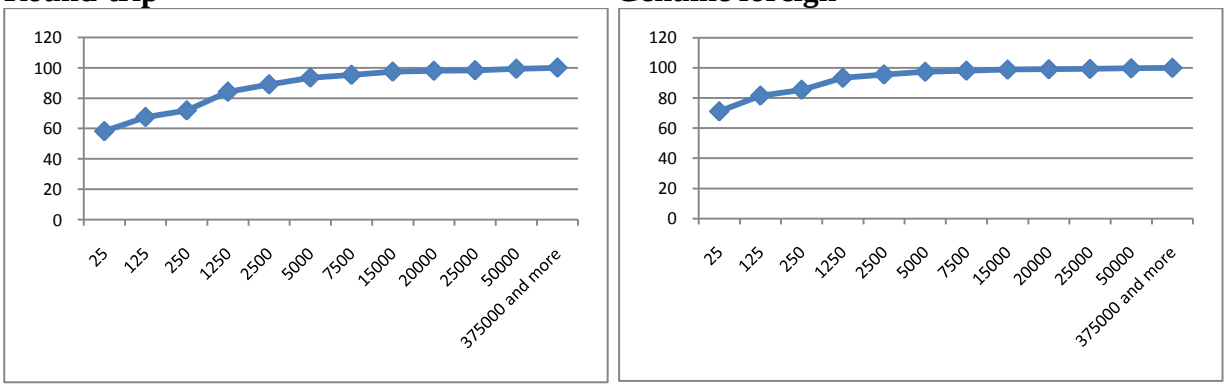


Figure 3 Cumulative percentages of established firms (vertical axis) by capital size (horizontal axis) in thousands Euros

Round-trip **Genuine foreign**



Source: Rosstat and authors' calculations

From figures 1, 2 and 3 we conclude that about 95-99% of established firms (both by round-trip and genuine foreign investors) have capital size less than 7, 5 million Euros. We also can see the bars` lines/curves are very flat which indicates that if we exclude from the data small firms (with capital size less than 25-125 thousands Euros), the firms are distributed quite evenly with respect to capital size.

As for industrial structure of established firms, more than 70% of firms are concentrated in three sectors: trade and repair (31%), real estate (26%) and manufacturing industries (15, 4%). In table 2 we present more detailed industrial structure of the established firms.

Table 2 General industrial structure (% to total number of firms)

Sector	All	Round-trip (RT)	Genuine foreign (GF)	GF-RT	RT/All, %
Agriculture, hunting, forestry, fishing (01 to 05)	2	1,35	2,5	1,15	21,8
Resource extraction (10 to 14)	1,7	2,35	1,1	-1,25	44,4
Manufacturing industries (15 to 37)	15,4	9,2	19,2	10	19,5
Production and distribution of electricity, gas and water (40-41)	0,5	0,5	0,23	-0,27	34,3
Construction (45)	6,5	5,7	7,15	1,45	28,6
Trade and repair (50 to 52)	30,8	23,7	36,5	12,8	25,2
Hotels and restaurants (55)	1,5	1,5	1,3	-0,2	34,0
Transport and communications (60 to 64)	6,2	5,3	6,8	1,5	28,0
Financial activities (65 to 67)	7	12,6	3,4	-9,2	59,1
Real estate (70 to 74)	25,7	35,5	19,2	-16,3	45,2
State management (75)	0,02	0,00	0,04	0,04	0,0
Education (80)	0,35	0,06	0,5	0,44	5,4
Health and social services (85)	0,5	0,5	0,52	0,02	33,7
Other communal, social and personal services (90 to 93)	2	1,9	1,8	-0,1	31,2

Note: OKVED (Russian classification of economic activities) two-digit codes in parentheses
Source: Rosstat and authors calculations.

As we can see from the fourth column (absolute difference in percentages), round-trip investors establish significantly more firms in financial and real estate's sectors[11] while genuine foreign investors – in trade and repair and manufacturing sectors. From the fifth column (the percentage of firms established by round-trip investors in total number) we can see that round-trip investors dominate in financial activities (59%); in resource extraction and real estate sectors they also have quite high shares (44,4 and 45,2%, respectively).

In table 3 we present industrial structure of micro firms (with capital size less than 25, 000 Euros) versus larger firms (with capital size more than 25, 000 Euros).

Table 3 General industrial structure of micro firms versus larger firms (threshold is 25 thousands Euros).

Sector	Micro			Micro excluded		
	RT	GF	GF-RT	RT	GF	GF-RT
Agriculture, hunting, forestry, fishing (01 to 05)	1,1	2,2	1,1	1,69	3,17	1,48
Resource extraction (10 to 14)	2,3	0,9	-1,4	2,48	1,48	-1
Manufacturing industries (15 to 37)	6,2	14,6	8,4	13,28	30,43	17,15
Production and distribution of electricity, gas and water (40-41)	0,4	0,2	-0,2	0,62	0,3	-0,32
Construction (45)	7,1	8,4	1,3	3,72	4,02	0,3
Trade and repair (50 to 52)	26,4	40,1	13,7	19,93	27,56	7,63
Hotels and restaurants (55)	1,8	1,4	-0,4	1,17	1,06	-0,11
Transport and communications (60 to 64)	5,5	6,6	1,1	4,93	7,25	2,32
Financial activities (65 to 67)	10,7	2,6	-8,1	15,21	5,37	-9,84
Real estate (70 to 74)	36,3	19,6	-16,7	34,31	18,17	-16,14
State management (75)	0	0,04	0,04	0	0,03	0,03
Education (80)	0,1	0,7	0,6	0	0,03	0,03
Health and social services (85)	0,5	0,6	0,1	0,52	0,26	-0,26
Other communal, social and personal services (90 to 93)	1,7	2,2	0,5	2,14	0,86	-1,28

Note: OKVED (Russian classification of economic activities) two-digit codes in parentheses
Source: Rosstat and authors calculations

[11] The dominance of round-trip investors in real estate sector is expected since the Russian legislation for the purchase of buildings and especially of land is still complicated and largely under control of state and regional authorities which are in general very corrupt. There are also more restrictions on transactions with real estate for foreign companies and individuals (e.g. they may not own farmland).

As can be seen in general the industrial structure does not differ between micro and larger firms.

Finally in table 4 we present general industrial structure (main items) of very large firms (with capital size more than 5 million Euros).

Table 4 General industrial structure of very large firms (with capital size more than 5 million Euros)

Industry	RT (number of firms)	%	GF (number of firms)	%
Manufacturing industries (15 to 37)	84	19	135	50
Trade and repair (50 to 52)	65	15	39	14
Financial activities (65 to 67)	83	19	22	8
Real estate (70 to 74)	138	31	39	14
Sum	370	83	235	86
Total	448	100	272	100

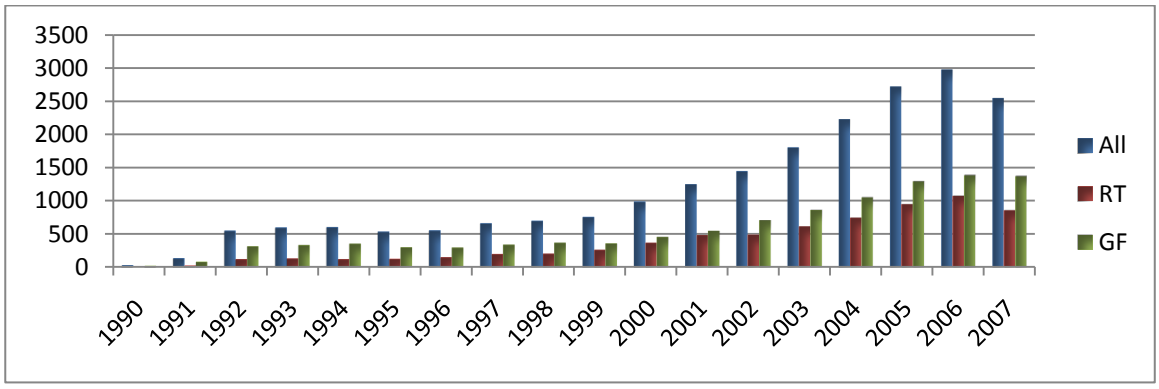
Note: OKVED (Russian classification of economic activities) two-digit codes in parentheses
Source: Rosstat and authors calculations.

From table 5 we conclude that genuine foreign investors establish significantly more very large firms in manufacturing industries than their round-trip counterparts (50% vs. 19%) while round-trip investors establish very large firms mainly in real estate and financial activities sectors (50% (sum of two sectors) versus 22% for genuine foreign investors).

In general

The time dynamics of firms` entry (number of established firms by year of registration) is represented on figure 4.

Figure 4 Establishment of firms with foreign ownership by year: round-trip (RT) vs. genuine foreign (GF) investors



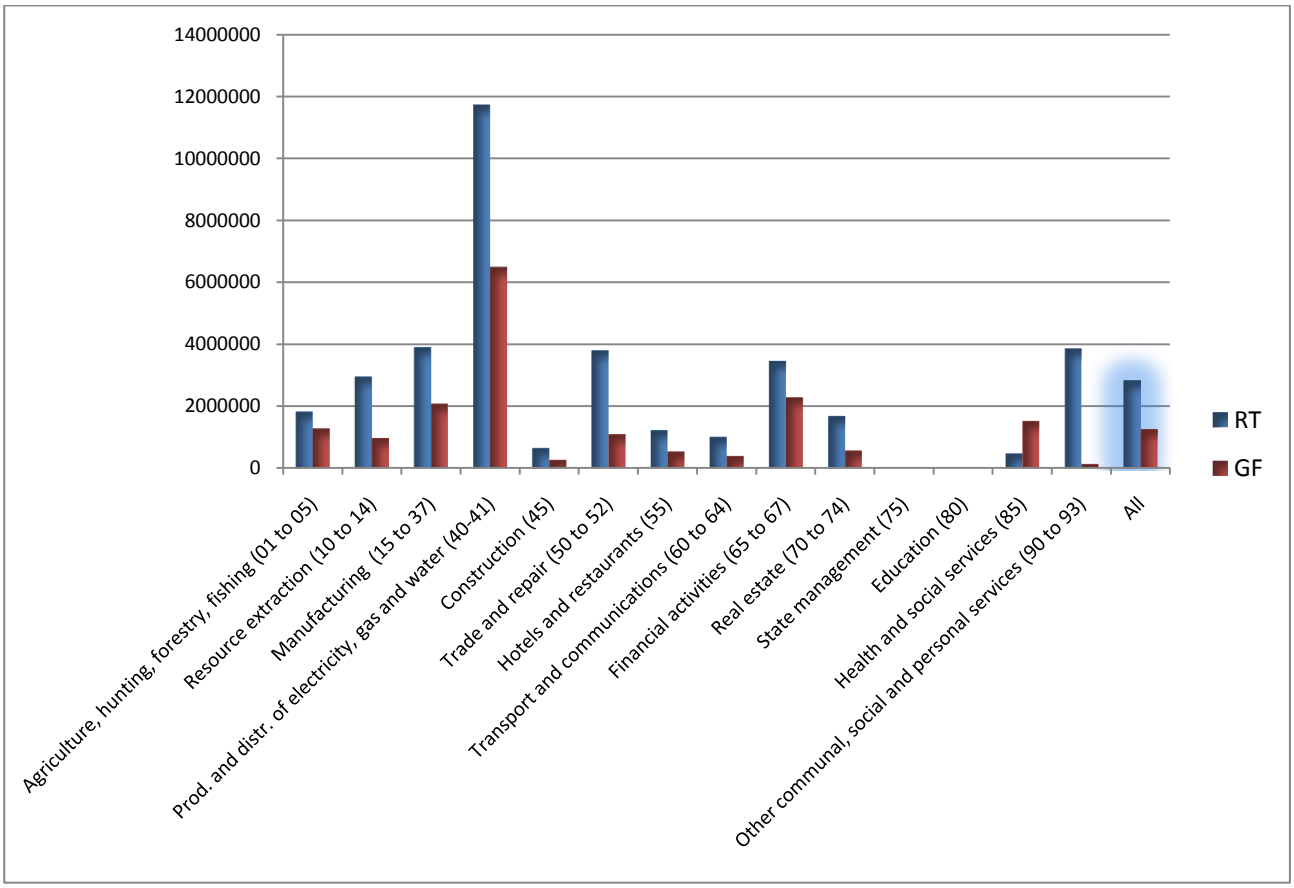
Source: Rosstat, authors` calculations

In general, the time dynamics of established firms is almost identical for round-trip and genuine foreign investors. We should note that the decrease in the number of established firms in the year of 2007 might have two-fold meaning. Firstly, it might just reflect the fact that not all firms established in 2007 reported data to Rosstat in 2008 (due to a registration time lag). Secondly, it might reflect the first signs of global financial crisis.

In Appendix 2 we also present the dynamics of established firms by round-trip and genuine foreign investors in the period of 1990-2007 for selected industries. From the graphs in Appendix 2 it can be concluded that in recent years (from 2000 onwards) genuine foreign investment experienced notably faster growth in manufacturing industries. On the contrary, in recent decade round-trip investment grew faster than genuine foreign in the financial activities` sector. For other industries time dynamics and number of established firms do not differ that much.

On figure 5 we present average capital size of established firms for main industries for the two groups of investors.

Figure 5 Average capital size of established firms by industry (in Euros, at registration date): 1990-2007

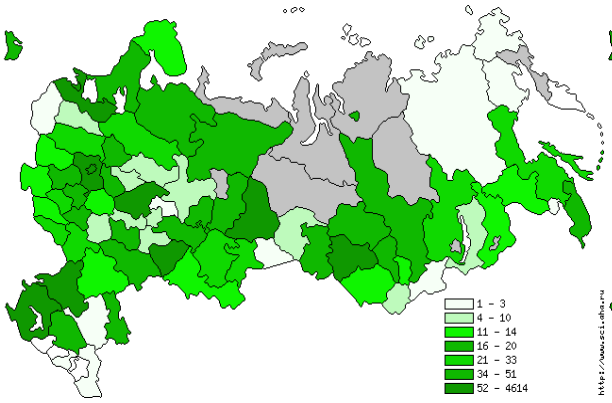


Note: OKVED (Russian classification of economic activities) two-digit codes in parentheses
Source: Rosstat and authors calculations.

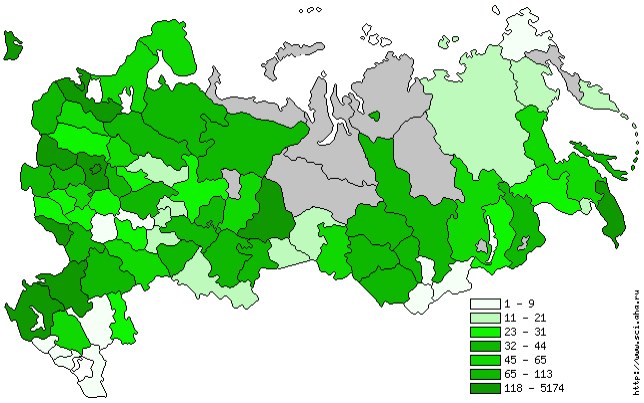
As we can see from figure 5, round-trip investors establish larger firms in all industries except health and social services. If we exclude micro/small firms (with capital size less than 25 or 125 thousands Euros), in general the picture remains the same.

At Maps 1 and 2 we present the spatial distribution of firms in our dataset across Russian regions.

Map1 Spatial distribution of firms established by round-trip investors



Map 2 Spatial distribution of firms established by genuine foreign investors

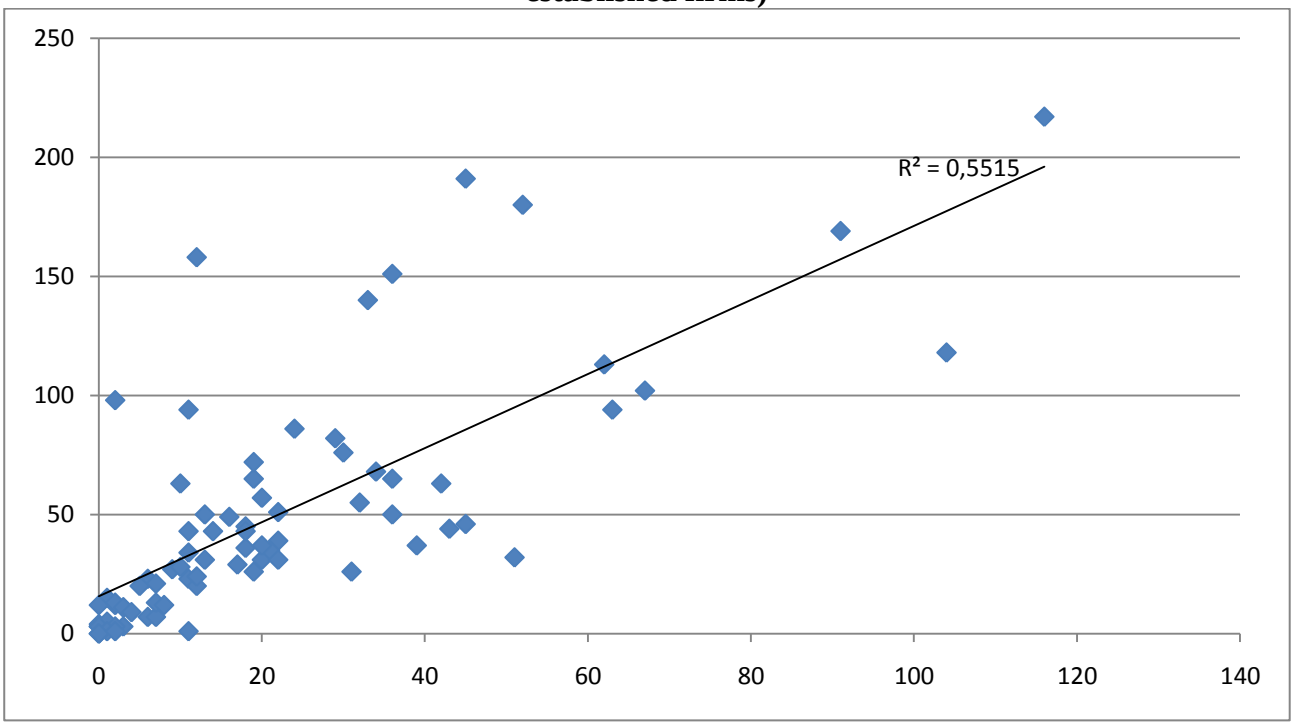


Source: Rosstat; authors` calculations.Note: *white colour* corresponds to zero number of firms and *grey colour* to regions for which data is not available (Agin-Buryat Autonomous Okrug, Komi-Permyak AO, Koryak AO, Nenets Autonomous AO, Taymyr Autonomous AO, Ust-Orda Buryat AO, Khanty-Mansi AO, Evenk Autonomous AO, Yamalo-Nenets AO).

At first glance location strategies do not differ considerably between round-trip and genuine foreign investors. Round-trip investments are slightly more concentrated in Moscow than genuine foreign (60% versus 50%). Also Moscow region and the city of Saint-Petersburg attract considerably more investment than other regions: in our sample there are 358 and 560 offshore (round-trip) and non-offshore (genuine foreign) firms in Moscow region and 309 and 953 – in St. Petersburg, correspondingly.

On Figure 6 we plot the number of firms established by round-trip investors against the number of firms established by genuine foreign investors across Russian regions. We exclude Moscow, Moscow region and St. Petersburg because of scale problem.

Figure 6 Round-trip vs. genuine foreign investors across Russian regions (by number of established firms)



Source: Rosstat; authors` calculations
Note: 1) Number of firms established by round-trip investors on the X axis and of firms established by genuine foreign investors on the Y axis for 77 Russian regions. 2) Moscow, Moscow region and Saint-Petersburg are excluded because of scale problem.

From the graph we can see that, though there is positive relationship in distribution of the two types of firms across Russian regions, it is far from being perfectly identical (i.e. 45 degree line).

In table 5 we present the distribution of round-trip and genuine foreign investors across top ten Russian regions in our sample and calculate its concentration. As can be seen, round-trip investment is more concentrated not only in Moscow city but also in top ten regions. We also see that top ten regions do not differ much between the round-trip and genuine foreign investors: 6 regions out of 10 present in both groups.

Table 5 Distribution and concentration of foreign firms across top ten Russian regions

Region	Round-trip investors		Region	Genuine foreign investors	
	Number of firms	Concentration (cumulative %)		Number of firms	Concentration (cumulative %)
Moscow city	4614	66	Moscow city	5174	49
Moscow region	358	72	Saint-Petersburg	953	58
Saint-Petersburg	309	76	Moscow region	560	64
Krasnodar region	116	78	Krasnodar region	217	66
Sverdlovsk region	104	79	Kaliningrad region	191	68
Rostov region	91	81	Leningrad region	180	69
Samara region	67	81	Rostov region	169	71
Novosibirsk region	63	82	Smolensk region	158	73
Nizhniy Novgorod region	62	83	Primorskij region	151	74
Leningrad region	52	84	Belgorod region	140	75
Total	6945	100	Total	10484	100

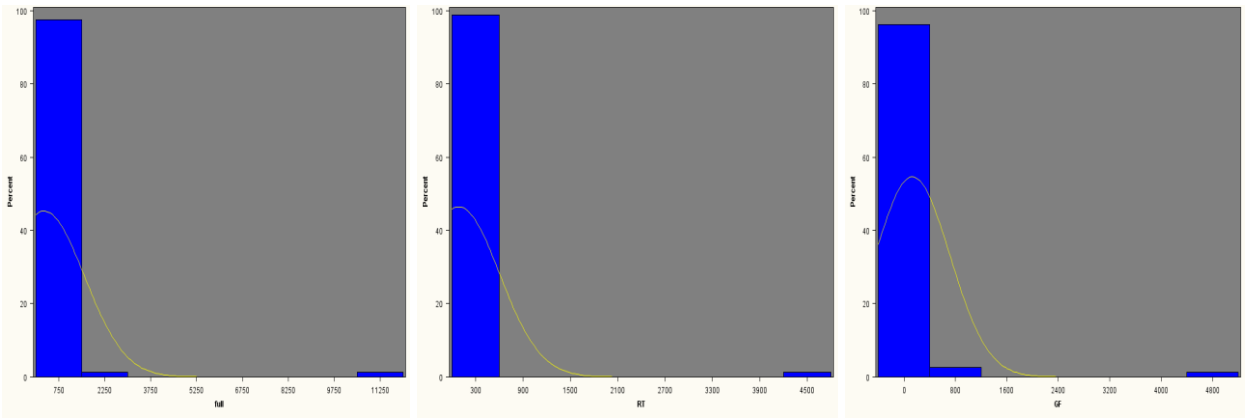
Source: authors` calculations across Russian regions.
Note: By grey background we mark the regions which present in top ten for both round-trip and genuine foreign investors.

On figure 7 we present the fitted normal distribution of firms for the whole sample and separately for round-trip and genuine foreign investors. We further present the respective distribution when regions-outliers, namely, Moscow, Moscow region and St. Petersburg, are excluded.

Figure 7 Distribution of firms

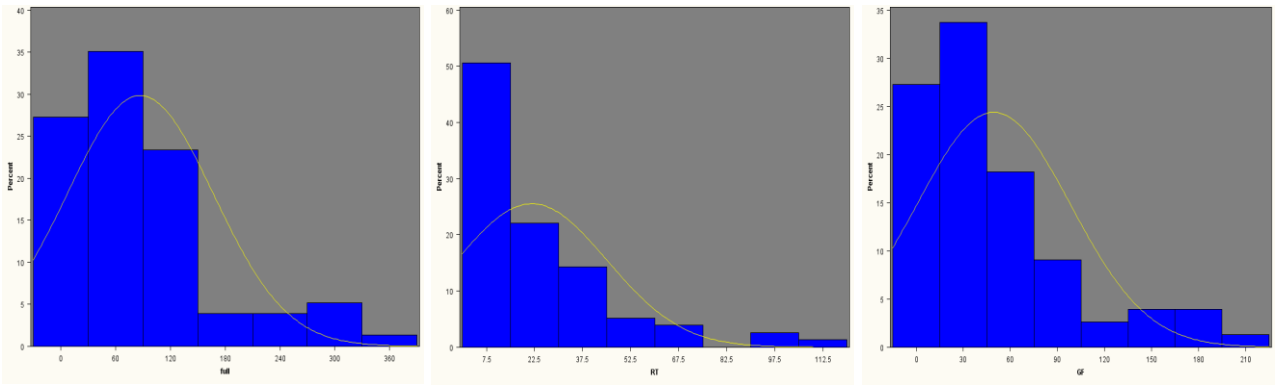
All regions (80)

Whole Round-trip Genuine foreign



77 Russian regions (Moscow city, Moscow region and Saint-Petersburg are excluded)

Whole Round-trip Genuine foreign



Note: These figures report fitted normal distribution of the number of established firms in Russian regions. Vertical axis measures fraction in per cent. Horizontal axis measures the number of established firms in a region (as average).

From the graphs we conclude that even when we exclude regions-outliers, the distributions of established firms are quite positively skewed.

4. EMPIRICAL METHODOLOGY

4.1. Location choice model on three-dimensional panel data

In this study we estimate location choice model using three-dimensional panel data. In particular, our dependent variable equals to the number of firms established by an investor of type i (i=1, 2; 1 –

round-trip investor and 2 – genuine foreign investor) in a Russian region n (n=1,…,76)[12] in a year t (t=1996-2007). Hence, we work with three-dimensional panel count data – non-negative integers. A number of regression models have been developed for the purpose of handling this kind of data. Poisson model is typically used for count data. However, our dependent variable exhibits overdispersion for two reasons. First, the data include a large number of zero counts. Since overdispersion occurs in part as a result of excess zeros, we use a zero-inflated count model. Zero-inflated count models assume that the process generating the excess zeros is different from the process that generates the non-zeros (Greene, 1997, Tu, 2002). Second, since our data contain evidence of overdispersion due to unobserved heterogeneity as well as excess zeros, we estimate the number of firms with a zero-inflated negative binomial model, nested within a logit model estimating the likelihood of zero firms during a year t in a region i. Hence, we have a two-regime model. In the splitting equation ("certain zeros" model), a probit model is used; in the "non-certain zeros" model the negative binomial process is at work. Potentially, the same set of explanatory variables can be used in each stage of the process (Basile, 2004). Using the method of trials and errors, we have been choosing the sets of explanatory variables for the inflation stages of our models based on the corresponding goodness of fit statistics and conditions of model convergence.

4.2. Explanatory variables in location model

We utilize regional characteristics as explanatory variables. We also introduce an offshore dummy variable which equals to one for round-trip investors (offshore firms) and zero otherwise. We further include interaction terms between offshore dummy and regional characteristics to count for location differences between round-trip and genuine foreign investors. Finally, we control for the year when a firm j has been established by time dummies.

[12] Due to data availability problem we perform our empirical analysis for 76 Russian regions out of 83.

Since data for the most of regional characteristics is available from the year of 1995, in this study we focus on the period of 1996-2007 (due to using "one-year lag" approach[13]). Below we describe regional explanatory variables.

In addition to two core regional characteristics, corruption level and resource potential in a Russian region, we control for such regional characteristics as market potential, educational background of population, sea port availability, transport infrastructure, institutional potential and investment risk. These variables have been selected according to the existing literature on determinants of foreign direct investment/foreign firms/multinationals location, data availability, and particularities of the Russian economy.

We measure regional corruption *CORR* by the corruption dimension of Moscow Carnegie Centre's democracy index as average for the period of 2000-2004. It is measured on a 5-point-scale, where 1 indicates the highest level of corruption level and 5 - the lowest. This indicator refers mainly to the state capture in a broader sense, i.e. interconnections between political and business elites and their interventions in the political decision-making. To our knowledge this is the only indicator of corruption across Russia which is available for all Russian regions.[14] We are aware that this indicator cannot capture all the conceptual richness that is used in models of corruption (see, e.g., Shleifer and Vishny, 1993) which poses certain limitations on our study.

We measure the natural resources` potential variable *RES* by *Expert* journal[15] regional natural resources potential's rank[16] in a region i (where the firm j (j=1,…,n) is located) in a year t-1 (from 1 to 89: 1 corresponds to the highest potential and 89 corresponds to the lowest potential).

The market size variable *Market* is the first principal component of three variables (gross regional product, total population, and population density) in a region i in a year t-1. This indicator for market size in Russian regions has been introduced in the study of Iwasaki and Suganuma

[13] The use of lagged explanatory variables (where data is available) helps to solve possible endogeneity problems. It further relates to a simple hypothesis for the foreign investor decision making: foreign investors are assumed to make an investment decision for a given year by referring to the observable variables of the previous year (e.g. Iwasaki and Suganuma, 2005; Ledyaeva (2009)).
[14] The only alternative is the index of corruption of Transparency International and Fund INDEM (2002). However, it was computed only for 40 Russian regions which would pose serious limitation on our study.
[15] http://www.raexpert.ru/ratings/regions/ (webpage in Russian language).
[16] This indicator reflects average weighted availability of balanced stocks of principal natural resources in Russian regions.

(2005). The proportion of variance of the first component reaches 80%, and furthermore, its eigenvector and component loading show that this variable is suitable as a general index of the market size. This variable is also one-year lagged.

The educational background of population variable *EDU* is measured by the share of the population with at least a medium level of professional education to the population with no professional education in a particular Russian region in the year of 2002 (The data comes from ROSSTAT).

We introduce two variables to measure the level of transport infrastructure development in a particular Russian region that should have an impact on transportation costs of a foreign investor. The first variable, *Port*, reflects the presence of a seaport in a particular Russian region (equals to 1 if there is at least one sea port in a region, and 0 otherwise). The second variable, *Roads*, reflects the regional development of railways and highways and is measured by the average density of railways and highways in a region i in a year t-1 (where data is not available – for the nearest year).

Next, we introduce indicators of institutional potential and investment risk in Russian regions.

Regional institutional potential, *RIP*, is an *Expert* journal rank of institutional potential[17] from 1 to 89 for a particular Russian region i where a firm is located in a year t-1 (1 is assigned to a region with the highest potential in Russia, and 89 is assigned to a region with the lowest potential).

Regional investment risk, *RIR*, is an *Expert* journal rank from 1 to 89 for a particular Russian region[18] where a firm is located in a year t-1. 1 is assigned to a region with the smallest risk in Russia, and 89 is assigned to a region with the largest risk.

[17] This indicator reflects the level of development of principal market institutions in Russian regions and we expect it to be positively related to location decision of foreign investors.
[18] This is a qualitative indicator that simultaneously reflects political, economic, social, criminal, financial, ecological, and legislative risks for investment activities in Russian regions.

5. EMPIRICAL RESULTS

5.1. Baseline results

In Table 7 we present the results for three-dimensional panel data location model. First we perform separate regressions for samples of round-trip and genuine foreign investors (M1 and M2). Second we estimate a pooled regression when differences between round-trip and genuine foreign investors are not counted (M3). Finally we include an offshore dummy and its interactions with all regional characteristics (M4). The descriptive statistics and correlation matrix for explanatory variables in the model are presented in Appendix 3.

As it was noted above in our data both round-trip and genuine foreign investments are highly concentrated in the Moscow city (66 and 49 %, correspondingly). Since it might lead to the bias in our results we also estimate the model without Moscow city. The results are presented in Appendix 4.

Table 7 Baseline results: three-dimensional panel data location model

Zero-inflated negative binomial model. 76 Russian regions over the period of 1996-2007

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	0,44 (0,25)*	1,01 (0,2)***	0,8 (0,18)***	0,96 (0,2)***
RESOURCE POTENTIAL	-0,01 (0,002)***	0,002 (0,001)	0,0002 (0,001)	0,002 (0,002)
CORRUPTION	0,18 (0,06)***	-0,05 (0,05)	-0,01 (0,04)	-0,03 (0,05)
Port	0,2 (0,09)**	0,38 (0,07)***	0,31 (0,06)***	0,38 (0,08)***
Market	0,33 (0,03)***	0,2 (0,02)***	0,24 (0,02)***	0,19 (0,02)***
RIR	-0,004 (0,002)**	-0,002 (0,001)	-0,002 (0,001)	-0,002 (0,002)
EDU	0,9 (0,21)***	1,08 (0,17)***	1,06 (0,15)***	1,09 (0,17)***
RIP	-0,02 (0,002)***	-0,01 (0,002)***	-0,01 (0,002)***	-0,01 (0,002)***
Roads	0,003 (0,0004)***	0,004 (0,0003)***	0,004 (0,0003)***	0,004 (0,0004)***
Offshore dummy				-0,26 (0,29)
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				-0,01 (0,002)***
CORRUPTION*Offshore				0,13 (0,07)*
Port* Offshore				-0,22 (0,12)*
Market* Offshore				0,14 (0,04)***
RIR* Offshore				-0,002 (0,002)
EDU* Offshore				-0,28 (0,27)
RIP* Offshore				-0,01 (0,003)***
Roads* Offshore				-0,001 (0,0006)
Inflated model [A)]				
Intercept	1,8 (5,7)	-0,07 (1,5)	-1,21 (1,3)	1,2 (1,6)
RES				
CORRUPTION	-0,75 (1,6)	-1,9 (0,44)***	-1,5 (0,34)***	-2,2 (0,6)***
Port				
Market	1,18 (0,8)	0,36 (0,12)***	0,28 (0,09)***	0,37 (0,11)***
RIR				
EDU				
RIP	0,05 (0,04)	0,07 (0,01)***	0,07 (0,01)***	0,06 (0,01)***
Roads	-0,42 (0,21)**	-0,01 (0,003)*	-0,004 (0,003)	-0,01 (0,003)***
LR Chi2				
Pearson Chi-Square	1,2	1,05	1,1	1,14
Vuong test				
N.obs.	912	912	1824	1824

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses.

[A)] Coefficients of inflated model predict excessive zeros.

Firstly we should mention that the results are not very much affected by Moscow exclusion and hence, in our further analysis we include Moscow in estimations.

In the model for round-trip investors all control variables are highly statistically significant. In particular we find that round-trip investors tend to establish firms in Russian regions with higher resource potential, less corruption, with sea ports, higher market potential, smaller investment risks, higher educational background of population and higher institutional potential and better transport infrastructure. Interesting that for genuine foreign investors the results are the same except for three variables – regional resource potential, corruption and investment risks: their coefficients are not statistically significant. These variables are also not statistically significant in the pooled model.

In the model with interactions there are several interesting findings. First, we find moderate evidence that regions with ports are less attractive for round-trip investors than for genuine foreign ones. Second, round-trip investors establish more firms than genuine foreign investors in regions with higher market and institutional potentials.

Four our core variables we conclude that round-trip investors establish more firms in resource abundant Russian regions than their genuine foreign counterparts (i.e. hypothesis 1 is confirmed). This result is highly statistically significant. However, there is an unexpected result for corruption variable. In particular we find that round-trip investors establish more firms in less corrupt Russian regions than genuine foreign ones.

We suggest that the dominance of micro firms might influence our results and estimate our baseline model for small and medium and large firms separately. As a threshold we use the capital size of 125 thousands Euros. In table 8a we present the results for small firms.

Table 8a Small firms (capital size less than 125 thousands Euros): three-dimensional panel data location model

Zero-inflated negative binomial model. 76 Russian regions over the period of 1996-2007

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	-0,08 (0,32)	1,2 (0,2)***	0,8 (0,22)***	1,2 (0,22)***
RESOURCE POTENTIAL	-0,01 (0,003)**	0,001 (0,002)	0,0001 (0,002)	0,001 (0,002)
CORRUPTION	0,19 (0,08)**	-0,14 (0,05)***	-0,11 (0,05)**	-0,12 (0,06)**
Port	0,25 (0,11)**	0,42 (0,08)***	0,36 (0,08)***	0,44 (0,09)***
Market	0,36 (0,04)***	0,21 (0,03)***	0,25 (0,03)***	0,2 (0,03)***
RIR	-0,003 (0,003)	-0,002 (0,002)	-0,002 (0,002)	-0,002 (0,002)
EDU	0,75 (0,26)***	1,04 (0,2)***	1,07 (0,17)***	1,05 (0,2)***
RIP	-0,02 (0,01)***	-0,01 (0,002)***	-0,01 (0,002)***	-0,01 (0,003)***
Roads	0,003 (0,001)***	0,004 (0,0004)***	0,004 (0,0004)***	0,004 (0,0004)***
Offshore dummy				-0,9 (0,34)**
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				-0,01 (0,003)**
CORRUPTION*Offshore				0,21 (0,09)**
Port* Offshore				-0,21 (0,14)
Market* Offshore				0,16 (0,04)***
RIR* Offshore				-0,0003 (0,003)
EDU* Offshore				-0,21 (0,31)
RIP* Offshore				-0,01 (0,004)**
Roads* Offshore				-0,001 (0,001)
Inflated model [A)]				
Intercept	-14,7 (12,1)	0,29 (2)	-1,54 (1,34)	3,82 (2,04)*
RES				
CORRUPTION		-1,9 (0,65)***	-1,25 (0,33)***	-3,1 (0,81)***
Port				
Market	-1,02 (3,1)	0,32 (0,13)**	0,21 (0,09)**	0,45 (0,13)***
RIR				
EDU				
RIP	0,17 (0,14)	0,07 (0,01)***	0,07 (0,01)***	0,05 (0,01)***
Roads	0,02 (0,02)	-0,01 (0,004)	-0,002 (0,002)	-0,01 (0,004)***
LR Chi2				
Pearson Chi-Square	1,3	1,08	1,1	1,2
Vuong test				
N.obs.	912	912	1824	1824

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses.

[A)] Coefficients of inflated model predict excessive zeros.

As we can see from table 8a most results are the same as for the whole sample in table 7. However, in the model for genuine foreign investors now the result for corruption variable is highly

statistically significant. The coefficient is negative which means that genuine foreign investors tend to establish more small firms in corrupt Russian regions (model 2). We also conclude that genuine foreign investors establish more small firms in corrupt Russian regions than their round-trip counterparts (the interaction term between offshore dummy and corruption variable in Model 4 is positive and statistically significant). This result has a rather plausible explanation. Genuine foreign investors might tend to establish small firms in corrupt Russian regions in order to minimize their risks associated with regional corruption. Below we further examine this proposition using fractional dependent variable model.

Next in table 8b we present the results for medium and large firms (with capital size more than 125 thousands Euros).

Table 8b Medium and large firms (with capital size more than 125 thousands Euros): three-dimensional panel data location model

Zero-inflated negative binomial model. 76 Russian regions over the period of 1996-2007

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	-0,26 (0,35)	-2,17 (0,32)***	-1,22 (0,25)***	-2,02 (0,3)***
RESOURCE POTENTIAL	-0,004 (0,002)*	0,004 (0,002)*	0,0002 (0,002)	0,01 (0,002)**
CORRUPTION	0,04 (0,09)	0,21 (0,07)***	0,14 (0,06)**	0,22 (0,07)***
Port	-0,004 (0,12)	0,18 (0,12)	0,11 (0,09)	0,18 (0,12)
Market	0,26 (0,03)***	0,14 (0,03)***	0,2 (0,02)***	0,13 (0,03)***
RIR	-0,004 (0,003)*	0,001 (0,002)	-0,002 (0,002)	0,001 (0,002)
EDU	0,59 (0,27)**	1,12 (0,25)***	0,84 (0,19)***	1,13 (0,25)***
RIP	-0,03 (0,003)***	-0,02 (0,003)***	-0,02 (0,002)***	-0,02 (0,003)***
Roads	0,004 (0,001)***	0,01 (0,001)***	0,004 (0,004)***	0,01 (0,001)***
Offshore dummy				1,64 (0,4)***
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				-0,01 (0,003)***
CORRUPTION*Offshore				-0,2 (0,1)*
Port* Offshore				-0,17 (0,16)
Market* Offshore				0,13 (0,04)***
RIR* Offshore				-0,01 (0,003)
EDU* Offshore				-0,55 (0,36)
RIP* Offshore				-0,004 (0,004)
Roads* Offshore				-0,001 (0,001)
Inflated model [A)]				
Intercept	6,2 (3)**	4,54 (2,3)*	5 (2)**	5,03 (1,9)***
RES				
CORRUPTION	-3,5 (1,4)**	-3,7 (1,04)***	-3,3 (0,96)***	-3,3 (0,9)***
Port				
Market	0,22 (0,3)	0,7 (0,3)**	0,42 (0,21)**	0,4 (0,2)**
RIR				
EDU				
RIP	0,01 (0,02)	0,08 (0,03)**	0,04 (0,02)**	0,04 (0,02)**
Roads	-0,01 (0,01)**	-0,02 (0,01)**	-0,02 (0,01)***	-0,02 (0,005)***
LR Chi2				
Pearson Chi-Square	1,1	1,1	1,1	1,1
Vuong test				
N.obs.	912	912	1824	1824

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses.

[A)] Coefficients of inflated model predict excessive zeros.

As we can see from table 8b the results for corruption variable are quite different from those in tables 7 and 8a. First we find that corruption variable is not statistically significant anymore in

the model for round-trip investors (model 1). In the model for genuine foreign investors it is highly statistically significant but with opposite sign than in table 8a for small firms which indicates that genuine foreign investors tend to establish more medium and large firms in less corrupt Russian regions. Furthermore now in model 4 with interactions, the interaction between offshore and corruption variables has a negative and statistically significant coefficient which indicates that genuine foreign investors establish more medium and large firms in less corrupt Russian regions than their round-trip counterparts. So the results for corruption variable are opposite for small versus medium and large firms.

To further examine this issue we utilize fractional dependent variable model. The dependent variable is a fraction of small firms (with capital size less than 5 million rubles) in the total number of established firms. Observations where the total number of firms is zero were excluded from this model. The explanatory variables are the same as in baseline model.

As an estimation methodology we utilize a generalized linear model (glm) as proposed in the literature (see e.g. Papke and Wooldridge (1996)). The estimation results are presented in table 9.

Table 9 Fractional dependent variable model

Variable	Round-trip	Genuine foreign	Pooled	With interactions
Intercept	0,32 (0,4)	2,1 (0,4)***	1,54 (0,33)***	2,64 (0,44)***
RESOURCE POTENTIAL	-0,001 (0,004)	-0,01 (0,003)**	-0,003 (0,003)	-0,01 (0,003)**
CORRUPTION	-0,02 (0,11)	-0,3 (0,1)***	-0,18 (0,08)**	-0,33 (0,1)***
Port	0,4 (0,2)**	0,15 (0,2)	0,26 (0,12)**	0,14 (0,19)
Market	0,08 (0,04)**	0,1 (0,04)**	0,06 (0,03)*	0,07 (0,04)*
RIR	-0,0005 (0,004)	-0,001 (0,003)	0,001 (0,002)	-0,0004 (0,003)
EDU	-0,01 (0,4)	0,12 (0,5)	0,19 (0,29)	0,23 (0,46)
RIP	0,001 (0,005)	0,01 (0,004)*	0,005 (0,003)	0,01 (0,004)
Roads	-0,001 (0,001)	-0,0001 (0,001)	-0,0004 (0,001)	-0,0001 (0,001)
Offshore dummy				-1,85 (0,58)***
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				0,01 (0,01)
CORRUPTION*Offshore				0,3 (0,15)**
Port* Offshore				0,25 (0,25)
Market* Offshore				-0,02 (0,06)
RIR* Offshore				0,0004 (0,01)
EDU* Offshore				-0,08 (0,6)
RIP* Offshore				-0,01 (0,01)
Roads* Offshore				-0,001 (0,001)
N. obs.	533	695	1228	1228
Log pseudolikelihood	-311,2	-309.9	-646,76	-612,9
AIC	1,2	0,9	1,1	1,05
BIC	-2868,5	-4127,1	-7757,8	-7761,6

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) standard error in parentheses.

We can see from the results that the higher the corruption level in a Russian region, the higher the share of small firms in total number of firms established by genuine foreign investors (model 2). In the model for round-trip investors the corruption variable is not statistically significant. We further conclude that in more corrupt Russian regions the fraction of small firms is higher for genuine foreign investors in comparison with round-trip ones.

5.2. Sectoral analysis

5.2.1. Manufacturing industries

In table 10a we present the results for small manufacturing firms.

Table 10a Small manufacturing firms (capital size less than 125 thousands Euros): three-dimensional panel data location model

Zero-inflated negative binomial model. 76 Russian regions over the period of 1996-2007

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	-3,36 (0,7)***	-0,22 (0,3)	-0,74 (0,33)**	-0,3 (0,3)
RESOURCE POTENTIAL	0,003 (0,01)	0,001 (0,002)	0,0001 (0,002)	0,0004 (0,002)
CORRUPTION	0,11 (0,18)	-0,12 (0,07)	-0,12 (0,08)	-0,11 (0,07)
Port	0,13 (0,23)	0,28 (0,11)**	0,27 (0,12)**	0,3 (0,1)***
Market	0,16 (0,03)***	0,09 (0,02)***	0,11 (0,03)***	0,1 (0,02)***
RIR	-0,003 (0,01)	-0,003 (0,002)	-0,002 (0,002)	-0,003 (0,002)
EDU	0,51 (0,5)	0,83 (0,24)***	0,8 (0,27)***	0,8 (0,24)***
RIP	0,01 (0,01)	-0,01 (0,003)***	-0,01 (0,003)***	-0,01 (0,003)***
Roads	0,01 (0,001)***	0,005 (0,001)***	0,005 (0,001)***	0,005 (0,001)***
Offshore dummy				-1,3 (0,62)**
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				0,004 (0,01)
CORRUPTION*Offshore				-0,002 (0,17)
Port* Offshore				-0,37 (0,26)
Market* Offshore				0,03 (0,04)
RIR* Offshore				0,003 (0,01)
EDU* Offshore				-0,16 (0,55)
RIP* Offshore				-0,01 (0,01)*
Roads* Offshore				-0,001 (0,001)
Inflated model [A)]				
Intercept	-3,32 (2)*	9,3 (3,5)***	6,65 (2,33)***	6,94 (2,4)***
RES				
CORRUPTION	0,12 (0,36)	-5,9 (1,9)***	-4,15 (1,2)***	-4,5 (1,2)***
Port				
Market	-2,8 (1,8)	1,05 (0,44)**	0,67 (0,33)**	0,8 (0,34)**
RIR				
EDU				
RIP	0,05 (0,02)**	0,14 (0,05)***	0,1 (0,04)***	0,11 (0,04)***
Roads	0,003 (0,003)	-0,04 (0,01)***	-0,03 (0,01)***	-0,03 (0,01)***
LR Chi2				
Pearson Chi-Square	0,97	1,3	0,99	1,2
Vuong test				
N.obs.	912	912	912	912

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses.

[A)] Coefficients of inflated model predict excessive zeros.

As we can see from the table round-trip investors establish more small manufacturing firms in regions with higher market potential and better transport infrastructure. All the other variables are not statistically significant. In the model for genuine foreign investors there are several highly statistically significant coefficients. In particular we conclude that they establish more small manufacturing firms in regions with ports, higher market potential, better educational background of population, higher institutional potential and better transport infrastructure. In the model 4 the coefficient of only one interaction term is statistically significant: with institutional potential. In particular there is some evidence that round-trip investors prefer to establish small manufacturing firms in regions with higher institutional potential than genuine foreign investors.

In table 10b we present the results for medium and large manufacturing firms.

Table 10b Medium and large manufacturing firms (capital size more than 125 thousands Euros): three-dimensional panel data location model

Zero-inflated negative binomial model. 76 Russian regions over the period of 1996-2007

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	-0,75 (0,64)	-3,2 (0,4)***	-2,5 (0,3)***	-2,8 (0,36)***
RESOURCE POTENTIAL	-0,01 (0,004)***	0,006 (0,003)**	0,001 (0,002)	0,005 (0,003)*
CORRUPTION	-0,06 (0,15)	0,6 (0,09)***	0,33 (0,07)***	0,4 (0,08)***
Port	0,04 (0,2)	0,32 (0,14)**	0,23 (0,12)*	0,27 (0,14)**
Market	0,07 (0,03)**	0,003 (0,03)	0,02 (0,02)	-0,01 (0,03)
RIR	-0,004 (0,004)	-0,003 (0,003)	-0,004 (0,002)	-0,003 (0,003)
EDU	-0,05 (0,4)	0,26 (0,3)	0,46 (0,26)*	0,6 (0,28)**
RIP	-0,02 (0,01)***	-0,03 (0,004)***	-0,03 (0,003)***	-0,03 (0,004)***
Roads	0,005 (0,001)***	0,006 (0,001)***	0,005 (0,001)***	0,006 (0,001)***
Offshore dummy				0,95 (0,53)*
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				-0,02 (0,004)***
CORRUPTION*Offshore				-0,26 (0,14)*
Port* Offshore				-0,24 (0,23)
Market* Offshore				0,09 (0,04)**
RIR* Offshore				-0,002 (0,005)
EDU* Offshore				-0,36 (0,46)
RIP* Offshore				0,01 (0,01)
Roads* Offshore				-0,001 (0,001)
Inflated model [A)]				
Intercept	3,3 (2,2)	-28,7 (19,4)	4,8 (7,4)	-6,4 (6,1)
RES				
CORRUPTION	-1,7 (0,84)**	3,74 (3,36)	-9,4 (6,5)	-1,6 (1,6)
Port				
Market	-0,47 (0,6)	-5,43 (3,8)	-1,2 (1,13)	-1,5 (1,35)
RIR				
EDU				
RIP	-0,0002 (0,03)	-0,06 (0,15)	-0,02 (0,08)	0,07 (0,05)
Roads	-0,001 (0,004)	0,05 (0,03)	0,04 (0,02)	0,02 (0,01)*
LR Chi2				
Pearson Chi-Square	1,02	0,96	0,94	0,97
Vuong test				
N.obs.	912	912	912	912

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses.

[A)] Coefficients of inflated model predict excessive zeros.

Firstly, from the results we can see that round-trip investors establish more manufacturing firms in resource abundant regions while genuine foreign investors – in less resources abundant regions. This might indicate that while round-trip investors establish manufacturing firms in

resource-based manufacturing firms, genuine foreign investors develop manufacturing industries which are less dependent on natural resources. Furthermore this result might reflect restrictions (formal and informal) on genuine foreign investment in resource-based manufacturing industries.

We further find that while for round-trip investors corruption is not a statistically significant factor of location, genuine foreign investors tend to establish more medium and large manufacturing firms in less corrupt Russian regions. This is confirmed also in the model with interactions: interaction term between offshore dummy is negative and statistically significant which indicates that genuine foreign investors invest into less corrupt Russian regions than round-trip investors.

5.2.2. Service sector

First, we should note that a strict majority of firms in service sector are located in Moscow city. In table 11 we summarize the share of Moscow city as a location for firms in our dataset. As we can see this dominance is especially strong for round-trip investors. Hence, for service sectors we also estimate our models when Moscow city is excluded.

Table 11 Moscow as location of firms with foreign ownership in service sector (share of total, %)

	Small	Medium and Large
Round-trip	75%	70%
Genuine foreign	57%	63%

Source: Rosstat, authors` calculations

In tables 12a and 12b we present the results for firms in service sector (small versus medium and large). In tables 13a and 13b we present the results when Moscow is excluded.

Table 12a Small service firms (capital size less than 125 thousands Euros): three-dimensional panel data location model

Zero-inflated negative binomial model. 76 Russian regions over the period of 1996-2007

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	0,72 (0,25)***	1,07 (0,26)***	0,72 (0,25)***	0,53 (0,26)**
RESOURCE POTENTIAL	0,002 (0,002)	0,003 (0,002)*	0,002 (0,002)	0,003 (0,002)
CORRUPTION	-0,2 (0,06)***	-0,27 (0,06)***	-0,2 (0,06)***	-0,14 (0,06)**
Port	0,4 (0,09)***	0,4 (0,1)***	0,4 (0,1)***	0,38 (0,1)***
Market	0,26 (0,03)***	0,22 (0,03)***	0,26 (0,03)***	0,19 (0,03)***
RIR	-0,001 (0,002)	-0,002 (0,002)	-0,001 (0,002)	-0,002 (0,002)
EDU	1,02 (0,21)***	1,13 (0,22)***	1,02 (0,21)***	1,21 (0,21)***
RIP	-0,02 (0,003)***	-0,02 (0,003)***	-0,02 (0,003)***	-0,01 (0,003)***
Roads	0,003 (0,0004)***	0,003 (0,0004)***	0,003 (0,0004)***	0,004 (0,001)***
Offshore dummy				-0,97 (0,4)**
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				-0,008 (0,003)**
CORRUPTION*Offshore				0,35 (0,1)***
Port* Offshore				-0,02 (0,16)
Market* Offshore				0,18 (0,05)***
RIR* Offshore				-0,003 (0,003)
EDU* Offshore				-0,77 (0,35)**
RIP* Offshore				-0,009 (0,01)*
Roads* Offshore				0,0001 (0,001)
Inflated model [A)]				
Intercept	4,03 (2,06)*	3,86 (1,83)**	4,03 (2,1)**	-14,76 (4,2)***
RES				
CORRUPTION	-2,87 (0,82)***	-2,9 (0,72)***	-2,87 (0,82)***	
Port				
Market	0,37 (0,14)***	0,4 (0,16)***	0,37 (0,14)***	0,22 (0,45)
RIR			0,06 (0,01)***	
EDU				
RIP	0,06 (0,01)***	0,06 (0,01)***		0,19 (0,05)***
Roads	-0,01 (0,005)***	-0,01 (0,004)***	-0,01 (0,01)***	0,01 (0,01)**
LR Chi2				
Pearson Chi-Square	1,2	1,1	1,2	1,4
Vuong test				
N.obs.	912	912	912	912

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses.

[A)] Coefficients of inflated model predict excessive zeros.

Table 12b Medium and large service firms (capital size more than 125 thousands Euros): three-dimensional panel data location model

Zero-inflated negative binomial model. 76 Russian regions over the period of 1996-2007

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	-2,01 (0,32)***	-2,2 (0,56)***	-2,01 (0,31)***	-3,2 (0,45)***
RESOURCE POTENTIAL	0,002 (0,002)	0,01 (0,003)**	0,002 (0,002)	0,01 (0,004)
CORRUPTION	0,08 (0,08)	-0,35 (0,12)***	0,08 (0,08)	0,1 (0,11)
Port	0,03 (0,12)	-0,38 (0,17)**	0,03 (0,12)	0,04 80,17)
Market	0,22 (0,03)***	0,09 (0,02)***	0,22 80,03)***	0,16 (0,04)***
RIR	-0,001 (0,002)	0,004 (0,004)	-0,001 (0,002)	0,01 (0,004)*
EDU	0,95 (0,25)***	1,8 (0,32)***	0,95 (0,25)***	1,4 (0,36)***
RIP	-0,03 (0,004)***	-0,03 (0,01)***	-0,03 (0,004)***	-0,03 (0,01)***
Roads	0,01 (0,001)***	0,01 (0,001)***	0,01 (0,001)***	0,01 (0,001)***
Offshore dummy				2 (0,54)***
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				-0,01 (0,01)
CORRUPTION*Offshore				-0,05 (0,14)
Port* Offshore				-0,07 (0,22)
Market* Offshore				0,08 (0,05)
RIR* Offshore				-0,01 (0,01)**
EDU* Offshore				-0,72 (0,47)
RIP* Offshore				-0,006 (0,006)
Roads* Offshore				-0,002 (0,001)*
Inflated model [A)]				
Intercept	-16,6 (12,8)	6,1 (3)**	-16,6 (12,8)	
RES				
CORRUPTION		-3,04 (1,34)**		
Port				
Market	-2,07 (4,9)	0,03 (0,27)	-2,07 (4,9)	
RIR				
EDU				
RIP	0,12 (0,09)	0,03 (0,02)	0,12 (0,09)	
Roads	0,03 (0,02)	-0,01 (0,01)	0,03 (0,02)	
LR Chi2				
Pearson Chi-Square	1,1	1,3	1,1	1,1
Vuong test				
N.obs.	912	912	912	912

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses.

[A)] Coefficients of inflated model predict excessive zeros.

Moscow city is excluded

Table 13a Small service firms (capital size less than 125 thousands Euros): three-dimensional panel data location model

Zero-inflated negative binomial model. 75 Russian regions over the period of 1996-2007 (Moscow is excluded)

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	-0,66 (0,36)*	1,03 (0,26)***	0,67 (0,25)***	0,7 (0,25)***
RESOURCE POTENTIAL	-0,004 (0,003)	0,003 (0,002)	0,001 (0,002)	0,003 (0,002)
CORRUPTION	0,55 (0,1)***	-0,24 (0,06)***	-0,17 (0,06)***	-0,14 (0,06)**
Port	0,66 (0,13)***	0,46 (0,1)***	0,45 (0,09)***	0,44 (0,1)***
Market	0,23 (0,07)***	0,27 (0,06)***	0,32 (0,05)***	0,23 (0,06)***
RIR	-0,01 (0,003)**	-0,002 (0,002)	-0,001 (0,002)	-0,002 (0,002)
EDU	0,02 (0,3)	0,9 (0,23)***	0,74 (0,2)***	1,04 (0,22)***
RIP	-0,03 (0,004)***	-0,01 (0,004)***	-0,01 (0,003)***	-0,01 (0,004)***
Roads	0,004 (0,001)***	0,003 (0,0004)***	0,003 (0,0004)***	0,004 (0,001)***
Offshore dummy				-1,09 (0,38)***
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				-0,01 (0,003)***
CORRUPTION*Offshore				0,47 (0,11)***
Port* Offshore				0,08 (0,16)
Market* Offshore				0,19 (0,09)**
RIR* Offshore				-0,003 (0,003)
EDU* Offshore				-1,07 (0,35)***
RIP* Offshore				-0,01 (0,01)*
Roads* Offshore				0 (0,001)
Inflated model [A)]				
Intercept	-27,93 (19,6)	-0,8 (1,8)	-1,09 (1,26)	-9,73 (3,5)***
RES				
CORRUPTION	5,6 (3,7)	-1,76 (0,53)***	-1,5 (0,4)***	
Port				
Market	-7,5 (7,7)	1 (0,3)***	0,86 (0,21)***	1,45 (0,55)***
RIR				
EDU				
RIP	-0,21 (0,19)	0,1 (0,02)***	0,09 80,01)***	0,15 (0,05)***
Roads	0,04 (0,03)	-0,005 (0,004)	-0,003 (0,002)	0,003 (0,003)
LR Chi2				
Pearson Chi-Square	1,4	1,1	1,2	1,5
Vuong test				
N.obs.	912	912	912	912

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses.

[A)] Coefficients of inflated model predict excessive zeros.

Table 13b Medium and large service firms (capital size more than 125 thousands Euros): three-dimensional panel data location model

Zero-inflated negative binomial model. 75 Russian regions over the period of 1996-2007 (Moscow is excluded)

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	-1,54 (0,37)***	-3,77 (0,49)***	-2,34 (0,3)***	-3,8 (0,46)***
RESOURCE POTENTIAL	0,001 80,003)	0,002 (0,004)	0,003 (0,002)	0,01 (0,004)
CORRUPTION	0,42 (0,11)***	0,56 (0,14)***	0,47 (0,1)***	0,58 (0,13)***
Port	0,25 (0,14)*	0,38 (0,17)**	0,32 (0,11)***	0,43 (0,18)**
Market	0,08 (0,07)	0,2 (0,09)**	0,11 (0,06)*	0,09 (0,08)
RIR	-0,006 (0,003)*	0,006 (0,004)	-0,001 (0,002)	0,007 (0,004)**
EDU	0,32 (0,31)	0,54 (0,36)	0,38 (0,25)	0,68 (0,37)*
RIP	-0,03 (0,01)***	-0,03 (0,006)***	-0,04 (0,004)***	-0,03 (0,006)***
Roads	0,003 (0,001)***	0,005 (0,001)***	0,004 (0,001)***	0,005 (0,001)***
Offshore dummy				2,26 (0,54)***
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				-0,005 (0,005)
CORRUPTION*Offshore				-0,14 (0,16)
Port* Offshore				-0,17 (0,22)
Market* Offshore				0,03 (0,1)
RIR* Offshore				-0,01 (0,01)***
EDU* Offshore				-0,52 (0,48)
RIP* Offshore				-0,007 (0,01)
Roads* Offshore				-0,002 (0,001)**
Inflated model [A)]				
Intercept	-2,46 (1,4)*	-18 (25,7)	-5,1 (2,8)*	-4,9 (0,225)**
RES				
CORRUPTION	0,56 (0,31)*	5,64 (7,3)	1,14 (0,47)**	1,1 (0,39)***
Port				
Market	-1,88 (0,7)***	-3,3 (1,9)*	-1,6 (0,63)**	-1,64 (0,57)***
RIR				
EDU				
RIP	-0,01 (0,02)	-0,26 (0,26)	-0,03 (0,03)	-0,03 (0,03)
Roads	0,001 (0,003)	0,01 80,01)	0,004 (0,005)	0,004 (0,004)
LR Chi2				
Pearson Chi-Square	1,2	1,1	1,1	1,1
Vuong test				
N.obs.	912	912	912	912

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses.

[A)] Coefficients of inflated model predict excessive zeros.

The main conclusion for the firms in service sector is that when Moscow city is excluded, both types of investors tend to establish medium and large firms in less corrupt Russian regions.

However, for small firms the conclusion is different: without Moscow city, round-trip investors tend to establish more small firms and less corrupt Russian regions, but genuine foreign investors – in more corrupt Russian regions. This difference is also highly statistically significant in the interaction model.

6. CONCLUSIONS

This paper sheds light on a virtually unexplored phenomenon: round-trip investment from Russia to offshore financial centers and back to Russia. Our overview of statistics on Russia's outward and inward foreign investment shows that offshore financial centers, such as Cyprus and British Virgin Islands, are both key destinations of Russian outward FDI, and main sources of inward FDI to Russia. This provides support to the existence of round-tripping phenomenon of Russian capital via offshore financial centers back to Russia in the form of foreign investment. Our search for explanation for such behavior in the literature indicates that in the case of Russia, transfer of funds abroad was particularly in the 1990s rather capital flight than genuine OFDI. In contrast to some other emerging economies (such as China), the Russian government has not actively encouraged the Russian companies to go global until recently. Hence, many of the outward investment and capital flight from Russia can be better described as institutional escape or corruption money laundering rather than a result of active internationalization strategy of Russian companies.

A more interesting question, however, is why the funds transferred abroad are re-invested back to Russia. Here again, the most evident explanation identified in the case of other emerging economies, access to benefits granted to foreign investors, does not seem to be particularly valid in the case of Russia. In contrast to the Chinese government, the Russian government has not actively attracted foreign investors to the country but rather followed a restrictive policy. Here, we propose that the round-tripping of funds via offshore centers back to the Russian economy would represent the situation of institutional arbitrage (Gaur & Lu, 2007; Boisot & Meyer, 2008). The use of

offshore financial centers as “home base” would provide Russian companies access to more developed infrastructure for financial operations vis-à-vis purely domestic firms. In addition, the knowledge of the Russian institutional context would put the round-trip investors to a superior position when compared to genuinely foreign investors.

In our empirical analysis we study potential differences between the investment strategies of round-trip and genuine foreign investors. Our empirical test is based on the firm-level data on foreign-owned firms in Russia obtained from Rosstat. *First*, for medium and large firms we find quite robust evidence that round-trip investors tend to invest into more corrupt Russian regions than genuine foreign investors. This result gives support for the proposition of laundering the proceeds of corruption via round-trip investment between the same corrupt Russian regions and offshore country. This further indicates that round-trip investors may indeed be better equipped to cope with institutional deficiencies, e.g., corruption. *Second*, we find rather strong evidence that round-trip investors invest more into regions with higher resource potential (irrespective the size of the established firms). This result indicates that round-trip investors are better able to exploit the business opportunities provided by the Russian natural resources than genuine foreign investors. This often requires allying with authorities, which is obviously easier for round-trip investors than for genuinely foreign investors. Furthermore, round-trip investors might be themselves the representatives of the authorities who already have access to resources.

Finally, we preliminary conclude that genuine foreign investors tend to establish more small firms in corrupt Russian regions. This might indicate that in corrupt Russian regions foreign investors try to minimize their risks associated with regional corruption by establishing small and micro firms. Furthermore, small firms might be used for adoption of business ideas in unstable and corrupt business environment.

Our sectoral analysis enables us to conclude that there are also notable differences in investment behavior of round-trip and genuine foreign investors in different sectors of economy.

The most important sectoral result is that in manufacturing sector, if to consider medium and large firms), round-trip investors tend to locate in Russian regions with higher resource potential than their genuine foreign counterparts. This might indicate that round-trip investors tend to develop resources-based manufacturing industries while genuine foreign investors – technology- and knowledge-based manufacturing.

Our results also enable us to preliminary conclude that round-trip investors favor the development of the Dutch disease in Russia. In particular they are very highly concentrated in the service sector, seem to aim at exploiting natural resources in Russia, tend to establish manufacturing firms in resource-based industries and support the development of corruption in Russia by investing into corrupt Russian regions. On the contrary, if to consider only medium and large firms, genuine foreign investments seem to work against the Dutch disease as they are more concentrated in manufacturing industries but not tied to resource abundant and corrupt Russian regions.

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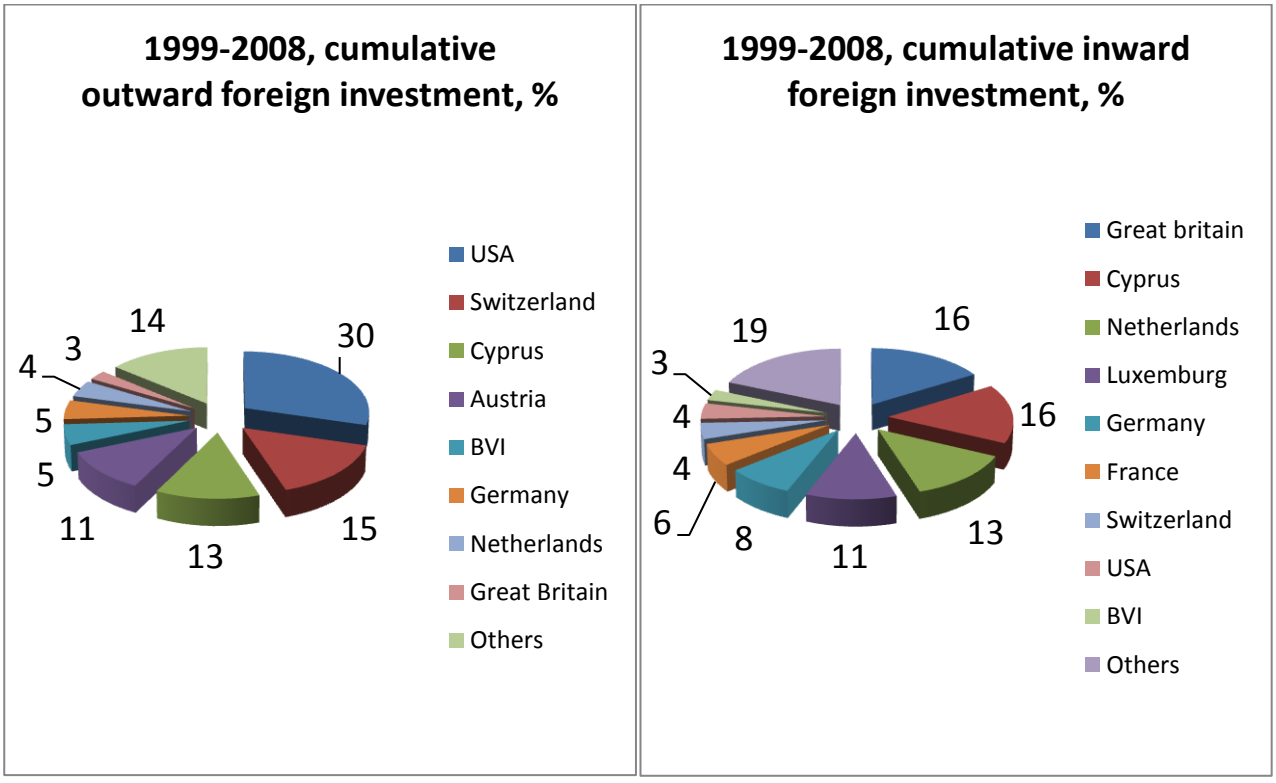
Appendix 1

Figures A1.1 and A1.2

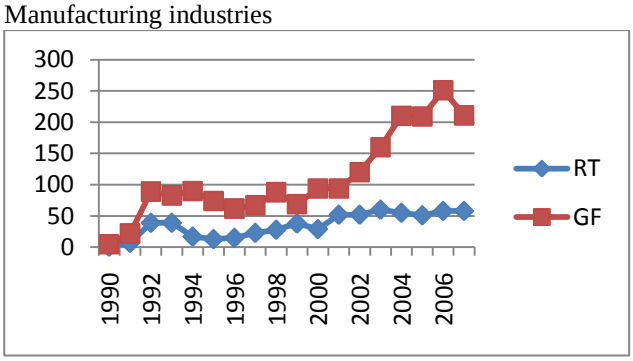


Source: Rosstat; authors` calculations

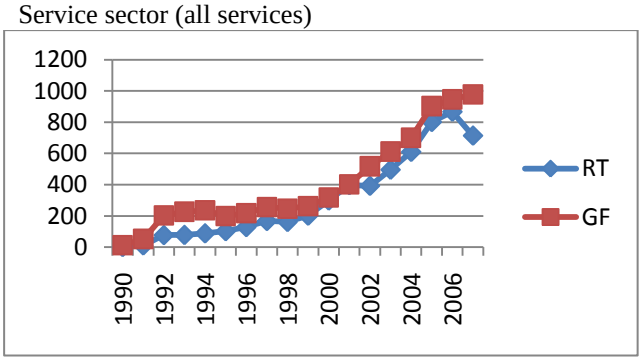
Appendix 2

Dynamics of established firms: Round-trip (RT) vs. genuine foreign (GF)

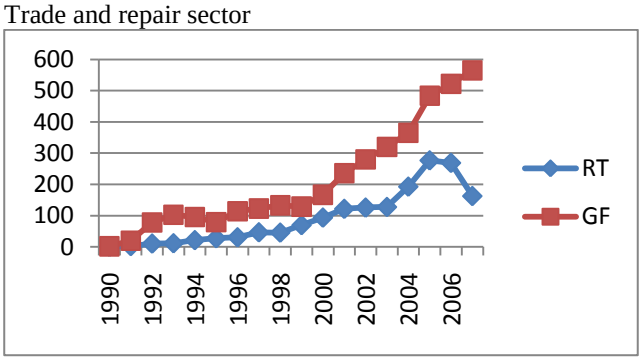
Manufacturing industries



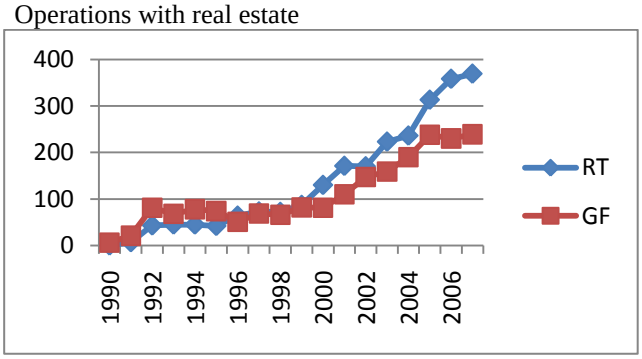
Service sector (all services)



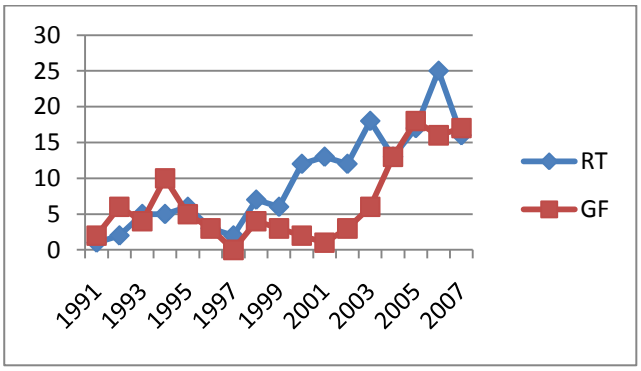
Trade and repair sector



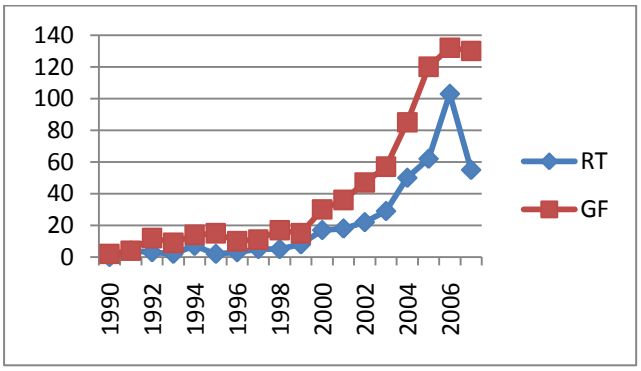
Operations with real estate



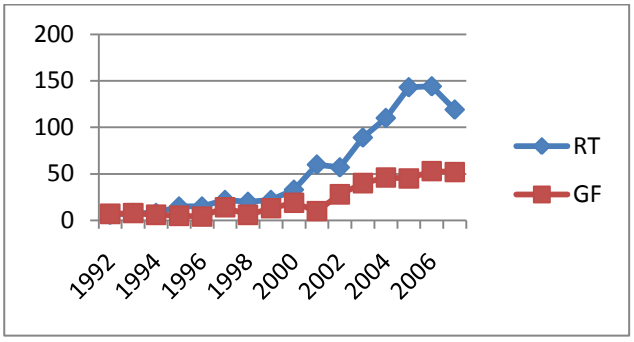
Extraction of resources



Construction



Financial activities



Source: Rosstat and authors` calculations

Appendix 3

Table 3A.1 Correlation matrix of explanatory variables for location model

Variable	Mean	Std Dev	Port	Market	RIR	EDU	RIP	RES	Roads	CORRUPTION
Port	0,21	0,41	1,00							
Market	0,02	1,47	0,04	1,00						
RIR	40,60	24,01	0,10	-0,31	1,00					
EDU	0,57	0,22	0,33	0,43	-0,20	1,00				
RIP	39,67	22,74	-0,16	**-0,55**	0,37	-0,34	1,00			
RES	43,20	24,03	-0,28	0,14	-0,30	-0,11	0,19	1,00		
Roads	139,46	99,53	-0,20	0,40	-0,48	0,05	-0,23	**0,54**	1,00	
CORRUPTION	2,76	0,71	-0,19	-0,14	-0,17	0,08	0,04	0,09	-0,04	1,00

Note: correlation coefficients more than 0,5 are in bold.

Appendix 4

Table 4A.1 Baseline results: three-dimensional panel data location model

Zero-inflated negative binomial model. 75 Russian regions over the period of 1996-2007: Moscow is excluded

Variable	Separate		Pooled	
	M1: Round-trip	M2: Genuine foreign	M3: pooled	M4: with interactions
Intercept	0,44 (0,25)*	1,02 (0,2)***	0,81 (0,17)***	0,99 (0,19)***
RESOURCE POTENTIAL	-0,01 (0,002)***	0,002 (0,001)	-0,0002 (0,001)	0,002 (0,001)
CORRUPTION	0,18 (0,06)***	-0,01 (0,05)	0,03 (0,04)	-0,008 (0,05)
Port	0,2 (0,1)**	0,42 (0,07)***	0,36 (0,07)***	0,4 (0,08)***
Market	0,33 (0,03)***	0,18 (0,04)***	0,21 (0,04)***	0,18 (0,04)***
RIR	-0,004 (0,002)**	-0,002 (0,001)	-0,002 (0,001)	-0,002 (0,001)
EDU	0,9 (0,2)***	0,96 (0,17)***	0,9 (0,15)***	0,96 (0,17)***
RIP	-0,02 (0,002)***	-0,01 (0,002)***	-0,01 (0,002)***	-0,01 (0,002)***
Roads	0,003 (0,0004)***	0,004 (0,0003)***	0,004 (0,0003)***	0,004 (0,0003)***
Offshore dummy				-0,24 (0,27)
Time dummies	Yes	Yes	Yes	Yes
Interactions				
RESOURCE POTENTIAL* Offshore				-0,01 (0,002)***
CORRUPTION*Offshore				0,2 (0,07)***
Port* Offshore				-0,15 (0,11)
Market* Offshore				0,1 (0,06)
RIR* Offshore				-0,002 (0,002)
EDU* Offshore				-0,5 (0,26)*
RIP* Offshore				-0,01 (0,004)***
Roads* Offshore				-0,001 (0,001)*
Inflated model [A)]				
Intercept	1,8 (5,7)	-3,1 (1,8)*	-3,5 (1,4)**	-2,64 (1,5)*
RES				
CORRUPTION	-0,75 (1,6)	-1,7 (0,4)***	-1,25 (0,28)***	-1,5 (0,33)***
Port				
Market	1,2 (0,8)	1,4 (0,34)***	1,03 (0,23)***	1,08 (0,24)***
RIR				0,1 (0,02)***
EDU				
RIP	0,05 (0,04)	0,11 (0,02)***	0,1 (0,02)***	
Roads	-0,42 (0,21)**	-0,003 (0,003)	-0,001 (0,002)	-0,003 (0,002)
LR Chi2				
Pearson Chi-Square	1,2	1,06	1,11	1,16
Vuong test				
N.obs.	912	912	1800	1800

Note: 1) *** - 1% significance; ** - 5% significance; * - 10% significance; 2) the Vuong test compares the zero-inflated model with an ordinary negative binomial regression model. A significant test indicates that the zero-inflated model is better; 3) standard error in parentheses; 4) number of observations is 1824 (1800 without Moscow city) and number of zeros is 1133.

[A)] Coefficients of inflated model predict excessive zeros.