SUBNATIONAL DETERMINANTS OF FOREIGN DIRECT INVESTMENTS IN THE RUSSIAN FEDERATION

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ABSTRACT

Our purpose is to examine the determinants of subnational distribution of Foreign Direct Investments (FDI) in the key fifteen regions of Russia over the period of 2005-2011 using panel data. Within the most important economic regions of the country we found market seeking is still the main purpose of foreign inward investments. As a result, the size of the Russian consumer market presents a significant influence on the foreign economic activities alongside trade openness and government economic incentives. Our results from regression analysis indicate that gross regional product per capita, trade openness and the existence of special economic zones have significant positive impact on the regional distribution of FDI in the Russian Federation.

Keywords: FDI, determinants, Russia, panel data, regression analysis

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INTRODUCTION

Foreign direct investment is one of the most rapidly growing economic activities in the global economy. The expectation of many governments is that the higher volumes of foreign registered capital in the economy the more impact there is in terms of technological advancement, creation of jobs, facilitation of economic growth and development of new sets of skills across the labour market (Borensztein, Gregorio & Lee, 1998). Russia, as the largest country in the world by landmass and one of the most endowed in terms of natural and highly skilled human resources, is bound to be a perfect location for FDI. Indeed, in comparison with the other European economies Russia is ranked among the largest recipients of FDI and its capital Moscow is the seventh most attractive city for foreign investments in the region (Ernst and Young, 2012). Following the collapse of the USSR in 1991 foreign investments inflows to Russia have been on increase since 1995 except for the period of 2008-2009 when the volumes of investments plummeted due to the global financial crisis (UNCTAD, 2012). In 2010, when the world economy began recovering after the economic downturn the growth of inward foreign investments resumed. Thus, the highest amount of FDI was received in 2007 followed by a decline with a recovery of inflows of FDI in 2010 (Figure 1).

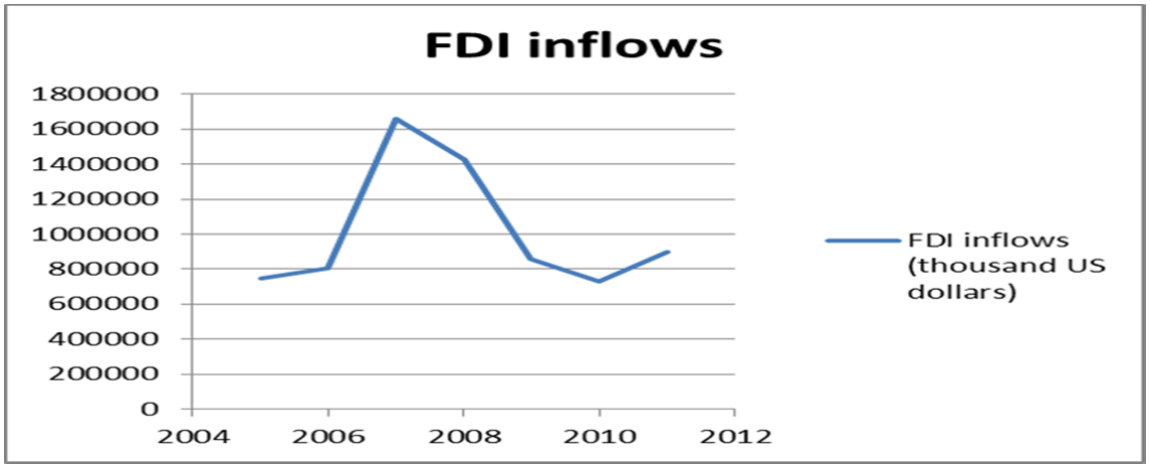


Figure 1. FDI inflows in Russian regions from 2005 to 2011

Source: Data obtained from Russian Federal State Statistics Service (2012).

However, taking into consideration the size of regional Russian market, the abundance of mineral resources, developing infrastructure and educational level of the workforce the country should have attracted significantly more interest from the global investment community. The number of foreign investors prepared to venture in the Russian economy is not yet as high as in the conventionally developed countries and equally transitioning other BRICS economies.

In addition to the underestimated investment potential of the country, another concern is the uneven distribution of inbound investments on the subnational level. The four

leading regions in terms of cumulative FDI over the period 2005-2011 are Moscow, Sakhalin Oblast, Moscow Oblast and Saint Petersburg attracted 77% in total (Figure 2). Thus, among 83 regions of the Russian Federation 15 regions constitute 83% of the total volumes of FDI with 17% of the capital being spread across the rest of the country (Russian Federal State Statistics Service, 2012). Therefore, in order to understand what influences the growth of FDI inflows into the Russian economy it is essential to define the factors affecting FDI volumes and the degree of their influence supported by empirical evidence. Moreover, as the Russian regions have unequal FDI distribution, this study also aims to examine the determinants that contribute to the accumulation of inward foreign investments in the most attractive fifteen regions of the country.

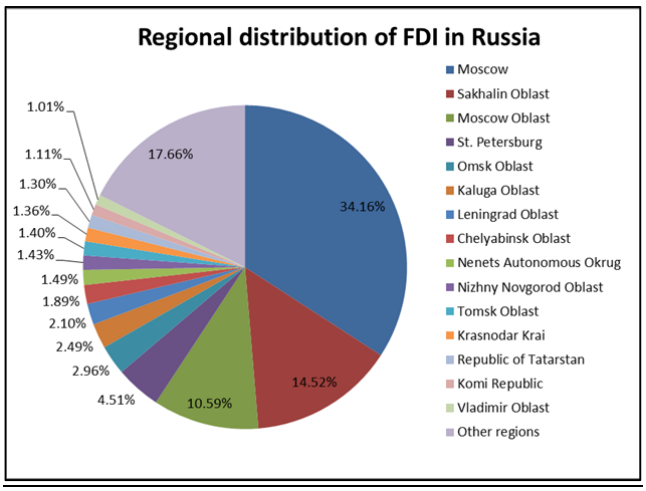


Figure 2 Regional distribution of FDI across Russian regions from 2005-2011

Source: Russian Federal State Statistics Service (2012).

LITERATURE REVIEW

One of the main theories that still remains dominant analytical framework for explaining determinants of foreign direct investments and activities of multinational enterprises (MNEs) is the OLI paradigm introduced by Dunning (1980). The theory asserts that investment decisions of MNEs which would like to invest in foreign countries are dependent on three interlinked variables. The first variable is a possession of the competitive edge of investing firms defined as ownership (O) specific advantages. Dunning (2000) posits that the greater the ownership advantages of a firm the higher the probability that foreign investor will decide to invest outside their country of origin. The second component of the eclectic paradigm is locational (L) attractiveness of the point of destination that is necessary for investors to assess benefits from venturing abroad. The last element of the OLI tripod is internalization (I) that can be achieved by firms through organisation and exploitation of their core competences without reliance on the external market forces. Dunning (2000) argues that firms are more likely to invest in foreign production directly rather than resort to other alternatives of market entry modes when there are conditions of internalizing intermediate cross-border production phases. Moreover, in terms of FDI typology, Dunning and Lundan (2008) establish four main types that are market seeking or demand oriented, resource seeking or supply oriented, rationalised or efficiency seeking, and strategic asset seeking.

Traditionally, by attracting FDI national governments strive not only to stimulate economic growth, but also bring in technological advancement and human capital development (Meyer & Sinani, 2009). Moreover, other possible consequences of FDI are improvement of infrastructure, increased tax collections, entrepreneurial diversification and growth of exports (Lou, 2001). From the investor's side market size is very often considered to be one of the key determinants of FDI, since it allows foreign companies effectively utilise their resources and benefit from the economies of scale and scope (Tsai, 1994; Dunning & Lundan, 2008). Here, gross domestic product and its growth rates seem to be interrelated with the volumes of consumption and the market size being among the key drivers for market seeking FDIs (Pestova et al., 2011). Bradshaw (1997) investigating Russia's attractiveness for inward investments in the period from 1993 to 1995 found that FDIs were mainly resource and market seeking with the resource-endowed regions receiving most of the country's foreign capital. After examining the same period Brock (1998) also found that market size and low crime rates in the regions were considered among highly important factors for foreign investors at the time. Similarly, Ahrend (2000) came to the conclusion that large size of the consumer market and low cost of qualified labour force were considered as important by foreign enterprises and influenced their decisions about conducting business in Russia.

Furthermore, a study by Friedman, Gerlowski and Silberman (1996) demonstrated that certain countries with population possessing high educational levels receive better quality foreign direct investments than countries with unskilled labour force, hence attracting high-tech companies due to the abundance of scientists and engineers. However, at the same time dominance of the qualified labour force on the labour market might contribute to the increased operational costs, reduce financial benefits, and eventually deteriorate the country's attractiveness for certain type of foreign investors (Bevan & Estrin, 2004). In the case of Russia, Brock (1998) reported that the percentage of people with higher education was considered important only in Moscow and Saint Petersburg, two largest cities in the country, thus arguing that presence of skilled labour force was not the main reason of FDI inflows into the Russian economy.

Ledyaeva (2009) asserted that the significance of proximity of particular Russian regions is crucial in studying motivations of foreign investors explaining that western regions located nearer to European markets are more attractive for FDI flows in comparison with remote territories of Siberia and the Far East. It is concluded that Russian regions vary significantly in such aspects as level of economic development, ethnic composition, industrial structure, as well as availability and quality of production factors. Conversely, Manaenkov (2000) suggested that proximity of regions should not be pivotal in explanation of FDI distribution within Russia, at the same time acknowledging unwillingness of foreign investors to

encounter high transportation costs and logistical difficulties. Furthermore, Iwasaki and Suganuma (2005) confirmed that allocation of inward investments within Russia was not solely dependent on the geographical positions and that attractive regions were located in different parts of the country. They also established that regional distribution of FDI within Russia from the late 1990s to 2003 was uneven, and the main determinants of regional allocation were the presence of natural resources, market and socio-economic conditions, climate and regional FDI incentives.

Broadman and Recanatini (2001) explored inbound FDI in Russia and its allocation within the regions from 1995-1999 and concluded that key determinants were gross regional product, domestic investment and density of paved roads. However, the authors also revealed that FDI determinants were not the same throughout the period highlighting that gross regional product, level of domestic investments, education ratings and climate conditions were of the most significance in the period 1995 to 1997, but volatile in other years. It was also stated in the study that regional openness to trade, the number of voters on electoral registrars and crime levels were insignificant factors, whereas Brock (1998) argues that crime situation in the regions was essential for foreign investors' locational decisions.

Ledyaeva and Linden (2006) carried out more specific research on factors attracting foreign investors from Great Britain, Finland, Germany, Belorussia, Ukraine and Kazakhstan to Russian regions over the period of 1998-2002 and concluded that market size, regional economic performance measured as its gross regional product and level of infrastructure development were considered as the main FDI determinants. Besides, the authors suggested that agglomeration effect, capital city advantages, cultural closeness and skilled labour have all positive impact on FDI inflows, while long distance between regions and countries of foreign investors' origin is negatively related to received volumes of investments. Research of regional disparity of FDI in Russia during the period 1995 to 2003 by Kayam, Hisarciklilar and Yabrukov (2007) shows that market size of regions and the presence of natural resources are the most favourable factors for foreign investors. Additionally, the authors found that most of foreign investors in Russia are market oriented or resource seeking; therefore it limits the variety of policies used to encourage other types of investments into the regions.

Similarly, Ledyaeva (2007) shows that FDI determinants in this period from 1995 to 2005 were market size, the presence of sea ports and big cities, oil and gas endowments, political and legislative risks, and considers Sakhalin region with rich endowment of hydrocarbon as a determinant. Also, the author argues that market size, big city advantages and Sakhalin region's production sharing agreements in the oil industry were factors that stimulated rapid FDI growth in 2003-2005. Besides, the author states that after 1998 the significance of resource endowment, legislation risk and presence of conglomerates began to raise, meanwhile the role of political risks and availability of sea ports declined. Additionally, it was found that regional production costs do not affect FDI inflows, since neighbouring Russian regions had nearly equal production costs and at the same time their attractiveness for foreign investors differed contributing to the uneven FDI distribution within the country. Also, the author came to conclusion that potency of regional legislative risk, market size and the presence of big cities has increased over the recent years.

In recent study by Castiglione, Gorbunova, Infante and Smirnova (2012) also investigated factors attracting FDI into Russian regions during transition period and suggested that high levels of household income, large population and the presence of sea ports are positively related with FDI inflows. The distance between national and regional capitals did not indicate any influence on the investment decision of foreign investors, whereas the size of Russian population and security level in regions were deemed as essential. Furthermore, the authors arrived at the conclusion that regions with high ratio of private investments to gross regional product were more attractive for foreign investors than others. The analysis also showed that the presence of infrastructure is of a paramount importance, while educational level was not significant for foreign investors as expected and had no substantial impact on investment decisions, since all Russian regions had equally high education levels. Buccllato and Santangelo (2009) also acknowledged the importance of well-developed infrastructure (density of railways), high market potential and high degree of trade openness (regional export). At the same time, remote regions with high level of investment risk were found as unpopular for foreign investors. Remarkably, the authors suggested that regional market size, skilled labour and the presence of hydrocarbons in region had no positive effect on inward FDI, although the previous studies of regional distribution of FDI within Russia indicated the opposite (Brock, 1998; Iwasaki & Suganuma, 2005).

Strasky and Pashinova (2012) examined the investment attractiveness of Russian regions from 1995 to 2011, and found out that household income per capita and the G7 long-term real interest rate were determining factors for foreign investors. Meanwhile other factors like wages of the population measured in US dollars, the regional rating, and trade openness can be considered as substantial only with some specifications. Besides, the distance between regional capitals and Moscow, the presence of oil, the number of public officials per 100 inhabitants, regional tax revenues, existence of special economic zones, road network density and net migration flows were found unimportant. In the most recent study, Gonchar and Marek (2013) explored locational factors that had most influence on regional allocation of FDI in Russia in the period 2000 to 2009, and argued that although market size and presence of natural resources had been among the most important for FDI inflows into the Russian regions, the role of resource endowment was overestimated. As regions that are rich in minerals attracted not only resource seeking FDI, but also other types of foreign investment such as service oriented FDI due to their wealth and high consumer demand. Additionally, this study showed insignificance of low labour costs and pace of regional growth for foreign investors in Russia.

Finally, based on the reviewed studies, it can be concluded that the factors which had considerable

influence on FDI distribution in Russia were predominantly market size, availability of natural resources, labour costs and quality, openness of trade, level of infrastructure development, presence of big cities and sea ports, crime situation, and distance between Europe and regional capital. Thus, it could be assumed that FDI inflows in Russia are still resource oriented and market seeking. Additionally, the literature review demonstrated that determinants of FDI in Russia before 2005 were widely studied, however, there are sparse works exploring determinants after 2005; therefore, for this paper looks at the period from 2005 to 2011.

Further, the following hypotheses are examined:

- Hypothesis 1: The key successful determinants of regional distribution of FDI within successful regions in Russia are market size, resource endowment and infrastructure.
- Hypothesis 2: Government incentives such as creation of special economic zones have positive effect on FDI inflows into attractive regions.
- Hypothesis 3: Labour quality in the regions is not determinant factor of regional allocation of FDIs across the country.

METHOD AND DATA

The panel data from 2005 to 2011 regarding the gross regional product, mineral extraction, density of railways and paved public roads, annual wages were obtained from the Russian Federal State Statistics Service (also known as Rosstat). The information about the number of special economic zones in regions was found on the official website of Russian open joint stock company "Special economic zones". Fifteen successful regions were determined by the amount of accumulated FDI inflows during the period of the study. As shown in the figure 2, the biggest amount of FDI throughout the period 2005 to 2011 was attracted the following regions: Moscow, Sakhalin Oblast, Moscow Oblast, St. Petersburg, Omsk Oblast, Kaluga Oblast, Leningrad Oblast, Chelyabinsk Oblast, Nenets Autonomous Okrug, Nizhny Novgorod Oblast, Tomsk Oblast, Krasnodar Krai, Republic of Tatarstan, Komi Republic, and Vladimir Oblast; hence these federal subjects of the Russian Federation have been investigated in the present study.

The OLS regression model of the analysis is specified as follows:

$$\ln FDI_{it} = \alpha_{it} + \beta_1 \ln(market\_size_{i,t-1}) + \beta_2 \ln(labour\_cost_{i,t-1}) + \beta_3(labour\_quality_{i,t-1}) + \beta_4 \ln(infrastructure_{i,t-1}) + \beta_5(trade\_openness_{i,t-1}) + \beta_6 \ln(minerals_{i,t-1}) + \beta_7(szones_{i,t-1}) + \varepsilon_{it},$$

where subscript i refers to individual federal district and t refers to year from 2005 to 2011.

The dependent variable of the regression equation is the natural logarithm of FDI inflows into region; other seven variables are independent and tested on the presence of effect on dependent variable.

Table 1. Variable Description

Variable Name	Description
market_size	*market size* variable is measured as natural logarithm of gross regional product per capita expressed in US dollars and expected to have positive and significant impact on FDI inflows (Liu et al., 2012).
labour_cost	*labour cost* indicated as natural logarithm of annual average wage per employee (USD). Although labour costs have negative impact on FDI in other countries (Liu et. al., 2012) and discourage foreign investors (Bevan & Estrin, 2004), this factor is assumed to be insignificant in case of Russia (Manaenkov, 2000; Gonchar & Marek, 2013).
labour_quality	*labour quality* in region is measured as a ratio of the number of graduates of universities and colleges per total regional population (Liu et al., 2012) and supposed to be of low significance due to equal high education level across Russia (Castiglione et al., 2012).
infrastructure	*infrastructure* variable calculated as natural logarithm of density of public railways and paved public roads seems to have indistinct impact on FDI; Broadman and Recanatini (2001) argued that density of paved roads is determinant of FDI, and Buccllato and Santangelo (2009) supported this; however, Strasky and Pashinova (2012) consider that this factor is unimportant.
trade_openness	The degree of *trade openness* is measured as a ratio of sum of exports and imports divided by gross regional product and supposed to be insignificant (Vijayakumar et al., 2010).
minerals	*minerals* variable is calculated as a natural logarithm of revenues of resource extraction in region (USD). This factor is expected to be essential and considered by many authors as one of the key determinants of FDI (Iwasaki & Suganuma, 2005; Kayam et al., 2007, Ledyaeva, 2007), although Ledyaeva and Linden (2006) argued that there is no positive correlation between resource endowment of regions and amount of received FDI.
Szones	*Szones* is variable represents the number of special economic zones in the regions, this variable is supposed to have positive effect on FDI (Liu et al., 2012).

FINDINGS AND DISCUSSION

The descriptive statistics for all variables across the fifteen regions are presented in table 2 which shows that there are large differences between minimum and maximum values of variables; therefore, it can be concluded that successful Russian regions differ drastically in many aspects. For example, gross regional product per capita which represents market size and wealth of regions vary from 2.059 thousand US dollars to 40.959, and it can be easily estimated that the difference is almost 20 times.

Table 2. Descriptive Statistics

	Observations	Mean	Standard deviation	Minimum	Maximum
FDI	105	1017183.638	1995362.153	10078	15656092
GRP per capita	105	9.255	6.814	2.059	40.959
Labour cost	105	7.865	3.955	2.573	20.438
Labour quality	105	0.013	0.006	0.002	0.027
Infrastructure	105	410.682	343.846	1	1249
Trade openness	105	0.466	0.331	0.002	1.323
Mineral extraction	105	2929545.732	4738310.927	12227.229	21888996.681
Special economic zones	105	0.333	0.474	0	1

Also, the minimum and maximum values of the amount of foreign direct investments attracted during the considered period are far from each other, and the difference between them is approximately 1553 times. These results can be explained by the fact that the most successful four regions received 63.78 per cent of all foreign direct investments into Russia from 2005 to 2011, while the share of other eleven regions which were called successful is 17.56 per cent (figure 2).

The difference between minimum and maximum values of labour costs which is expressed in thousands USD is also huge, maximum value is 10 times more than minimum. The quality of labour in successful Russian regions is high; regardless of the fact that the ratio of the number of graduates of universities and colleges per total regional population ranges from 0.002 to 1.323, its mean value is rather high and equals to 0.013. For comparison, the similar study of regional distribution of FDI within China (Liu et al., 2012) shows that average proportion of graduates to total regional population does not exceed 0.003 point.

Additionally, variable called infrastructure shows unequal development of Russian regions which are attractive for foreign investors. As presented in table 2, the minimum density of public railways and paved public roads per 1000 kilometres is only 1, meanwhile maximum value is 1249. These figures exhibit that there are regions with poor infrastructure amongst successful regions; it could indicate that level of infrastructure development is not highly important for foreign investors. The maximum number of special economic zones across successful regions is only 1; it is low figure as if compare this outcome with similar study on China (Liu et al., 2012) where average number of special economic zones ranges from 3.8 to 12.1. The mean of the variable which is equal to 0.33 shows that the number of special economic zones in the successful regions is low and absence of such zones is more common rather than their presence. Minimum and maximum values of other variables, trade openness and mineral extraction, also differ dramatically in successful regions of Russia, so it might be assumed that it will be difficult to find common determinants of FDI in such different regions.

The correlation coefficients between variables which were tested in the analysis of determinants of regional allocation of FDI in successful Russian regions are presented in table 3.

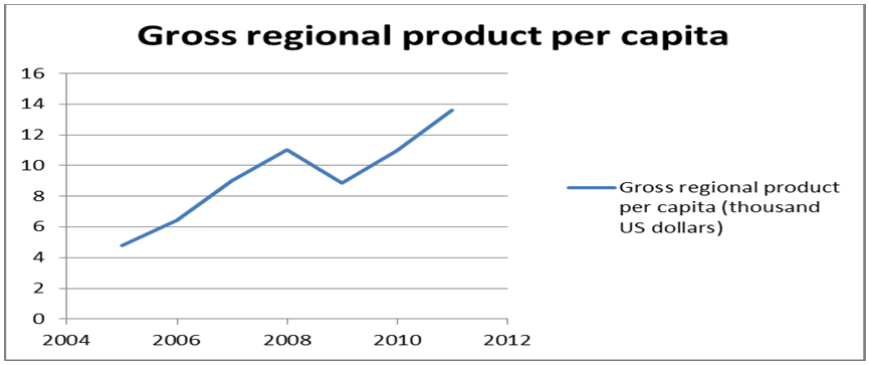
Table 3. Correlation between variables

	FDI	*GRP per capita*	*Labour cost*	*Labour quality*	*Infrastructure*	*Trade openness*	*Minerals*	*Szones*
FDI	1							
GRP per capita	0.619081	1						
Labour cost	0.500370	0.833072	1					
Labour quality	0.180416	0.276095	0.037543	1				
Infrastructure	0.233260	-0.086417	-0.374523	0.207893	1			
Trade openness	0.486547	0.353602	0.136431	0.004145	0.413619	1		
Minerals	0.238927	0.656886	0.536001	0.102262	-0.375419	0.01323	1	
Szones	0.335714	0.283897	0.199970	0.505519	0.225974	0.03571	0.290242	1

FDI inflows are not highly correlated with other variables; however, there is medium positive correlation between FDI and gross regional product per capita, labour cost and trade openness. Other variables are slightly correlated with foreign direct investment. As stated above, positive correlation determines general trends which are illustrated in figures below.

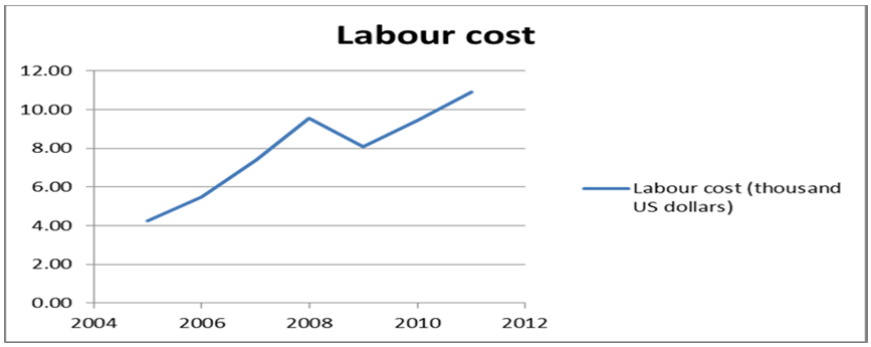
Column ‘GRP per capita’ (in table 3) indicates that there is high positive correlation between GRP per capita and labour cost. Also, the column shows medium positive correlation between GRP per capita and mineral extraction; association between GRP per capita and other variables is positive, but insignificant. At the same time, GRP per capita is negatively correlated with infrastructure. The development of GRP per capita and labour costs are presented in figures 3 and 4.

Figure 3. Gross regional product per capita of Russian regions, 2005-2011



Source: Data obtained from Russian Federal State Statistics Service (2012).

Figure 4. Average annual wages of employees in Russian regions, 2005-2011

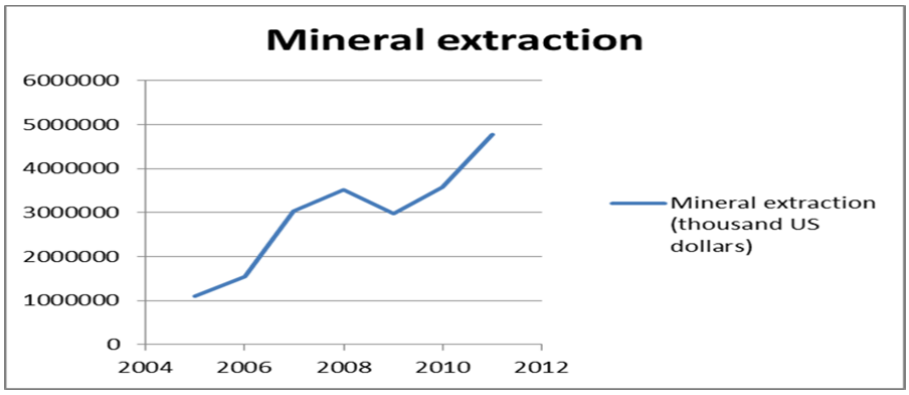


Source: Data obtained from Russian Federal State Statistics Service (2012).

In addition to GRP per capita, the cost of labour is positively related with mineral extraction in Russian regions (figure 5); however, this variable has negative correlation with infrastructure. Besides, correlation between labour cost and other variables is low positive. Labour quality has significant interrelation only with the number of special zones in Russia; in turn, the number of special economic zones is slightly correlated with other variables except labour quality.

Infrastructure is the only variable that has negative correlation with other variables (3 negative correlations amongst 7); moreover, it has only one medium positive correlation with trade openness which is close to low. As stated above, trade openness has medium positive correlation with FDI and infrastructure; however, it does not have high correlation with variables, furthermore, its correlation with other variables is low and insignificant.

Figure 5. Mineral extraction in Russian regions, 2005-2011



Source: Data obtained from Russian Federal State Statistics Service (2012).

To sum up, significant correlation is observed between GRP per capita and labour cost; GRP per capita and mineral extraction; FDI and GRP per capita; labour quality and special economic zones; and mineral extraction and labour cost. However, it is necessary to take into account that the correlation coefficient does not explain causal relations between variables, which mean that it presents only coincidences in quantitative growth or decline.

The result of the regression analysis is presented in table 4.

The R-Squared which demonstrates the extent of fit is 54.7%. However, the adjusted R-squared determining the ability of the regression equation to predict the variation is 51.4%. As shown in table 4, only three independent variables (gross regional product per capita, trade openness and Szones) were found significant at 5%; however, there are no variables which can be labelled as determinants of FDI into successful Russian regions at 1% level of

significance. As 1% level of significance is the most reliable indicator of important variables, it can be concluded that there is no absolute certainty that identified significant factors are crucial determinants of inflows of foreign direct investments into Russian regions which attracted the biggest amount of FDI in the period 2005 to 2011.

Table 4. Regression Results

Variables	Coefficients	P-Value
Constant	9.609	4.033
GRP per capita	1.144	0.043**
Labour Cost	0.603	0.289
Labour Quality	-19.036	0.428
Infrastructure	0.135	0.159
Trade Openness	1.001	0.012**
Resources	-0.112	0.19
Szones	0.642	0.031**
R-Squared	0.547	
Adjusted R-Squared	0.514	

** denote significance at 5% levels of significance

Further, in order to verify the results of the regression analysis, the t-test and F-test were conducted and the results are presented in tables 5 and 6. The t-test is used to verify that the probability of the relationship between each of individual independent variables and that dependent variable in regression model did not occur by accidentally; variables are recognized significant if values of their coefficients are greater than value of t critical.

Table 5. T-test

Variables	t-statistics	t-critical
Constant	6.468	
GRP per capita	2.047	
Labour Cost	1.067	
Labour Quality	-0.796	1.985
Infrastructure	1.418	
Trade Openness	2.546	
Resources	-1.32	
Szones	2.186	

Table 6. F-test

F-value of regression	Critical F value
16.709	2.105

As illustrated in table 4, significant variables that have strong influence of the amount of FDI inflows in successful Russian regions are gross regional product per capita, trade openness and number of special economic zones; other variables were found insignificant. This confirms the findings which were obtained in the regression analysis.

In contrast to t-test, F-test is applicable for evaluation of the overall probability of occasional occurrence of relationship between the dependent variable and all the independent variables. The F-value (16.709) of the regression model is approximately 8 times greater than critical F- value which confirms that independent variables were chosen properly and the regression equation is adequate.

As GRP per capita showed expected significant influence on FDI inflows, first hypothesis is confirmed partially. This variable representing regional market size was also recognized as determinant of FDI in previous studies of Bradshaw (1997), Brock (1998), Ahrend (2000), Broadman and Recanatini (2001), Ledyaeva and Linden (2006), Kayam et al. (2007), Ledyaeva (2007), Vijayakumar et al. (2010), Gonchar and Marek (2013). Therefore, it can be concluded that the higher GRP per capita the bigger FDI inflows.

In contrast to predictions based on outcomes of previous works of Broadman and Recanatini (2001), Vijayakumar et al. (2010), trade openness was found as the determinant of FDI. This result supports the opinion of Buccllato and Santangelo (2009) who argue that Russian regions with high extent of trade openness are more attractive for foreign investors; however, calculations of this factor are different, the authors use only export as indicator of regional trade, while in this study both regional export and import are considered.

The third significant factor of FDI distribution is the number of special economic zones. This variable has shown expected outcome and reaffirmed the second hypothesis, although Strasky and Pashinova (2012) asserts that absence or existence of special economic zones has no influence on foreign direct investments. Opposed to this point of view, similar study of Chinese regions (Liu et al., 2012) exhibits that number of special economic zones is one of the most important factors of FDI allocation.

The cost of labour is recognized as insignificant factor that supports predictions. Brock (1998) suggested that low cost labour is not reason for choice of Russian regions to invest in; moreover, Manaenkov (2000) came to the same conclusion. Also, recent study of regional distribution of FDI in Russian throughout 2000-2009 conducted by Gonchar and Marek (2013) demonstrates that low labour costs are of low significance. However, there is opposite opinion that low cost of labour in the Russian Federation is attractive for foreign investors (Ahrend, 2000). However, it should be taken into account that research of Gonchar and Marek (2013) is the most recent and relevant. It is noteworthy that regardless of the fact that average annual wages of employees in Russia are lower than in Europe and the United States, there are lots of countries with significantly lower labour cost such as China, Vietnam, India, Thailand, and foreign investors are likely to choose those countries instead of Russia if they are interested in benefiting from reduced labour costs.

Surprisingly, quality of labour was found to have negative impact on foreign direct investments. Brock (1998) suggested that qualified labour force is the determinant of FDI only in Moscow and St. Petersburg, so this assumption can be taken into consideration in further studies. Buccllato and Santangelo (2009) affirmed that the labour quality is not substantial; and this point of view was supported by Castiglione et al. (2012) who asserted that the

reason for that can be almost equally high educational levels of population across Russian regions. Nonetheless, Ahrend (2000), Ledyaeva and Linden (2006), Broadman and Recanatini (2001) insisted that quality of labour is deemed essential by most foreign investors.

The conducted regression analysis demonstrates that the degree of infrastructure development is of low significance in the regional distribution of FDI, and this conclusion coincides with findings of the study by Brock (1998). By contrast, infrastructure is recognized as an important factor of FDI distribution in other researches by Broadman and Recanatini (2001), Castiglione (2012), Buccllato and Santangelo (2009). It can also be assumed that significance of infrastructure development is low because there are regions with low density of public railways and paved public roads among selected successful regions such as Sakhalin Oblast, Omsk Oblast, Tomsk Oblast, Komi Republic and Nenets Autonomous Okrug. As an example, the density of railways and paved roads in Nenets Autonomous Okrug is only 1.1 (Russian Federal State Statistics Service, 2012).

Surprisingly, mineral extraction is identified as insignificant in the analysis. Ledyaeva and Linden (2006) obtained the same outcome and explained it by high monopolization of resource sector in the Russian Federation. Additionally, outcomes of the study made by Buccllato and Santangelo (2009) demonstrated that the presence of hydrocarbons does not have significant impact on FDI inflows. Strasky and Pashinova (2012) examined the importance of crude oil in the regions for foreign investors and received the same outcome. On the contrary, Iwasaki and Suganuma (2005), Kayam et al. (2007), Ledyaeva (2007), and Castiglione (2012) showed that resource endowment is an important determinant of some FDI in Russia. However, Gonchar and Marek (2013) averred that in spite of importance of presence of minerals, their role in attraction of FDI is overestimated.

Thus, the first hypothesis could be contested, because only one variable (market size) is found influential on FDI inflows. Other variables, infrastructure and resource endowment are recognized as insignificant. The second hypothesis is supported in this study as strong positive influence of special economic zones is discovered; hence there is an indication of the successful government incentives aimed at the attraction of FDI into the Russian regions. Finally, labour quality has not been found as a significant variable and cannot be defined as having determinant effect on the regional distribution of FDI; therefore third hypothesis is also confirmed.

CONCLUSIONS

This paper has showed that determinants of foreign direct investments in the most attractive regions of Russia from 2005 to 2011 were gross regional product per capita, trade openness and presence of special economic zones. Among these factors, only GRP per capita can be acknowledged as a determinant of FDI without doubts, as impact of this indicator on FDI was found significant in almost all previous studies. Furthermore, it could be assumed that every Russian region is rather unique and should have its own strategy for attracting FDI. Regional authorities should develop competitive advantages of the regions based on the available opportunities and should not copy the experience of successful neighbouring regions without spatial adaptations. Moreover, the local authorities should take into consideration that FDI is becoming efficiency and strategic assets seeking, therefore the regions which are not rich in minerals or do not possess large market size should attract foreign direct investments by demonstrating commitment to economic development and institutional reforms. Indeed, the significance of government incentives and efforts related to trade openness proved to be among determining factors in the investment attractiveness of the Russian regions.

The most attractive Russian regions for foreign investors differ drastically and have little in common, therefore it would be worthwhile to select a group of regions for further studies using other criteria. For example, FDI determinants of Russian Federal Districts might be investigated because the federal districts consist of regions that have close location, similar levels of development and socio-economic indicators. Nevertheless, some of these regions are attractive and successful, while their neighbours are not. Further studies should also be focused on analysis of other subnational factors such as market potential, favorable business environment, political risks and institutional development.

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