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**FOREIGN DIRECT INVESTMENT AND INSTITUTIONS: CASE  
OF EMERGING ECONOMIES**

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*Abstract*

This paper implements econometric analysis of the foreign direct investment inflows at the levels of different developing countries and Russian regions. A methodological base of research is a gravity model, which assumes the positive correlation between the sizes of the economies and inflow of foreign direct investment in the recipient country and negative correlation between the value of a foreign direct investment inflow and the distance between the pair of countries. The model on the country level includes the aggregated indicator, reflecting an institutional component of the host economy, namely the economic freedom index that significantly affects the value of the foreign direct investment inflow. Besides this indicator, the optimal model also includes such indicators as the common border and common language, average wages in the host country, remoteness terms. The model was estimated with the use of the Poisson Pseudo maximal Likelihood Method which solves most of the problems facing the analysis of foreign direct investment. The second part of the empirical analysis includes the estimation of foreign direct investment in Russia on the regional level, taking into account institutional aspect. Besides the indicator “Investment attractiveness”, traditionally reflecting institutional development of the region, the model also comprises the trade openness of the region, an innovation component, an unemployment rate, as well as taking into account remoteness of an investor and the region from Moscow, the main center of business activity in Russia.

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**Keywords:** Foreign direct investment, institutions, index of economic freedom, investment attractiveness, gravity model.



## 1. Introduction

Taking into account the wide range of existing empirical research devoted to the analysis of the foreign direct investment attraction factors, it could be claimed that this topic is relevant nowadays and requires deep careful investigation. Since the late 1990s, the literature on economic development has been renewed by focusing on the quality of domestic institutions as a key explanation of cross-country differences in both growth rates and income per capita (Bénassy-Quéré & Mayer, 2007). At the same time, many researchers have focused on the problem of foreign direct investment attraction in developing countries, because foreign direct investment could be an effective tool of development and economic growth of the country. Some studies investigate specific factors of FDI attraction, whereas some of them make an attempt to find a general optimal model. Of course, there is some research relating to the connection between the level of institutional development in the country and the inflow of foreign direct investment. Talking about aggregated indices of institutional development at the country level, it should be claimed that there are two well-known proxies used for the institutional development: the Fraser Institute Index and the Index of Economic Freedom produced by the Heritage Foundation. The latter one will be used as a proxy in the empirical part of this paper.

The aspect of institutional development is very important from the viewpoint of a foreign investor which was confirmed by questionnaires and surveys accomplished by different rating agencies and financial organizations (for example, RAEX (Rating agency Expert), KPMG, EY, Deutsche bank). In the methodology of RAEX, the index of investment attractiveness consists of two parameters: investment potential (labour, financial, production, consumer, institutional, infrastructural, nature resources, tourism and innovations) and investment risk (financial, social, management, economic, ecological, criminal one). Russian Regional Investment Attractiveness Rating by the RA Expert rating agency is perhaps the best-known measure of the quality of institutions in Russian regions. The empirical analysis at the regional level presented in this paper includes this index as the measure of institutional development of the region. In the methodology of KPMG there are two types of significant factors – “hard” and “soft” factors. By the “soft” factors they mean such factors that could be controlled and changed by regional administration in a reasonable period of time (that could be professional business support organized by administration, successful experience in implementation of FDI projects, legal environment, financial and tax incentives, regional government commitment to FDI). The authors claim that “soft” factors influence investment decisions more than “hard” factors, but in any case investment decisions are an interplay between the investor’s assessment of hard factors and soft factors, i.e. economic effectiveness vs. unpredictability of result in any particular moment in time, and can change over time with institutional development and changes in expectations (and this is to some extent similar to the approach of Expert agency when they estimate investment potential and investment risk, but for majority of investors it is more important to have assurance in future stable regulations and results).

## 2. Problem Statement

Blonigen (2005) in the literature overview showed that the quality of institutions determine FDI activity for at least three reasons: poor protection of property rights increases the chance of expropriation;

poor quality of institutions increases the cost of doing business; and profitability of FDI falls to the extent that poor institutions lead to poor infrastructure.

On the country level, the role of institutions is traditionally tested with the focus on specific factors, for example, corruption (Cuervo-Cazurra, 2006; Egger & Winner, 2006), tax regimes (Wei, 2000; Folfas, 2011; Buettner & Ruf, 2007), political risk (Jiménez, de la Fuente, & Durán, 2011; Busse & Hefeker, 2007). One of the most well-known aggregated indices of institutional development is the Index of Economic freedom. According to the Heritage Foundation, economic freedom is the “Economic freedom - the fundamental right of every human to control his or her own labour and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please. In economically free societies, governments allow labour, capital, and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself.” This index is used in (Tintin, 2013; Sambharya & Rasheed, 2015; Bengoa & Sanchez-Robles, 2003; Azman-Saini et al., 2010) and is confirmed as a significant factor.

Sambharya and Rasheed (2015) analysed the effects of economic and political freedom on FDI inflows in 95 host countries in the period of 1995-2000. Their results show that countries need to pay more attention for better economic management in terms of sound monetary policy, fiscal burden, banking and finance. In addition the authors claim that less government participation in economic processes, stronger property rights, lower prevalence of informal markets and less corruption attract more FDI inflows.

Bengoa and Sanchez-Robles (2003) explored the interplay between economic freedom, foreign direct investment and economic growth using panel data for a sample of 18 Latin American countries over the period of 1970 - 1999. Their results suggest that FDI is positively correlated with economic growth. They also observed that the host country requires adequate human capital, economic stability and liberalized markets to benefits from long-term capital flows.

Azman-Saini, Baharumshah, and Law (2010) also investigated the systemic link between economic freedom, foreign direct investment and economic growth in a panel of 85 countries. The empirical results, based on the generalized method-of-moment system estimator, reveal that FDI by itself has no direct (positive) effect on output growth. Instead, the effect of FDI is contingent at the level of economic freedom in the host countries.

Pearson, Nyonna, and Kim (2012) estimate the impact of economic freedom on FDI at the regional level in the USA (considering states of America). They test panel data of 50 states through the period of 1984-2007 with the use of random-effects model. They find that economic freedom has significant positive impact on FDI in all states. However, the authors also explore that per capita income and unemployment rate cause negative impact on FDI. They explain these results as the fact that states with higher per capita income repel FDI inflows since higher income implies higher wages, and high unemployment rate is positively associated with crime ratio, thus discourages investors' interests.

The number of research papers devoted to the analysis of interplay between institutional development and foreign direct investment is limited and gives ambiguous results. Fabry and Zeghny (2002) analyse why Russia was outside the trend of increasing competitiveness and integrating into the global economy, whereas initial conditions (natural resource endowments, human capital and labour force, size of market) were rather high. They define the concept of attractiveness and try to understand why Russia

is less attractive from a foreign investor's point of view. They identify business climate as well as institutional and transitional precondition for FDI as determinants. They conclude that FDI in Russia is strongly influenced by the institutional context and reform process, and Russia appears to foreign investors as an important potential market and a prospective future production place. The determinant of political risk as the component of investment attractiveness (measured by Expert rating agency) was tested by Ledyeva (2009) and was found to be significant in distribution of FDI across Russian regions, but Castiglione, Gorbunova, and Smirnova, (2012) found this factor to be insignificant. Corruption is probably the institutional weakness that is most actively discussed as an institutional barrier to investment (Gonchar & Bessonova, 2015). Corruption plays a significant role: most recent works have started to test firm-level data and claim that most foreign investors locate their firms in less corrupt regions, but find that investors from 'corrupt' countries prefer to invest in more corrupt Russian regions (Ledyeva, Karhunen, & Kosonen, 2013).

The Russian Regional Investment Attractiveness Rating by the RA Expert rating agency is perhaps the best-known measure of the quality of institutions in Russian regions. The rating comprises two components — investment risk and investment potential — and each of those combines several sub-components based on data collected by state statistical services and private consultancies. These data cover the quality of public administration, political and legal risks, and other factors. Weights used to aggregate sub-components are determined by annual surveys of experts from Russian and foreign consulting and investment companies. The research with the use of this rating was implemented, for example, by researchers Strasky and Pashinova (2012) from Deutsche Bank. In the regression model, the following factors are included: regional GDP, distance between investor and region, R&D, wages, openness of the region, number of tertiary educated population, exchange rate, expert regional rating and distance between a region and Moscow. With the use of panel data estimation with fixed and random effects, the GMM method, the authors concluded that the investment rating is not a significant factor. The most important drivers according to their model are past FDI inflows (lag value), regional competitiveness and common factors such as the global real interest rate.

Existing research literature devoted to the relation between institutions and FDI considers both the index of economic freedom and the index of investment attractiveness. This paper contributes to the existing research in the following way: it considers both the country level in the case of developing countries including Russia and the regional level in the case of Russia. There is a limited number of research papers devoted to the deep analysis of foreign direct investment and institutional development in Russia on the basis of the gravity model. Both parts of analysis presented in this paper are performed on the panel data with the use of the Poisson pseudo maximal Likelihood method, which is confirmed to be effective in the case of databases comprising foreign direct investment flow as a dependent variable and in the case of gravity models.

### **3. Research Questions**

Both at the country level and at the regional level, the main question is how significant the factor of institutional development is with regards to the foreign direct investment inflow in the frames of the gravity model.

### **3.1. Country level**

In the frames of the stated aim of econometric analysis, we have the following main hypothesis: the quality of the institutions in the host economy is an important factor of FDI inflows and it is positively correlated with the size of FDI inflow in the recipient country. Effective institutions decrease costs of running business in the host economy. We measure the effectiveness of the institutions in the country by the index of economic freedom (ecfredit) that is annually computed by the Heritage Foundation. Index of economic freedom is based on 10 factors, grouped into four broad categories of economic freedom: rule of law (property rights, freedom from corruption); limited government (fiscal freedom, government spending); regulatory efficiency (business freedom, labor freedom, monetary freedom); and open markets (trade freedom, investment freedom, financial freedom). We expect that the countries with a higher value of this index will attract relatively more FDI.

### **3.2. Regional level**

The aim of this part of research is to find out which institutional factors matter in case of FDI attraction in the Russian regions. We expect that the regions with different levels of institutional development attract different amounts of FDI.

## **4. Purpose of the Study**

Due to the ambiguous results of the previous research devoted to the interplay between foreign direct investment and institutions, this paper aims to get findings in the case of developing countries and Russian regions. This research sheds light on the set of factors which require much attention in the process of international strategy implementation. Extracted significant factors show to what extent and in which manner foreign investor considers existed risks and potential of the recipient country. The output of the research could be expanded and used for further research with the aim to develop policy recommendations and more sophisticated models in conditions of an unstable global political situation.

## **5. Research Methods**

The methodological approach of this paper is a gravity approach. Traditionally the gravity model of the flows (it could be migration flows, trade flows and so on) is considered in the logarithms for the purposes of linearization. However this specification has some problems: taking logarithms of zero and negative values, heteroscedasticity, unobserved heterogeneity. Trying to solve these problems, we use another model specification, namely the model with constant elasticity, which allows one not taking the logarithm of the dependent variable. For this kind of the model, some special methods were proven to be efficient (Silva & Tenreyro, 2006). Here we test the model with the use of the Tobit estimation procedure and the Poisson Pseudo Maximal Likelihood Method.

### **5.1. Country level**

The analysis of foreign direct investment indicators is based on the data for the period from 2001 to 2011. A dependent variable is the flow of foreign direct investment from the host country (overall 111

countries including Russia) to the recipient country (overall 14 developing countries including Russia). Thereof, the sample comprises 17094 observations. The list of recipient countries includes some countries considered developing according to the International Monetary Fund's World Economic Outlook Report, April 2015 (<http://www.imf.org/external/pubs/ft/weo/2015/01/pdf/text.pdf>). The foreign direct investment flows data were taken from the web-site of the Organisation for Economic Co-operation and Development (<https://www.oecd.org/>) and from the Central Banks web-sites, GDP data were taken from the web-site of the World Bank (<http://www.worldbank.org>), distance and dummy variables were collected from the database constructed by Silva and Tenreyro (2006) (see Table 1). What is more important in the frames of this paper is the Index of Economic Freedom developed by the Heritage Foundation and The Wall Street Journal (<http://www.heritage.org/index/about>). It is measured based on 10 quantitative and qualitative factors, grouped into four broad categories of economic freedom: Rule of Law (property rights, freedom from corruption); Limited Government (fiscal freedom, government spending); Regulatory Efficiency (business freedom, labor freedom, monetary freedom); and Open Markets (trade freedom, investment freedom, financial freedom).

**Table 01.** Explanatory variables

Variable	Description	Source
lgdpimp	Logarithm of the GDP level in the host country	<a href="http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?view=chart">http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?view=chart</a>
lgdpexp	Logarithm of the GDP level in the home country	<a href="http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?view=chart">http://data.worldbank.org/indicator/NY.GDP.MKTP.CD?view=chart</a>
Ldist	Logarithm of the distance between the home and host countries	Database Silva, S., Tenreyro, J.
lremotimp	Logarithm of the host country remoteness	Database Silva, S., Tenreyro, J.
lremotexp	Logarithm of the home country remoteness	Database Silva, S., Tenreyro, J.
Comlang	Common language (dummy)	Database Silva, S., Tenreyro, J.
RIA	Regional Integration Agreement between the host and home countries (dummy)	Made by author
lecfreed	Logarithm of the Index of Economic Freedom	<a href="http://www.heritage.org/index/about">http://www.heritage.org/index/about</a>

## 5.2. We c Regional level

construct a dataset consisting of about 14,000 observations, including data on FDI flows from 179 investing countries to 78 Russian regions during the period of 2006–2013. All data are publicly available. Data on the dependent variable as well as regional characteristics are obtained from the Russian United System of Information and Statistics (<https://fedstat.ru/indicator/31338.do>) and from the Russian Central Bank (<http://www.cbr.ru/statistics/?PrtId=svs>). Data on investor country GDP are taken from the World Bank website (<http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>). The distance between the investor and the particular region as well as the distance from Moscow to the center of the region is calculated using distance calculator website (<http://www.distancecalculator.ru>). We drop offshore zones (such as Cyprus, British Virgin Island etc.) from the dataset, because such investment is often the form national capital repatriation, previously exported from the country (especially in the case of Russia). We also drop Moscow region as a recipient region because it appears to be an outlier. The list of explanatory variables is presented in table 2.

**Table 02.** Explanatory variables

Variable	Description	Source
Lngdp	logarithm of GDP of the investing country $j$ per year $t$ .	World Bank [ <a href="http://data.worldbank.org/indicator/NY.GDP.MKTP.CD">http://data.worldbank.org/indicator/NY.GDP.MKTP.CD</a> ]
Lngrp_pc	logarithm of GRP per capita of the recipient region $i$ per year $t$ .	Federal State Statistics Service [ <a href="http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/">http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/</a> ]
Lndist_inv	logarithm of the distance between the capital of investor's country $j$ and Moscow.	Calculated by the author with the use of <a href="http://www.distancecalculator.ru">distancecalculator.ru</a>
Lndist_Msc	logarithm of the distance between region $i$ and Moscow.	Calculated by the author with the use of <a href="http://www.distancecalculator.ru">distancecalculator.ru</a>
Lnopen	logarithm of the trade openness of region $i$ (calculated as sum of export and import divided by GRP) per year $t$ .	Calculated by the author
Lncrime	logarithm of registered number of crimes in region $i$ per year $t$ .	Federal State Statistics Service [ <a href="http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/">http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/</a> ]
lnR&Dstaff	logarithm of R&D personnel in region $i$ per year $t$ .	Federal State Statistics Service [ <a href="http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/">http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/</a> ]
lnunempl	logarithm of the unemployment rate in region $i$ per year $t$ .	Federal State Statistics Service [ <a href="http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/">http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/</a> ]
lnattract	Logarithm of investment attraction of the region	RAEX [ <a href="http://raexpert.ru/ratings/regions/concept/">http://raexpert.ru/ratings/regions/concept/</a> ]

## 6. Findings

### 6.1. Country level

As we see from the results (table 3), all the variables are significant and have predicted signs of influence. The index of economic freedom is also significant and has the highest value of impact. This means that economic freedom in the host country is one the most important factors for the foreign investor, and all components of this index have to be taken into account while forming the state policy regulations.

**Table 03.** Results of econometric testing

Variable	Tobit (log(fdi), fdi>0)	IV PPML (fdi)
lgdpimp	258.928 (12.364) ***	0.891 (0.088) ***
lgdpexp	322.26 (9.384) ***	0.657 (0.036) ***
ldist	-447.627 (25.635) ***	-0.844 (0.082) ***
lremotimp	364.608 (68.699) ***	1.516 (0.474) ***
lremotexp	-66.883 (67.225)	-1.475 (0.303) ***
Comlang	29.815 (80.373)	0.552 (0.208) ***
REU	473.372 (51.965) ***	0.516 (0.144) ***
lecfreed	4672.535 (176.171) ***	2.968 (0.739) ***
N obs.	17094	17094

### 6.2. Regional level

**Table 04.** Results of econometric testing

Variable	Tobit (log(fdi), fdi>0)	PPML (fdi)
Lngdp	8.728 (0.464) ***	0.467 (0.052) ***
Lngrp_pc	7.862 (1.268) ***	1.266 (0.129) ***
Lndist_inv	-12.884 (1.394) ***	-0.666 (0.116) ***
Lndist_Msc	-0.388 (0.856)	-0.163 (0.052) ***
Lnopen	10.57 (1.523) ***	0.548 (0.109) ***
Lncrime	-7.598 (3.559) ***	0.905 (0.303) ***
lnR&Dstaff	4.376 (1.088) ***	0.253 (0.06) ***
lnunempl	-9.412 (1.236) ***	-0.525 (0.093) ***
lnattract	23.882 (3.253) ***	0.629 (0.204) ***
N obs.	5.333	13.624

Results of econometric analysis at the regional level (Table 4) show that the standard hypotheses about the gravity model are confirmed. The gravity variables are significant and have the expected signs. Both GDP of the investor country and GRP per capita of the recipient region positively affect FDI inflows. Both the distance from investing country to Moscow and the distance from Moscow to the center of host region are significant and have the expected negative signs. All examined regional institutional characteristics have a significant effect on FDI inflows into the region: trade openness and the number of people in R&D departments positively affect FDI, the latter because it reflects the ability of workers to implement innovative technologies; the region's unemployment negatively affects FDI, because it reflects an unstable economic situation in the region. The number of registered crimes is an ambiguous indicator: Tobit estimation shows a negative effect, whereas PPML shows a positive effect. Investment attractiveness



of the region has expected a positive sign of influence and the level of this impact is one of the highest in the model, reflecting high importance of an institutional component.

## 7. Conclusion

Institutional development both at the country level and at the regional level in Russia is a very important aspect for economic development and attraction of foreign direct investment. It was confirmed in an empirical part of the research in the case of developing countries (including Russia) and Russian regions. The assumptions of the gravity model in both cases were confirmed. In case of Russia, it is very important to make transparent and clear rules towards private property protection, control the law system in respect of corruption issues, regulate the law system and law-enforcement federal authorities and make more transparent “rules of game” for the foreign investors.

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