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THE FDI DETERMINANTS IN RUSSIAN FAR EAST: A PANEL ANALYSIS

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Abstract

The development of Russian Far East has emerged pivot government political issue since 2013 through announcement of "The social and economic development of the Russian Far East and the Baikal region until 2025". The role of FDI is one of the most critical factors to determine success or failure of Russia's Turn to the East policy. However, the study on specific FDI determinants of Far Eastern federal district is rarely investigated despite the growing needs. In this study, we employ panel analysis (FE) based on the data of 9 regions in Russian Far East for the period of 2011-2017. We find that GRP growth rate and innovation (R&D expenditure) are positive determinants of FDI inflows, whereas, interestingly, export and domestic investment are negative determinants of FDI inflows in Far East. The other selected variables – Financial Risk (debt ratio), workforce and inflation (price ratio) – seem to be insignificant in our models. Therefore, from the empirical study, we made three conclusions: first, the main purpose of Far East FDI is domestic market-seeking rather than export-oriented for 3rd country; second, foreign investment in Far East likely flows to capital and technology intensive industries; third, FDI and DI seem not to be yet synergized in Far East.

Keywords: Foreign direct investment, panel analysis, Russia, Far East.

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1. Introduction

FDI is one of the most significant factors for development in the global economy. A plethora of previous studies demonstrated that the high level of FDI inflows brings economic growth and increase of production efficiency in developing economies through new technologies, knowledge, management skills, etc. (Antonescu, 2015; Davletshin, Kotenkova, & Efremov, 2015; Iwasaki & Suganuma, 2015; Duarte, Kedong, & Xuemei, 2017). Russia is attractive destination for FDI in terms of large domestic market, rich natural resources, and high human capital. According to UNCTAD, in 2017 (UNCTAD, 2017), FDI inflows in Russian economy amounted $ 25.284 billion (16th largest among world FDI recipients).

However, the distribution of FDI inflows in Russia is highly skewed: 60% of FDI flows to 17 regions in Central federal district among of 85 regions in eight federal districts. Besides, Russia has suffered from unequal economic growth between west and east. To resolve this chronic west-east divide, in 2013, the government adopted "Turn to the East Policy" through announcement of "The social and economic development of the Russian Far East and the Baikal region until 2025". This policy is comprised of mechanisms to overcome poor factor and demand conditions and to create foreign investment conducive environments for economic growth of underdeveloped Far East regions (Lee, 2019). The needs of determining specific factors on FDI inflows in Far East increases sharply.

2. Problem Statement

To clarify the research problem, we conduct literature review in Russian FDI determinants. The Russian FDI determinants studies are divided by country and regional levels. At country level, there are limited studies dedicated to Russia as a single subject but as one of BRICS, Eurasian or ex-socialist countries etc. (Deichmann, Eshghi, Haughton, Sayek, & Teebagey, 2003; Jadhav, 2012; Akhmetzaki & Mukhamediyev, 2017; Jovanovic & Jovanovic, 2018). But due to the country's strikingly skewed foreign investment distributions across 85 regions, the country level analysis can over-generalize determinants of the top recipients' regions. For this reasons, we focus on Russian regional level analysis of FDI determinants from the previous studies.

According to Ledyaeva (2009), market-seeking and resource-seeking factors are positively and political and legislative risk are negatively correlated to FDI inflows in Russian regions. Gonchar and Marek (2013) find that market-related factors, agglomeration economies and especially natural resource endowment are crucial to attract FDI. Yukhanaev, Sharma, and Nevidimova (2014) also find that market-seeking factors such as GRP, GRP per capita, trade openness and government incentives are the main purpose of FDI inwards in Russian regions

Mariev, Drapkin, Chukavina, and Rachinger (2016) carried out gravity model analysis and concluded that GDP of investor, GDP per capita of the region, trade openness, workers employed in R&D positively affect FDI inflows, whereas unemployment rate, distance from Moscow-exceptionally insignificant for far remote east regions, distance of investor from Moscow are negatively correlated. Izotov (2019) analyzed potential and risk factors of three divisional Russian regions: all regions, far eastern regions, all the other regions. The paper asserted that criminal, financial, socio-demographic and environmental risks impede FDI inflows, while innovation potential and openness facilitate FDI inflows

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in all regions. On the other hand, it further explained that for far east unlike other regions, among of risks, financial and criminal factors are only significant deterrent of FDI inflows.

However, from the literature review we find that most of previous studies in regional level elucidated general FDI determinants on 85 regions or simple west and east division instead of sophisticated regional specifications.

3. Research Questions

Our research is designed to answer the following two questions. What will be specific factors of FDI inflows in the case of conducting empirical study on Far East as a single subject? What factors are either significant or insignificant (un)like the previous studies on the whole Russian regions?

4. Purpose of the Study

To examine specific FDI determinants of Far East federal district would contribute to improve FDI inflows and effectiveness of Russia's new eastern policy. Through empirical study, designed based on the previous literature, we will investigate specific factors of FDI inflows in Russian Far East. This study aims to determine FDI factors of 9 regions in Far Eastern federal district in 2011-2017 through a panel analysis fixed effects.

5. Research Methods

To study factors that determine the inflow of FDI in 9 Far Eastern regions during the period of 2011-2017, we evaluated a panel analysis with fixed effects for the entire study period and regions. Based on the literature, we assume that FDI inflows is correlated with 7 independent variables in table 01. The specification of our initial regression model as follows:

$$\boldsymbol{FDI_{it} = \beta_1 EXP_{it} + \beta_2 GRTE_{it} + \beta_3 INNO_{it} + \beta_4 DI_{it} + \beta_5 DEBT_{it} + \beta_6 PR_{it} + \beta_7 WF_{it} + \alpha_i + \varepsilon_{it}}$$

Table 01. Indicators determining the inflow of FDI

	Variables	Description	Source
Dependent variable	FDI	FDI inflows (million $)	Central Bank of Russia
Independent variables	Exp.	Export (million $)	Federal State Statistics Service
	Grte	Growth rate (%)	
	Inno	R&D cost (million $)	
	DI	Investment in fixed assets (million $)	
	Debt	Debt ratio (Debt/GRP, %)	
	PR	Price ratio (YoY, %)	
	WF	Workforce (thousand persons)	

Source: authors based on the data from the Central Bank of Russia (2019), Federal State Statistics Service (2016, 2018).

6. Findings

In this section, we estimate a panel data analysis with fixed effects for 63 observations. The results of a panel analysis are presented in table 02. The authors reformed the initial model by three possible

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models to further clarify the correlations of potential determinants with FDI inflows. Also, we tested Variance inflation factor to detect multicollinearity among independent variables under linear function. All of VIF estimators on independent variables in our models are less than 4, as shown in table 03. Thereby, multicolliearity is not an issue in this case.

Table 02. Results of the assessment of FDI inflows into Fareast regions of Russia

Variable	Models			
	1	2	3	4
Exp	-0.377304***	-0.377304***	-0.375980 ***	-0.380227 ***
Grte	11.360648.	11.565326.	11.520747.	12.774825 *
Inno	2.109012**	2.092816**	2.096081**	2.066264 **
DI	-0.093894	-0.093558	-0.094744.	-0.093127.
Debt	-1.297183			
PR	3.097084	2.969526	3.013969	
WF	-0.248577	-0.272628		
Number of Observations	63	63	63	63
R^2	0.78015	0.77996	0.77995	0.77877
F-test	23.8257	28.357	34.7359	44.0023
p-value	0	0	0	0

Note: Significant codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 03. Results of Variance inflation factor (VIF) Test

Variables	Model1	Model2	Model3	Model4
Exp	3.739069	3.283242	3.209077	3.204641
Grte	1.351264	1.350779	1.331383	1.119090
Inno	3.297329	3.002611	2.966863	2.931678
DI	2.560957	2.553465	1.512287	1.499425
Debt	1.654809			
PR	1.240599	1.224907	1.191471	
WF	2.407343	1.780746		

Contrary to our initial predictions, throughout the model 1,2,3, debt ratio (financial risk), price ratio (inflation), and workforce are insignificant. As expected, innovation (in model 1, 2, 3, 4) and growth rate (in model 1, 2, 3, 4) is positively correlated to FDI inflows in a significant level. However, on the contrary to our expectations, export (in model 1, 2, 3, 4) and domestic investment (in model 3, 4) have negative impact on FDI inflows in significances. From the regression, we find that FDI inflows in far east is best explained by the fourth model. Thereby, our modified econometric model as follows:

$$\boldsymbol{FDI_{it} = \beta_1 EXP_{it} + \beta_2 GRTE_{it} + \beta_3 INNO_{it} + \beta_4 DI_{it} + \alpha_i + \varepsilon_{it}}$$

Regression model (4) predicts FDI inflows (mil $) based on the essential factors (export, growth rate, innovation and domestic investment) in 9 Far Eastern federal district of Russia in significant levels. The assessment has shown that export for the Far East was represented statistically significant, however, it has negative impact on FDI inflows. Which indicates that the main purpose of foreign investment in Far East is domestic market-seeking. Whereas, export for 3rd countries from far east seems not a motivation of foreign investment.

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Besides, the indicator of growth rate is also the factor that promoted the FDI inflows to the Far Eastern region. The increase in these indicators by 1.0% led to an increase in foreign capital by 12.774825 million USD and it is statistically significant. Which is the highest impact on FDI inflows out of 4 independent variables.

Similarly, according to the assessment, the variable that reflects innovation has a positive impact on FDI inflows in far eastern regions. The increase R&D cost by 1 million USD led to an increase in foreign capital by 2.066264 million USD, which is statistically significant. Interestingly, domestic investment measured by the investment in fixed assets for the Far East was represented as a significant indicator only in model 3, 4. This factor is negatively correlated to FDI inflows: the increase in this factor by 1 million USD led to a decrease in FDI inflows by 0.093127million USD.

7. Conclusion

This paper investigates FDI determinants of 9 regions in Russian Far East to reflect the growing political importance on those regions. From our empirical studies, we draw following meaningful findings. First, the variables of economic growth and R&D expenditures are only significant determinants to attract FDI inflows. It likely explains that in accordance with other Russian regions, foreign investment in Far East is also market-seeking. Besides, from the significance of R&D expenditure and insignificance of workforce, we can assume that Far Eastern FDI flows in capital and technology intensive rather than labor intensive industries. Secondly, export impede FDI inflows in Far East. It is likely that FDI in far east is not export-oriented for 3rd countries but domestic market oriented. This increases explanatory powers of strong domestic market-seeking purpose of Far East FDI inflows. Finally, FDI and domestic investment are negatively correlated. It can be understood that during the period investment projects in Far East, it fails to be harmonized among foreign and domestic investors.

Finally, our modelling is based on fixed effects on regions and years. Thereby, the impacts of crucial events, for an example, western sanctions, ruble depreciations, etc. in Far East FDI inflows are not reflected. Also, due to limited regional data, the diversity of independent variables was confined to economic factors only. Thus, for further, in this line of study, we will complement those limitations.

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