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# Direct Foreign Investment and Demographic Policy in the Russian Far East

*Inversión extranjera directa y política demográfica en el Extremo Oriente de Rusia*

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### ABSTRACT

The article deals with the problem of attracting foreign direct investment to the economy of the Russian Far East, which is the priority area of the country's socio-economic strategy. The results show a stable dynamic of foreign direct investment despite economic sanctions imposed on Russia. The key challenges in the development of the Far Eastern region are the quality of labor and its availability and profitability of enterprises. The article outlines the main mechanisms of realizing the demographic policy, which have been proposed in 2018, as well as measures aimed at increasing the profitability of enterprises in the region.

**Keywords:** Demographic policy; foreign direct investment; investment climate; the Russian Far East.

### RESUMEN

El artículo aborda el problema de atraer la inversión extranjera directa a la economía del Extremo Oriente ruso, que es la esfera prioritaria de la estrategia socioeconómica del país. Los resultados muestran una dinámica estable de inversión extranjera directa a pesar de las sanciones económicas impuestas a Rusia. Los desafíos clave en el desarrollo de la región del Extremo Oriente son la calidad de la mano de obra y su disponibilidad y rentabilidad de las empresas. El artículo describe los principales mecanismos de realización de la política demográfica, que se han propuesto en 2018, así como las medidas destinadas a aumentar la rentabilidad de las empresas en la región.

**Palabras clave:** política demográfica; inversión extranjera directa; clima de inversión; el Extremo Oriente ruso.

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## INTRODUCTION

The development of the Russian Far East is regarded as the priority area of the economic policy of the Russian Federation enacted now through expanding the Asian vector of the development of the country. That is due to the strategic importance of the Far East for Russia as the country has long maritime external borders and tremendous supply of natural resources in the region.

The central documents adopted by the federal government are: the Strategy for Social and Economic Development of the Far East and the Baikal Region to 2025 and the State Program "Social and Economic Development of the Far East and the Baikal Region" (Government of the Russian Federation, 2014). Ministry for the Development of the Far East is appointed a responsible institution for the implementation of the goals stated - "to improve the level of social and economic development of the Far East and the Baikal region, to ensure labor resources and population increase in the Far East".

Investment projects are among the most important in the State Program. Investments, both Russian and foreign, are regarded as the main tool for ensuring the increase in labor and population resources in the Far East and the improvement in the standard of living of people which is still below the average-Russian level. Thus, the program document postulates a direct relationship between investment and labor resources in the region.

The Far-Eastern Federal District (FEFD) has specific characteristics which determine the investment process. They are, namely, remoteness of the territory, density of the population, extreme climatic condition. The Far Eastern Federal District accounts for 36% of the territory of the Russian Federation (6,169.9 thousand sq. km.) and 4.2% of the population of Russia (6.156 million people), which causes an extremely low population density: its average size is 1.1 people for 1 sq. km. Besides the population is settled extremely unevenly: 12 people for 1 sq. km. – in the Primorye Territory, and 0.2-0.8 people for 1 sq. km. in the Republic of Sakha (Yakutia), Magadan and Kamchatka regions and in Chukotka. The share of the urban population is about 78% (Federal Service of State Statistics, 2017a).

The Far East accounts for 92% of Russia's tin reserves, 82% of diamonds and antimony, 61% of uranium, 40% of gold, 23% of tungsten, 11% of coal, and significant explored reserves of oil and gas: about 10-14 billion tons of oil and 14-15 trillion cubic meters of natural gas (this is about 1/3 of all confirmed gas reserves in Russia). But, because of low level of development of the manufacturing industry, only 6.5% of the total Russian export is from the FEFD.

The gross regional product (GRP) of the FEFD is rather low in relation to the GRP of the whole country: 4.2% in 2000 and 5.6% in 2016. But the indicator of GRP per capita income is positive: in 2000 GRP in the Far Eastern Federal District was only 44,932 rubles (while the average level in Russia was 49,835 rubles), in 2016 GRP in the Far Eastern Federal District became 607004 rubles (while the average level in Russia was 586630 rubles) (Federal Service of State Statistics, 2017a; Goskomstat, 2001).

Thus, the FEFD differs in a number of specific features that determine the dynamics and structure of foreign direct investment, namely, the economic-geographical position (a great distance from the main economic potential of Russia), rather extreme natural and climatic conditions, and the richest natural resource potential. It is with these factors that both the investment attractiveness of the region and its strategic vulnerability, and, consequently, investment risks are connected.

The factor of remoteness of the region causes high transportation costs which in turn increase the cost of products and services. Thus, poor infrastructure and the lag in the level of living of the population cause investment risks and as a consequence, low investment attractiveness of the region. Although a large number of scientific studies have been done in Russia on foreign direct investment into the economy of the country, there are not enough studies related to the Far Eastern region.

The article analyses the current situation in the field of foreign direct investment into the Far Eastern Federal District, gives an assessment of investment attractiveness of the region. The conclusion made is

about the importance of investing into the development of human resources and the improvement of infrastructure, rather than keeping dependent on huge reserves of minerals.

## LITERATURE REVIEW

A large number of scientific studies on the topic of foreign direct investment (FDI) analyze factors that mainly determine investments. They are:

- orientation for the implementation of foreign investments by competing firms of potential foreign investors (Knickerbocker, 1973);
- psychological factor (Aharoni, 1966);
- minimization of all types of costs: total, transaction, etc. (Dunning, 1980);
- maximization of profitability in different variants: interest on invested capital, currency premium, net cash flow (Aliber, 1970; Hymer, 1976);
- competitive advantages at different levels: firm, region, country (Dunning, 1988; Vernon, 1974).

In the 1990s several scientists, who worked independently, proposed econometric models for assessing the impact of various factors on foreign direct investment in the branches of receiving countries. In particular, K. Milner and E. Pintecost (1994) – an example of American FDI in British companies; V.N. Balasubramanyam and D. Greenaway (1994) – a study of East Asian FDI in the EU; M. J. Fry (1994) – on the example of Malaysia.

Some studies are aimed at assessing the relationship between domestic investment and international capital flows (Balatsky, 2012; Feldstein and Horioka, 1979), as well as assessing the impact of FDI on economic growth (Balatsky, 2011; Moran *et al.*, 2005). The Harvard Business School study (Alfaro, 2003) shows that FDI invested in the primary sector of the economy has a negative impact on economic growth, and those invested in the secondary sector have a positive impact. The effect of investing in services is defined as unclear and contradictory. Scientific studies on methods of assessing investment attractiveness of the economy deserve special attention (Blank, 2002; Panaseikina, 2010; Smaglyukova, 2007).

Also scientific studies on mechanisms of attracting FDI to the country arouse interest. For example, studies conducted by American scientists show that just liberalization policy not the only factor for increasing the flow of foreign investment into the country. According to M. Adler and G.K. Hufbayer (2008), the impact of liberalization policy on the growth of foreign direct investment in the United States in 1982-2006 was about 20% (48 billion dollars from 234 billion dollars). The increase in foreign investment happened due to combined factors of market economy and technology change – 48% (112 billion dollars from 234 billion dollars).

Studies on FDI in Russia are quite diverse. Authors study the issue of geographical distribution of FDI and how FDI is regulated by authorities (Makarov and Morozkina, 2015; Vercueil, 2013). Also they analyze the ways of using internal resources along with external (Starodubtseva, 2014) and the influence of FDI on domestic financial resources (Sholomitskaya, 2017). Some works direct attention to the impact of unfavorable investment climate in Russia on FDI (Akgun *et al.*, 2015) and the importance of the quality of authorities' management for FDI effectiveness (Kuzmina *et al.*, 2014).

The study on the assessment of the impact of FDI on the social and economic development of Russian regions (Pogodina, 2017) indicates that the spillover effect of attracting FDI in the Far Eastern region is negative because funds are invested almost exclusively into the extractive industry. The influence of FDI on employment issues in transition economies (Estrin, 2017) was considered; the analyses shows that the influence of FDI on employment in Russia has a much smaller effect than in Eastern Europe due to institutional weaknesses and inefficient use of human capital.

As for the works related to the Russian Far East, they are few. One of them is the study done by the Centre for Economic and Financial Research (CEFIR) on the impact of FDI on the socio-economic

development of the Russian Far East (CEFIR, 2013). The paper emphasizes that FDI makes significant contribution to the social and economic development of the Far East, including the development of human capital; but the results are based on data on FDI prior to the introduction of economic sanctions against Russia. The research of Ernst & Young (2013) shows that 64% of foreign investors working in Russia believe that improving the demographic situation will contribute to the inflow of FDI.

There are publications (Radomska, 2017) that give rather negative ratings of the development of the Russian Far East. However another research of Ernst & Young (2015) indicates the significant improvement in the investment climate in the regions of Russia as the Regional Investment Standard was introduced.

## **MATERIALS AND METHODS**

Although our study is done in line with other researches in the field, it gives more expanded content as the period covered in the research includes the year of 2016 allowing the analysis of foreign direct investment both before and after the imposition of sanctions. Econometric modeling covers the period from 2004 to 2016, i.e. two economic crises were reflected in it: the global financial crisis of 2008-2009, and the internal economic crisis of 2014, caused by the introduction of economic sanctions.

The information base for the study was the following:

- federal regulations acts,
- proceedings of the United Nations Conference on Trade and Development,
- materials of the Federal State Statistics Service,
- materials of the Central Bank of Russia,
- information materials contained in periodicals and posted on official Internet sites.

The main methods used in the study were the dialectical method, the system approach, comparative economic analysis, and correlation-regression modeling with the STATISTICA 13.0 application software package based on data from the Federal State Statistics Service and the Central Bank of Russia. The least-squares method (LSM) enabled to get the assessments of the parameters of the regression equation under which the sum of the squares of the deviations of the actual variables of the result  $\hat{y}$  – the volume of foreign direct investments in FEFD from the calculated values is minimal. The construction of the multiple regression equation followed a step-by-step algorithm for including and excluding significant variables. The inclusion of certain factors in the equation comes from to the notion that the effectiveness is the result of relationship. In our case those factors are the volume of foreign direct investment combined with other economic factors.

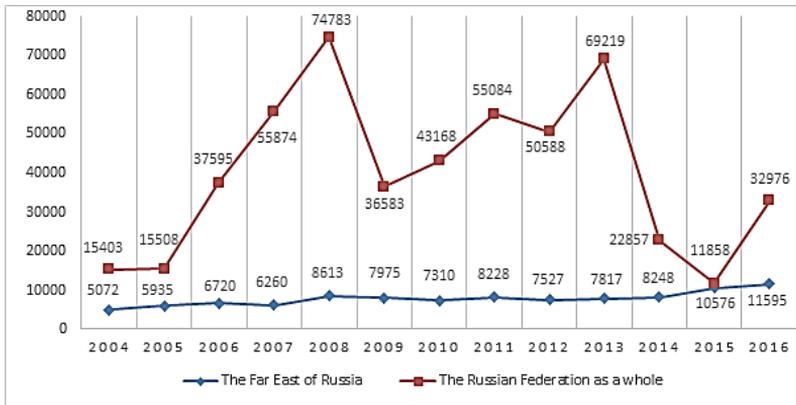
To assess the investment attractiveness of the subjects of the Far Eastern Federal District, the methods of the Expert Rating Agency (RAEX) (2018) and the Doing Business rating (2017) were used.

## **RESULTS AND DISCUSSION**

### **Structure and dynamics of foreign direct investment in the Russian Far East**

The share of foreign direct investment in the Far East following the results of 2017 is 12% of the value of all foreign direct investment in the Russian economy. The dynamics of foreign direct investment in the economy of the Far East (Figure 1) is characterized by stability (an increase of 2.3 times) during 2004-2016, in contrast to the all-Russian indicators (growth of 2.1 times with much larger multidirectional amplitude). Even after the imposition of economic sanctions in 2014, the inflow of FDI did not decrease. It is not large, but stable, the fact may indicate that large-scale long-term projects are realized.

Figure 1: Dynamics of foreign direct investment inflow into the Russian economy in general and the Far East, million US dollars (Central Bank of Russia, 2018; Federal Service of State Statistics, 2017b)



The estimation of the structure of FDI in the Far Eastern regions (Table 1), shows its extremely uneven distribution. Sakhalin is the absolute leader as the region attracts almost 90% of Far Eastern FDI. This is due to the implementation of the Sakhalin offshore gas projects. Also, these tables clearly show that in 2010-2013, before economic sanctions were imposed on Russia, the share of the Sakhalin region gradually decreased, but starting from 2014, the share has increased significantly, due to the growth of foreign direct investment and in absolute terms.

Table 1: The structure of foreign direct investment in the Far East of Russia by region (2010-2017), % (Central Bank of Russia, 2018; Federal Service of State Statistics, 2017b)

Region	2010	2011	2012	2013	2014	2015	2016	2017
Far Eastern Federal District	100	100	100	100	100	100	100	100
Sakhalin Region	68.19	69.89	37.99	40.10	86.85	89.17	89.27	89.48
The Republic of Sakha (Yakutia)	0.21	0.73	5.20	2.80	3.43	3.07	2.91	3.40
Primorye Territory	4.4	1.69	18.44	45.80	2.59	2.97	3.40	2.44
Amur Region	17.98	13.35	25.73	4.50	2.35	2.27	1.58	1.95
Khabarovsk Region	5.09	2.89	5.83	5.60	1.78	1.40	1.64	1.65
Kamchatka Territory	0.65	0.46	0.09	0.00	0.00	0.00	0.00	0.37
Jewish Autonomous Region	1.38	0.67	0.82	0.50	0.00	0.00	0.00	0.22
Chukotka Autonomous Area	2.09	1.86	2.25	0.20	0.92	0.76	0.01	0.45
Magadan Region	0	8.45	3.63	0.50	1.87	0.00	0.00	0.02

Apart from the Sakhalin Region FDI is directed to Yakutia, the Primorye Territory, Amur Region and Khabarovsk Region. Yakutia is also the region specialized in extractive industry. The Amur and Khabarovsk Regions, Primorye Territory are located in the border area; this determines that about 50% of foreign enterprises established are "Chinese". It becomes evident that the overwhelming share of FDI is concentrated

in the extractive industry. This kind of sharing has increased after the imposition of economic sanctions on Russia (Figures 2 and 3).

Figure 2: FDI in the Far Eastern region by industries in 2013, % (Federal Service of State Statistics, 2017b)

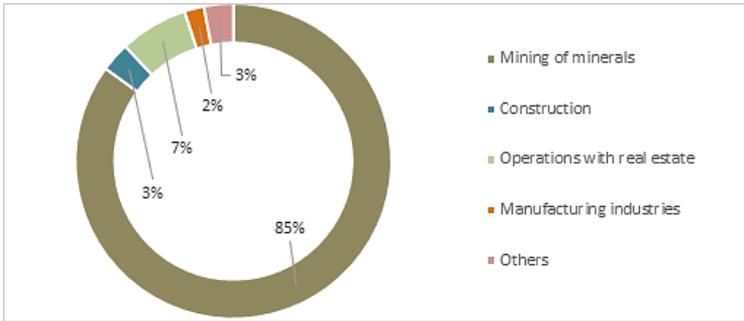
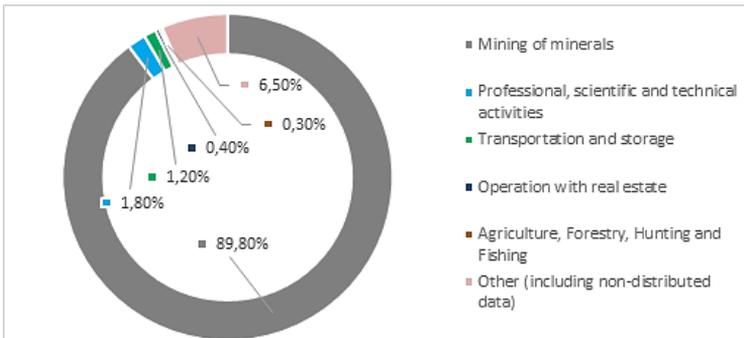


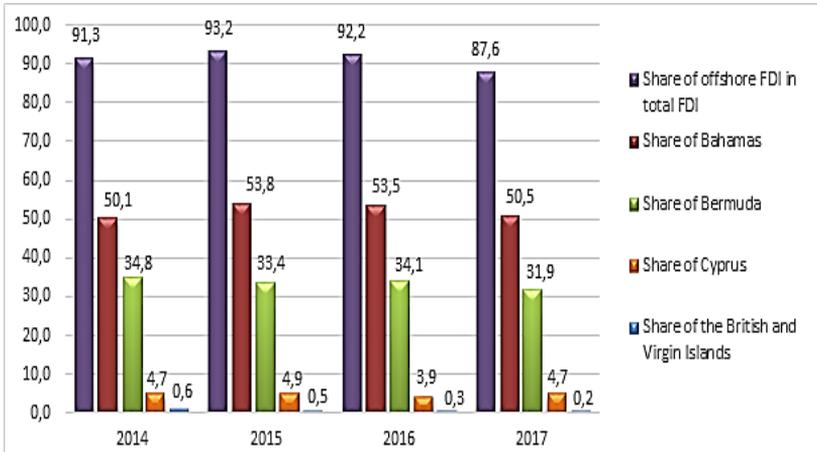
Figure 3: FDI in the Far Eastern region by industries in 2017, % (Central Bank of Russia, 2018)



As CEFIR research shows, nowadays foreign companies introduce innovative technologies mainly into extractive industries (CEFIR, 2013). After 2014, foreign investment inflow almost ceased in the construction sector but appeared in the fields of agriculture, forestry, hunting and fishing, as well as in the spheres related to science and technology, transportation and storage.

The difficulty in the analysis was aroused by the change in the way of statistical accounting of foreign investment. Until 2014 the statistical accounting was carried out by the Federal State Statistics Service on the basis of the form of statistical observation "1-Invest", but at present it has been carried out by the Central Bank of the Russian Federation in accordance with the balance of payments methodology. The change made it possible to analyze the "origin" of FDI by investor countries at the level of regions in order to adjust the total volume of FDI to the value of offshore FDI, which, in fact, is the returning of Russian capital previously exported to offshore. Ex., the share of offshore FDI in the Russian economy is about 20% (unallocated volumes are taken into account), but in the Far East this figure is much larger (Figure 4).

Figure 4: The share of offshore FDI and selected offshore jurisdictions in total FDI in the Far East of the Russian Federation (2014-2017), % (Central Bank of Russia, 2018)



Thus, despite the positive and stable dynamics of the total volume of FDI in the Far Eastern region, its geographical distribution and the factor of "origin" of investment remain unsatisfactory.

#### Activities of organizations with foreign investment in the Russian Far East

The small share of FDI, which is attracted to the region not from offshores, is invested, as a rule, in small and medium-sized enterprises (Table 2).

Table 2: Organizations with foreign investments in the Russian Far East and their indicators in 2010 and 2016 (Federal Service of State Statistics, 2017b)

Region	Number of organizations with foreign capital, units		Turnover of organizations with foreign capital, billion rubles		The share of organizations with foreign capital in the total number of organizations, %		The share of turnover of organizations with foreign capital in the total turnover of organizations, %	
	2010	2016	2010	2016	2010	2016	2010	2016
Far Eastern Federal District	859	4886	709.7	1046	0.5	2.47	34.99	28.39
The Republic of Sakha (Yakutia)	50	288	50.5	63	0.20	1.07	14.66	9.43
Kamchatka Territory	18	137	1.2	7	0.16	1.24	15.35	4.14
Primorye Territory	316	1897	145.2	123	0.48	2.68	30.91	15.70
Khabarovsk Region	158	850	84.1	61	0.38	1.87	20.51	8.97
Amur Region	89	693	33.7	55	0.60	4.15	26.10	25.70
Magadan Region	13	108	1.5	40	0.21	2.15	25.38	23.12
Sakhalin Region	159	612	364.2	627	0.96	3.49	46.51	71.74
Jewish Autonomous Region	53	275	1.6	4	1.54	8.24	33.33	33.33
Chukotka Autonomous Area	3	26	27.8	67	0.22	2.38	56.16	69.9
<i>For reference: Russian Federation</i>	15518	153675	26748	30032	0.32	3.23	42.10	24.99

According to the Federal State Statistics Service of Russia in 2010–2016 the total number of enterprises with foreign capital increased 5.7 times. During the period under consideration the Primorye Territory was in the leading position: it had 37% of enterprises in 2010 and 39% in 2016. The Chukotka Autonomous Area had the least number of enterprises with foreign capital but their share in turnover was significant and was about 7% in 2016. The Sakhalin Region had 68%-89% of all FDI in the FEFD. The turnover of 612 enterprises with foreign capital makes up almost 72% of the total turnover of organizations in the Sakhalin. Nowadays the share of enterprises with foreign capital in the total turnover of Far Eastern enterprises has reduced; the fact is explained by the rapid growth of domestic commercial organizations.

In general, the enterprises with foreign capital in the Far East greatly contribute into the economy of the macroregion. In the Amur Region and the Jewish Autonomous Region the share of turnover of enterprises with foreign capital exceeds the average level in Russia. In the Sakhalin Region and Chukotka Autonomous Area the shares of turnover of enterprises with foreign capital are 72% and 79% respectively. However, in other regions mentioned the share of turnover of enterprises with foreign capital is still lower than the national average. This indicates that the regions are not attractive for foreign investors in perspective of business opportunities. The question arises as to the factors that influence the attractiveness of foreign direct investment.

### Evaluation of the investment attractiveness of the Russian Far East

Expert Rating Agency (RAEX) (2018) is recognized as the most authoritative rating agency in the Russian Federation; the agency has been engaged into assessing the investment attractiveness of the Russian regions since 1996. From the point of view of methodology the investment attractiveness of the region is based on the combination of two factors - investment potential and investment risk, both factors are integral (Table 3). The investment potential of the region comprises of 9 private potentials characterized by indicators on natural resources and labor, production, consumer, infrastructure, innovation, institution, finance and tourism data. Investment risk of the region is formed as an integral value combining the assessment of 6 types of risk: social, economic, financial, managerial, environmental and criminal.

**Table 3: Investment rating of the regions of the Far East according to version of Expert Rating Agency (RAEX) (2017)**

Region of the Far Eastern Federal District	Rank of investment potential		The rank of investment risk		Investment rating of the region
	2010	2017	2010	2017	
The Republic of Sakha (Yakutia)	24	20	48	54	3B1 (reduced potential – moderate risk)
Primorye Territory	18	22	62	53	
Khabarovsk Region	30	30	67	39	
Sakhalin Region	53	56	70	25	
Amur Region	55	66	47	48	3B2 (low potential – moderate risk)
Magadan Region	75	77	75	67	
Kamchatka Territory	69	70	74	73	3C2 (low potential – high risk)
Jewish Autonomous Region	81	81	71	80	
Chukotka Autonomous Area	73	80	80	81	

The investment potential of regions in the Far East has not changed radically during the past seven years. The only region that has improved its rating is the Republic of Sakha (Yakutia). Other regions either retained their positions or worsened them. Some of the regions have reduced investment risks: Sakhalin Region has got the best result (+45 positions), Khabarovsk Region (+28) and Primorye Territory (+9). Still indicators of labor, infrastructure, consumer and tourist potential remain to be the so called "failures".

Low labor potential is caused by the population outflow from the Far Eastern regions. The population of the Far Eastern Federal District has decreased by 120 thousand people (2%) in comparison with the year of 2010. Proportion of the working age population has also decreased; from 63.4% in 2010 to 58.4% at the beginning of 2017 (Federal Service of State Statistics, 2017b). The decrease of population and the increase of the number of pensioners result in narrowing the consumer market. High prices caused by high transport costs also affect negatively on the region's consumer potential. High transport costs are caused by the low level of transport infrastructure (Table 4).

**Table 4: Development of the transport infrastructure of the Russian Far East (2010 and 2016) (Federal Service of State Statistics, 2017b)**

Region	Density of public roads with hard surface, km per 1000 square kilometers of territory		Density of railways, km per 10,000 square kilometers of territory	
	2010	2016	2010	2016
<b>Far Eastern Federal District</b>	<b>6.1</b>	<b>9.5</b>	<b>13</b>	<b>14</b>
The Republic of Sakha (Yakutia)	2.7	3.8	2	2
Kamchatka Territory	3.6	4.2	0	0
Primorye Territory	52	92	95	95
Khabarovsk Region	7.4	12	27	27
Amur Region	22	35	81	81
Magadan Region	4.7	5.4	0	0
Sakhalin Region	14	23	92	96
Jewish Autonomous Region	46	68	141	141
Chukotka Autonomous Area	0.8	1.0	0	0
<i>Reference: Russian Federation</i>	39	62	50	50

Despite the fact that the density of motor roads increased 1.6 times from 2010 to 2016, it still remains extremely low. There is no railway communication in the northern regions (Kamchatka, Chukotka, Magadan Region). The Amur-Yakutia railway in the Republic of Sakha (Yakutia) does not function fully, and no new railways have been built in the region during the period. Thus, the low level of transport infrastructure restrains the development of domestic and inbound tourism.

At the international level, the Doing Business rating compiled by the World Bank in conjunction with the International Finance Corporation has become frequently used. It assesses and rates the ease of doing business not only at the level of the Russian Federation but also at the regional level. 30 Russian cities participate in the rating, not 12 but only 4 criteria are used which are the most important components of the rating. As for the Far East, rating participant are the Republic of Sakha (Yakutia), the Khabarovsk Territory and Primorye Territory - Yakutsk, Khabarovsk and Vladivostok. According to the rating of Doing Business

(2017), the leader is Ulyanovsk. Yakutsk took the 28<sup>th</sup> place, Vladivostok – 15<sup>th</sup> place and Khabarovsk – 23<sup>rd</sup> (Table 5).

**Table 5: Comparative analysis of the positions of the cities – centers of the Far Eastern regions in the Doing Business 2017 rating**

Indicators	City	Occupied place (from 30 cities)	Number of procedures	Time Spent, days	Amountin %
Business Registration (LLC with an authorized capital of 5 thousand rubles)	City Leader, St. Petersburg	1	7	17	2.1'
	Yakutsk	8	7	25	2.2'
	Khabarovsk	24	8	23	3.0'
	Vladivostok	18	8	23	2.3'
Connection to power supply system	City Leader, Saransk	1	9	123	269.2'
	Yakutsk	25	6	279	1012.2'
	Khabarovsk	8	9	248	391.1'
	Vladivostok	23	9	260	852.4'
Dealing with Construction Permits (estimated cost of the warehouse is 2620 thousand rubles)	City Leader, Surgut	1	17	150	106.2''
	Yakutsk	26	26	280	178''
	Khabarovsk	29	32	269	188.9''
	Vladivostok	22	26	218	169.4''
Registration of property (the value of the property 15333527 rubles)	City Leader, Kaluga	1	3	19	0.2'''
	Yakutsk	30	4	60	0.4'''
	Khabarovsk	17	3	13	0.3'''
	Vladivostok	3	3	32	0.2'''

Notes: \* – in % of per capita income; \*\* – in% of the value of the commodity warehouse; \*\*\* – in% of the value of the propertyobject

The key problems in attracting investments (based on the analysis of Table 5) are infrastructure (power supply system) and management (procedures and time).

### Correlation-regression analysis of the dynamics of foreign direct investment in the economy of the Far East of Russia

A comparative analysis of the indicators of investment attractiveness of various methods has shown that most of them are based on the methodology of the United Nations Conference on Trade and Development (UNCTAD), which is the most authoritative organization of the UN system in the investment sphere. Since 1991, UNCTAD has been publishing the World Investment Report, which reflects the dynamics of the investment attractiveness of the economies of the world.

The conference highlights four groups of factors of investment attractiveness of the economy for foreign investors (World Investment Report, 2012):

1. The attractiveness of the market (the size of the market, the purchasing power of the population, the potential opportunities for market growth);
2. Price and quality of labor, incl. its availability (labor costs per unit of production, production capacity of labor);
3. Availability of natural resources (exploitation of natural resources, agricultural resources);

4. Availability of necessary infrastructure (transport, energy, communications, business infrastructure).

Taking into account the above factors, in this study, a stochastic factor analysis of the dynamics of foreign direct investment in the economy of the Far Eastern Federal District by means of correlation-regression modeling was carried out. For this, according to the Federal Service of State Statistics (2017b) for 2004-2016, the following factors (variables) were selected:

1. Group of factors "Attractiveness of the market":
  - a. per capita monetary income of the population in thousand rubles., as an indicator of the attractiveness of the regional market ( $x_1$ );
  - b. The share of profitable enterprises in the region in% as the main indicator of the degree of favorable business practices and the attractiveness of the market for investors ( $x_2$ );
  - c. amount of tax paid on organizations' profit in million rubles., as an indicator of the budgetary efficiency of entrepreneurship in the region ( $x_3$ ).
2. Factors group "Quality of labor and its availability":
  - a. the number of economically active population as the base indicator of the size of the market and the availability of labor resources ( $x_4$ );
  - b. the unemployment rate in% as an indicator of the availability of a labor reserve in the region ( $x_5$ );
  - c. the annual graduation of mid-level specialists as an indicator of the availability of staff ( $x_6$ ).
3. Group of factors "Availability of natural resources and their exploitation":
  - a. sectoral structure of gross value added (extraction of minerals) as an indicator of the sector's specialization in the region ( $x_7$ ).
4. Group "Infrastructure Development Indicators":
  - a. coefficient of depreciation of fixed assets in % as an indicator of the level of development of the industrial infrastructure of the region ( $x_8$ );
  - b. internal costs for research and development in million rubles., as an indicator of the level of innovation development ( $x_9$ );
  - c. density of public roads with hard surface in km per 1000 sq. m. km as an indicator of the development of transport infrastructure ( $x_{10}$ );
  - d. electricity generation in billion kW / h as an indicator of the level of development of the energy infrastructure ( $x_{11}$ );
  - e. the number of operating credit institutions and branches as an indicator of the level of development of financial infrastructure in the region ( $x_{12}$ ).

The model was built using the application software STATISTICA 13.0 based on the data of the Federal Service of State Statistics (2017b) using the least-squares method (LSM).

LSM allows obtaining estimates of the parameters of the regression equation in which the sum of the squares of the deviations of the actual variables of the result  $\hat{y}$  – the volume of foreign direct investments in the Far Eastern Federal District from the calculated values is minimal:

$$\sum (y_i - \tilde{y}_{x_i})^2 \rightarrow \min(1)$$

The procedure for constructing the multiple regression equation consists in a step-by-step algorithm for including and excluding significant variables. The inclusion of certain factors in the equation is related to the notion of the essence of the relationship between the effective feature, and in our case the volume of foreign direct investment, with other economic factors selected in the model.

When analyzing the matrix of paired correlation coefficients explaining the variables, multicollinearity was revealed (at  $|r| \geq 0.8$ ), which makes the model unstable and inadequate. In this connection, insignificant variables were excluded from the model, which could distort the significance of the constructed regression equation for the volume of foreign direct investment in the Far East. As a result, the following regression equation of the volume of foreign direct investment to the economy of the Far East was obtained  $\hat{y}$ :

$$\hat{y} = -116601 + 460x_2 + 21x_4 + 1269x_5 - 340x_6 + 635x_8 \quad (2)$$

$$R^2 = 0,93 \quad (5,67951) \quad (3,35466) \quad (3,69881) \quad (-5,15276) \quad (5,92618)$$

$$F_{obs} = 17,736 \quad DW = 2,8$$

The verification of the significance of the obtained equation with the help of the Fisher criterion gave a positive result at a level of significance  $\alpha = 0.05$ , since  $F_{kr(table)} = 3.97 < F_{obs} = 17.736$ , all regression coefficients are significant. The multiple coefficient of determination ( $R^2$ ) indicates that the dynamics of the volume of foreign direct investment by 93% is explained by the influence of the factors selected for the model. The Darbin-Watson criterion, which is a method for determining the presence of autocorrelation in residues and characterizing the reliability of the model, has the value  $DW = 2.8$ , i.e. is in the range  $0 \leq DW \leq 4$ , which indicates that there is no autocorrelation of the residues. Thus, it can be argued that all factors that have a significant impact on the resultant indicator are taken into account and their impact is not reflected in the balances.

In the course of the analysis of values of regression coefficients, it was revealed that the influence on the dynamics of the volume of foreign direct investment is exerted by factors:

- the share of profitable enterprises in the region, in % ( $x_2$ ),
- the number of economically active population in the region, in thousands of people. ( $x_4$ ),
- unemployment rate, in % ( $x_5$ ),
- annual output of mid-level specialists, thousand people (with a negative sign) ( $x_6$ );
- coefficient of deterioration of fixed assets, in % ( $x_8$ ),
- The obtained model shows that:
  - an increase of 1% in the share of profitable enterprises will increase foreign direct investment by \$ 460 million, provided that other factors remain unchanged.
  - an increase of 1% in the economically active population in the region will lead to an increase in foreign direct investment of \$ 21 million, provided that the remaining factors remain unchanged.
  - an increase of 1% in the level of unemployment contributes to an increase in foreign direct investment by \$ 1,269 million, provided that other factors remain unchanged.
  - an increase of 1% in the annual output of mid-level specialists leads to a decrease in foreign direct investment by \$ 340 million, provided that the remaining factors remain unchanged.
  - an increase of 1% in coefficient of deterioration of fixed assets ensures the growth of foreign direct investment by \$ 635 million, provided that other factors remain unchanged.

Thus, the main group of factors is the quality of the workforce and its accessibility. In addition, an important factor is the share of profitable enterprises, which characterizes the level of comfort of doing business in the region.

The results obtained largely correlate with the conclusions of the CEFIR study (CEFIR, 2013), which was carried out by polling. According to this survey of foreign companies operating in the Far East, the key problem is the shortage of skilled labor. Compared to 1991, when the population in the Far East was the highest in the

history of the region's development and exceeded 8 million people, by 2018 it had decreased by almost 25%, primarily due to the outflow of population to the European part of Russia. Taking into account the fact that young qualified specialists are leaving, the share of pensioners is increasing. However, the CEFIR study showed that, in spite of personnel problems, foreign investors from developed countries are more attracted to local labor resources, while companies from developing countries, primarily from China, use their cheaper labor, which reduces the positive effect of attracting foreign investment in the region. As for specialists with secondary specialized education, according to the CEFIR poll, specialists with higher education are more likely to find work in a campaign with foreign capital.

To solve the strategic tasks of social and economic development of the Far East, the population of the region should increase by 2-3 million people, i.e. at least by 30%. To achieve this goal, the Concept of the Demographic Policy of the Far East for the period up to 2025 was developed and adopted (Government of the Russian Federation, 2017). According to this Concept, the efforts of the authorities, both federal and regional, should be aimed at increasing the birth rate and reducing mortality, reducing the migration outflow of the permanent population, attracting migrants and repatriating compatriots living abroad, creating conditions for securing young people from other regions.

## **CONCLUSIONS**

According to the results of modeling, the key challenges in the development of the Far Eastern region are the quality and availability of labor, as well as ensuring the profitability of enterprises. The authorities believe that the most effective tools are the increased use of maternity capital, i. its increase by 30% compared with the rest of Russia, payments for the first child will amount to 150 thousand rubles. Increase "lifting" for those moving to the Far East from 250 thousand rubles up to 1 million rubles for each member of the family. Thus, the additional costs will amount to more than 30 billion rubles annually.

Profitability as a relative indicator of financial effectiveness of companies is formed under the influence of many factors. Based on the analysis results applied to the Far East, the main factors are the level of transportation costs, high depreciation of fixed assets, high tariffs for electricity for business, and the level of taxation. And in this direction there are also significant changes. The mechanism for equalizing electricity tariffs for business was extended until 2028 in order to ensure the implementation of regional investment projects. Significant tax incentives for companies implementing regional investment projects have been introduced, and it is expected to increase a number of benefits for investment projects worth more than 100 million rubles (for example, for income tax, the benefits will be extended from 10 to 19 years). Residents of the territories of advanced development (TAD) will be granted a 10-year privilege to pay insurance premiums instead of the current 3-year one. In addition, the so-called "grandfather's reservation" will apply for the first 10 years of the project's implementation instead of seven.

Another important factor that has a deterrent effect on the inflow of FDI into the economy of the Far East is their concentration in the extractive industry, which is expressed in a negative spillover effect. In this regard, it seems expedient to develop infrastructure, primarily transport infrastructure, which will reduce transport costs and ensure the competitiveness of products of manufacturing industries, and will promote the development of domestic and inbound tourism, which in turn will ensure the development of all induction of hospitality through multiplicative effect. The implementation of projects in the field of transport infrastructure development is currently being successfully implemented on the terms of public-private partnership. In addition, the development of transport infrastructure will overcome the "enclave" of the Far East and will contribute to an increase in the population.

Thus, the implementation of the demographic policy is directly related to attracting FDI to the economy of the Russian Far East.

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