Economic Effects of Foreign Direct Investment
on the Sakhalin Region from 1995 to 2005

Keiko Suganuma[*]

Abstract

This paper quantitatively evaluates the economic effects of foreign direct investment (FDI) on Russia's regional development, concentrating on the Sakhalin region in the construction stage of both Sakhalin Projects 1 and 2. The region has enjoyed a relatively large amount of FDI compared to others with similar situations of relevant early main economic elements. This analysis shows that the FDI into the region has had a positive economic effect on the nominal wage levels, domestic investment, international trade, economic growth, and the upgrading and expanding of social capital. On the other hand, the effects on employment, real wage levels, technology, and budget revenue are not statistically significant.

Keywords: *foreign direct investment (FDI), Russia, Sakhalin, economic effects*

1.   Introduction

For Russia and its constitutional regions, economic revitalization is an urgent challenge. Promoting foreign direct investment (FDI) is one effective method to address this challenge because such direct investment from overseas can usher in a wide range of economic effects to the receiving country and its region. The economic effects of FDI include

economic, employment, and income growth, technological transfer, and industrial structural change (Tanaka 1994; Blomstrom and Kokko 1998; Odagiri 2000; JBIC Institute 2002; Ohashi 2003; Gorg and Greenaway 2004).

In the case of Russia, FDI has been concentrated in the cities and regions with large economies and existing resources (Iwasaki and Suganuma 2005; Ledyaeva 2009). This concentration is prominent, especially in the Sakhalin region, when looking at the FDI cumulative total value and cumulative value per capita from 1995 to 2005[1]. In fact, as shown in Table 1, a great amount of FDI went into the fuel sector of this region. Due to data limitations, tracing the FDI trends of each sector in every region is not feasible; however, the ratio of FDI into the Russian fuel sector increased to 27.9% of the total FDI in 1999, which is the year the Sakhalin Project gained momentum and FDI into Sakhalin abruptly increased. Since a large amount of FDI has been put into the fuel sector, the accumulative amount between 1999 and 2005 reached 23.0% of the FDI ratio into the Russian fuel sector of the total FDI (Table 1). Moreover, since the major companies involved in the Sakhalin Project were from Japan (Sakhalin 1 and 2), Holland (Sakhalin 2), India (Sakhalin 1), and the U.S. (Sakhalin 1) and these countries topped the list of FDI into the Sakhalin region, the FDI into it is clearly concentrated on the Sakhalin Project (Table 2)[2].

Based on the above characteristics, many discussions have focused on the influence of the Sakhalin Project as attracting FDI into the Sakhalin region, but very few researches quantitatively verify the economic influence of FDI in this region[3]. Due to the non-

---

[1] However, we must keep in mind that FDI inflow is recorded in the region where the headquarters of the investment firm is located. In other words, if a foreign company with many branches all over Russia and headquarters in Moscow invests in other regions than Moscow, the investment is recorded for Moscow. Therefore, perhaps FDI inflow into other regions remains underestimated (Iwasaki and Suganuma 2005).

[2] However, it has been pointed out that the investment amount by Japan dropped radically while the investment amount by Holland increased rapidly because the investments into Sakhalin Energy made by such Japanese corporations as Mitsui & Co. and Mitsubishi Corporation were summed as Dutch investment (Endo 2007).

[3] For example, the operational companies of the Sakhalin Project of course trumpet the economic effects on the region in their reports. Ruzanov (1999) and Sugimoto and Furuta (1999) also refer to the economic contribution that the Sakhalin Project brought to the economy of the Sakhalin region. However, they did not conduct quantitative analysis. On the other hand, Thornton (2002) and Thornton (2007) did point out such economic effects as budget revenue and wages in the Sakhalin region, but it is difficult to say that these studies did quantitative analyses.

availability of micro data in the Sakhalin region, without using a regression analysis method, this paper quantitatively examines FDI's economic effects by concentrating on the local economy of the Sakhalin region, which has previously been emphasized by descriptive facts. Such methodology is different from previous studies.

The paper is structured as follows: the next section reviews the previous studies of the economic influence of FDI on host countries and presents hypotheses for a quantitative analysis taking Sakhalin's case into consideration. The third section explains the analytical methods of the economic influence of FDI on the Sakhalin region, and the fourth section reports the result of analysis. The last section summarizes and offers a conclusion.

Table 1 Foreign Direct Investment Trend in Russia

	1995	1996	1997	1998	1999	2000	
Russian Federation ($Million)	2,020	2,440	5,333	3,361	4,260	4,429	
Far East Federal District ($ Million)	127	242	196	250	1,097	305	
Sakhalin Region ($ Million)	50	43	49	132	1,022	246	
Ratio of Sakhalin Region in Russian Federation (%)	2.5	1.8	0.9	3.9	24.0	5.6	
Ratio of Sakhalin Region in Far East Federal District (%)	39.1	17.7	25.1	52.8	93.2	80.8	
By sector (fuel) ($ Million)	262	196	315	307	1,187	442	
Ratio of FDI into fuel sector in Russian Federation (%)	13.0	8.0	5.9	9.1	27.9	10.0	
	2001	2002	2003	2004	2005	1995 to 2005	
						Cumulative Total	Cumulative Total per Capita[1]
Russian Federation ($ million)	3,980	4,003	6,781	9,420	13,072	59,099	414
Far East Federal District ($ million)	458	724	2,093	3,396	3,942	12,831	1,960
Sakhalin Region ($ million)	375	680	2,008	3,272	3,801	11,677	22,199
Ratio of Sakhalin Region in Russian Federation (%)	9.4	17.0	29.6	34.7	29.1	19.8	
Ratio of Sakhalin Region in Far East Federal District (%)	81.7	93.9	95.9	96.3	96.4	91.0	
By sector (fuel) ($ million)	430	667	1,917	3,984	3,913	13,620	
Ratio of FDI into fuel sector in Russian Federation (%)	10.8	16.7	28.3	42.3	29.9	23.0	

Note: 1) Cumulative total per capita was calculated using population on January 1, 2006. The unit is 1$.

Source: Goskomstat RF (2001a; 2003a), Rosstat (2005a; 2007a; 2009a). Population was calculated by author using Rosstat (2009b).

Table 2 Foreign Investment Trends into Sakhalin Region

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2001 to 2005 | |
						Cumulative Total	Cumulative Total per Capita[2]
By Types of Investment							
Total Foreign Investment ($ million)	388.9	706.7	2,083.1	3,927.1	4,861.6	11,967.4	22,751.7
FDI（$ million）	374.6	679.8	2,007.7	3,272.1	3,800.8	10,135.0	19,268.1
Ratio of FDI in Total Foreign Investment (%)	96.3	96.2	96.4	83.3	78.2	84.7	84.7
By Sector[1]							
Mining and manufacturing industry	336.2	528.7	1,792.7	3,692.0	3,803.3	10,152.9	19,302.1
ratio of mining and manufacturing industry in all Economic Activities (%)	86.5	74.8	86.1	94.0	78.2	84.8	84.8
By Country （Amount: $ million)[1]							
Japan	157.5	233.3	783.8	4.4	9.5	1,188.5	2,259.5
U.S.	0.7	2.6	6.4	8.5	4.7	22.9	43.5
Holland	-	-	567.6	3,267.8	3,797.4	7,632.8	14,511.0
India	-	-	-	130.7	315.0	445.7	847.3
By Country (Ratio: %)							
Ratio of Japan in total foreign investment (%)	40.5	33.0	37.6	0.1	0.2	9.9	
Ratio of U.S. in total foreign investment (%)	0.2	0.4	0.3	0.2	0.1	0.2	
Ratio of Holland in total foreign investment (%)	-	-	27.2	83.2	78.1	63.8	
Ratio of India in total foreign investment (%)	-	-	-	3.3	6.5	3.7	

Note: 1) Data by sector and country was not drawn from FDI but from total foreign investment.

2) Cumulative total per capita was calculated using population on January 1, 2006. The unit is 1$.

Source: JETRO (2003; 2004; 2005;2006). Population was calculated by author using Rosstat (2009b).

2.   Hypotheses regarding economic influence of FDI in Sakhalin region

As mentioned above, FDI has great potential for creating considerable economic influence in host countries. In this section, we divide the possible economic influences of FDI into eight groups and present a hypothesis for each group for the Sakhalin region. First we individually examine each economic influence based on the previous studies listed in Table 3.

Table 3 List of Previous Studies on Economic Effects on FDI Recipients [1]

Literature Name	Analysis Target Country	Analysis Period	Analysis Method	Summary
Balasubramanyam et al. (1996)	46 countries	1970 to 1985	OLS, GIVE	GDP Growth rate (+)
Aitken et al. (1997)	32 regions in Mexico	1986 to 1990	Probit (2SCML)	Export (+)
Barrell and Pain (1997)	① West Germany, England,② England, Germany, France and Sweden	①1st quarter of 1972 to 4th quarter of 1994 (some countries to 4th quarter of 1995) ②1st half of 1971 to 2nd half 1994	OLS	Technological development (+)
de Mello (1997)			Review of 11 research papers	Production increase (basically +). For domestic investment, technological transformation, and labor productivity of domestic companies, impact differ depends by paper.
Aitken and Harrison (1999)	Venezuela	1976 to 1989 (except for 1980)	OLS, WLS	productivity: within same company (+), within same industry (-), foreign-affiliated factory (+), small business
Figlio and Blonigen (2000)	U.S. (South Carolina)	1980 to 1995	Fixed effect, t-test	Real wages (+), public education spending (-) However, real wages are higher in foreign companies than in domestic companies.
Mencinger (2003)	8 Central and Eastern European Countries joining EU in 2004	1994 to 2001	OLS, Cross-section and Granger causality test	Growth rate (-)
Yudaeva et al. (2003)	Russia	①1996 or 1997 (Comparison of foreign and domestic companies);②1993 to 1997 (Spill-over effect from Foreign companies)	OLS	Productivity: foreign company > domestic company Productivity spill-over effects (+), vertical relationship spill-over effects (-)
Cheung and Lin (2004)	4 provinces and 26 administrative regions in China	1995 to 2000	OLS, fixed effect, random effect	Number of patent applications in China (+) Especially in minor innovation (external design) when looking by type. Especially in western region when looking by regions.
Gorg and Greenaway (2004)			Review of 40 research papers	For productivity spill-over effect, results were mixed depending on the paper. However, developing countries had many +s and transitional countries (Central-Eastern Europe) had ? or insignificant.
Mullen and Williams (2005)	48 states in U.S.	1977 to 1997	OLS, 2SLS and LSDV	Inter-business competition (+), innovation (+), productivity (+), growth (+) especially for greenfield investment, employment (+), capital stock (+)
Ma (2006)	29 provinces in China	1993 to 2000	OLS, Probit	Export was (+) for Joint-ownership and Private-ownership companies and for State-owned companies it was (-).
Axarloglou and Pournarakis (2007)	21 states in U.S.	1974 to 1994	Fixed effect, Random effect	Employment (+), wage (+) However, impact differs depending on region and industry.
Greenaway et al. (2007)	77 developing countries	1990 to 2000	OLS, Random effect	For open economy, growth was (+).
Mullen and Williams (2007)	48 states in U.S.	1997	OLS	Labor productivity (-), domestic company productivity (-)
Ozturk and Kalyoncu (2007)	Turkey, Pakistan	1975 to 2004	Engle-Granger cointegration test, Granger causality test	Turkey: GDP (+)
Ford et al. (2008)	48 States in U.S.	1978 to 1997	LSDV, SUR, OLS	GGP growth rate per capita (-) However, cross-term of human capital and FDI of the GDP growth rate per capita were (+).
Lutz et al. (2008)	Ukraine	1996 to 2000	OLS, fixed effect, GMM	Exports (+) Especially, durable-good producers>non-durable-good producers, large companies>small companies

Note: 1) Only the theme of this paper, the economic effects of FDI in countries and in regions, was summarized here from each study.
Source: created by author.

2.1 Effect on employment

   Naturally, there is a direct influence on job-creation when foreign companies invest in a country or in a region and hire local workers. The hiring activities of local companies can also be influenced if these foreign companies use local suppliers. In addition, as will be mentioned below, an increase in the total demand due to economic growth can increase employment. Axarloglou and Pournarakis (2007) confirmed an employment increase caused by FDI inflows in an empirical analysis that targeted 21 U.S. States. However, the impact and significance of the employment increase brought by FDI inflows depend on the region and the industry. For the Sakhalin region, FDI inflow probably increased employment. For example, Sakhalin Energy stated that 22,752 people were hired directly and by contract in the fourth quarter of 2005 for projects related to Sakhalin 2 (Sakhalin Energy 2006), remarkably lowering the region's unemployment rate. According to official Russian government statistics[4], the unemployment rate fell from 20.4% in 1999 to 4.6% in 2006[5], even though the unemployment rate for the same period in Russia as a whole only decreased from 13.0% to 7.2%[6]. This demonstrates the improvement of employment in the Sakhalin region. In addition, Sakhalin residents themselves recognize the employment-boosting effects brought by the Sakhalin Project. In fact, 22 people out of 38 listed employment as the best benefit that they received from it in a survey conducted in 2000 (Akaha and Vassilieva 2003). Similarly, a local newspaper reported that the employment boosting effect had reached other regions as well. In other words, employment expanded not only in areas like the Okha district, famous for producing oil and natural gas, but also areas adjacent to such pipeline construction sites as the Novyi district, where employment opportunities had been scarce[7]. Therefore, the Sakhalin Project boosted employment by direct and indirect hiring as contractors in the Sakhalin region as well.

---

[4] Based on Rosstat (2004; 2009b).
[5] Similarly, the registered unemployment rate dropped from 4.0% in 1999 to 1.5% in 2006.
[6] On the contrary, on the national level in Russia, the registered unemployment increased from 1.7% in 1999 to 2.3% in 2006.
[7] Articles published in newspaper Sovetskii Sakhalin in the Sakhalin region on June 22, 2004, July 2, 2004, and July 4, 2006.

2.2 Effect on wage level

When a foreign company with financial muscle develops its business in a particular country and region, they often pay higher wages than local companies to attract and maintain skilled workers to meet its skill level. Figlio and Blonigen (2000) compared foreign and local manufacturers and reported that the former paid significantly higher real annual salaries than the latter. Local companies have no choice but to take countermeasures to compete by increasing salaries to retain skilled workers. In this way, FDI often directly and indirectly raises salary levels. Axarloglou and Pournarakis (2007) confirmed the positive effects of FDI by regressing the average hourly earning into FDI inflows. According to official Russian government statistics[8], real wages increased between 2000 and 2006 at an average annual rate of 13.3% in the Sakhalin region. However, real wages at the national level increased as well at a rate even greater than that of the Sakhalin region (15%)[9]. However, the average monthly wage of workers in the oil industry (Neftianik), which is the main industry in the Sakhalin region, surpassed 20,000 rubles in 2004[10]. Even though wages in the oil mining industry were higher than Russian salaries in general, note how high the wages of oil industry workers are when we look at the nominal average monthly income of the whole country, which was 6,739.5 rubles in 2004[11]. All these factors suggest that the wage standard in the Sakhalin region, where oil and natural gas development has been the major industry, rose as foreign companies gained ground and the Sakhalin Project expanded[12].

2.3 Effects on technological level and productivity

FDI's economic influences include not only such quantitative effects as the growth of employment and wages but also such qualitative aspects as technological transfers and

---

[8] Based on Rosstat (2006a; 2007b; 2008b; 2009b).

[9] However, looking at the average increase-decrease rate of the real monetary income between 2000 and 2006, the Sakhalin region showed more increase (15%) than Russia as a whole (12%).

[10] In fact, it was actually 20,078 rubles (newspaper article in Sovetskii Sakhalin in the Sakhalin region, July 14, 2004). In 2004, the nominal average monthly wage of a worker in the fuel and energy resource mining sector in Russia was 19,903 rubles. This fact demonstrates that wages in the Sakhalin region were not eminently at a higher level (Rosstat, 2008a).

[11] Based on Rosstat (2009b).

[12] Sakhalin Energy claims to have contributed to the improvement of the living standard in the Sakhalin region where Sakhalin 2 is involved. In other words, as wages increased, the percentage of people receiving only the amount below minimum living costs decreased from 21.3% (114,000 people) in 2004 to 20.4% (108,000 people) in 2005 (Sakhalin Energy 2006).

productivity improvements. These technological transfer effects include direct ones from a foreign parent company to a local subsidiary as well as indirect ones that even spread outside a local subsidiary company when its workers switch jobs to a local company or when workers start their own businesses. Moreover, demonstration effects and competitive effects are expected; the former are created by local companies observing and copying foreign companies' activities, and the latter can increase incentives for improving local company productivity by the fierce competition with foreign companies. These qualitative effects on the productivity of companies in the host countries will eventually result in such macro-level economic effects as export increases and economic growth.

To verify such economic effects, Cheung and Lin (2004) analyzed the FDI influence on patent applications in China. They concluded that despite different patents that slightly varied by type or region, FDI inflow increased patent applications in China as a whole[13]. For the Sakhalin region, the Sakhalin Project's operational corporations invested capital into various training programs for their workers and local suppliers, including general business, foreign-language, and computer skills[14]. These efforts made by the Sakhalin Project-related companies are probably noticeable in macro-data analyses. However, since the FDI in the Sakhalin region was mainly directed toward energy development utilizing special technology, its effects on the numbers of patent applications analyzed by Cheung and Lin (2004) might be very limited.

2.4 Effects on domestic investment activities

The employment and wage increases brought by FDI may expand the effective demand of the interested country and region and vitalize the investment activities of domestic companies. Moreover, if foreign companies actively procure intermediary commodities locally, local companies will need to invest in their facilities to produce enough goods to

---

[13] Other studies, which verified the effects of technological transfers using the differences among the Total Factor Productivities (TFP) of companies in China, have been introduced (Ohashi 2003). Also, Yudaeva et al. (2003) confirmed the positive impact on productivity in Russia. On the other hand, Mullen and Williams (2007) drew the opposite conclusion. Likewise, de Mello (1997) shows that the results of previous studies on the FDI impact on technological transformation and labor productivity vary.

[14] In other words, Exxon Neftegas Limited offers their workers and local suppliers specialized training not only in Russia but also in the U.S. and Canada. For example, 1,867 people took part in their company's programs for the development of human resources at Sakhalin Energy (Sakhalin Energy 2007). Also, in addition to various trainings, Sakhalin Energy trained local companies, awarded scholarships and internships, and spent 5.9 million dollars just in 2005 (Sakhalin Energy 2006).

meet the demand of foreign companies. Competing with foreign companies will also stimulate the local companies' incentives for investment[15]. Along with these factors, investment by domestic companies will also probably increase as a whole. Using reviews of empirical studies, de Mello (1997) states that especially in technologically-backward countries the possibility is high that FDI inflow will increase domestic investment[16]. This description may match the Sakhalin region. In fact, some cases of FDI-triggered domestic investments have been reported in this region. For example, investment from local companies has increased due to orders (subcontracts) from Sakhalin Project-related companies to Russian companies. In fact, regarding Sakhalin 1, the subcontracts given to Russian companies surpassed 5 billion dollars by 2005[17]. As for Sakhalin 2, the amount exceeded 6.1 billion dollars between 1996 and 2005 (Sakhalin Energy, 2006). Note that the investments made by the Sakhalin Project-operated and affiliated companies not only covered the goods used for the project but also went into a wide range of areas that improved social capital, such as infrastructure development. Considering these points, it is highly likely that in the case of the Sakhalin region, FDI increased domestic investment through various subcontracts related to the Sakhalin Project, including infrastructure development.

2.5 Effect on trade activities

FDI also affects the promotion of a region's trade activities. We consider two export scenarios: 1) foreign newcomers in the region export goods produced in the field, and 2) local companies export as a result of improved production brought by improved productivity and increased domestic investment. On the other hand, the opposite effect is true for imports. We can point out two possibilities here: imports may decrease because previously imported goods are now manufactured locally (import substitution); imports may increase because foreign companies that entered the region may procure goods from other countries. Moreover, an indirect effect is expected if the workers develop interest in imported goods as their wages increase. This explains why the effect of FDI on the increase

---

[15] However, when a local company loses due to the competition from foreign capital and withdraws, a negative effect is produced in the investment receiving side.

[16] On the other hand, technically advanced countries have recorded negative impacts (de Mello 1997).

[17] Sakhalin 1 homepage (http://www.sakhalin1.com/en/benefits/torussia.asp).

of imports is limited, even though many previous studies have repeatedly confirmed how it promotes exports (Aitken et al. 1997; Ma 2006; Lutz et al. 2008).

In the Sakhalin region, exports more than tripled, from 340 million dollars in 1997 to 1.06 billion dollars in 2005, and imports expanded eightfold from 310 million dollars to 2.49 billion dollars[18]. Crude oil is the major export commodity, and mechanical products are the main import commodity. For example, although the figures are only for two years, the ratio of crude oil of the total exports was 51.0% in 2004 and 56.0% in 2005, and the ratio of mechanical products of the total imports was 40.4% and 59.7%, respectively (Table 3). Therefore, for the Sakhalin region, FDI likely influenced such remarkable expansion of both exports and imports.

2.6 Effect on economic growth

Coupled with the above economic effects of FDI and the results of the synergistic effects, impressive economic growth might also have been generated at the macro level. For instance, the increase of employment opportunities and the wage increases brought by the improvement of worker production capacities create more domestic demand. This stimulates the production activities of domestic companies, expands trade, and finally produces economic growth. The effect of FDI on such economic growth has been confirmed by numerous studies (Balasubramanyam et al. 1996; de Mello 1997; Mullen and Williams 2005; Greenaway et al. 2007; Ozturk and Kalyoncu 2007[19]). In previous studies the GDP growth rate and GDP per capita were used as proxy variables. For example, Balasubramanyam et al. (1996) GDP adopted growth rate as the dependent variable. As its independent variable, they incorporated the accumulated FDI-to-GDP ratio as the proxy variable of the foreign capital stock size and demonstrated that the FDI increase correlates positively to the economic growth of the host country[20]. Mullen and Williams (2005) confirmed the positive impact of FDI on economic growth in the U.S. using such FDI indices as the Gross State Product (GSP) per capita and the ratio of the FDI total book

---

[18] Based on Goskomstat RF (2000) and Rosstat (2009b).
[19] They confirmed with a Granger Causality Test that in Turkey, FDI and GDP positively impacted each other and in Pakistan GDP positively impacted FDI.
[20] However, in countries where they implemented an import substitution policy, the effect of FDI was insignificant and negative.

value to GSP. Even though the target of this study was the U.S., the figures from official statistics[21] show that GRP increased in the Sakhalin region as well. In other words, GRP increased by 10.2% on average between 1999 and 2006, which are the years where FDI inflow into the Sakhalin region increased sharply[22]. This suggests that the chances are high to empirically confirm that FDI toward the Sakhalin region positively affected economic growth[23].

2.7 Effect on government finance

When foreign companies enter a region, we expect an increase in corporate taxes from such companies, but an increase in income taxes from workers is also possible. However, as is well known, developing and transitional countries actively attract FDI by temporarily giving such tax incentives as reduction or exemption from corporate taxes to attract foreign companies to receive the above various economic effects of FDI. Yet such political expediency may obfuscate the amount of taxes that need to be paid by foreign companies to the government of the receiving country. Hence, it is not impossible that the tax revenue may be disappointing (Dhanani and Hasnain 2002). In this instance, perhaps the effect of FDI on budget revenues will be highly limited. Actually, according to Figlio and Blonigen (2000), when the size of foreign companies is controlled, an increase in the workforce of foreign manufacturing companies significantly and negatively influenced per capita income. Regarding the adoption of a Production Sharing Agreement (PSA) to the Sakhalin Project, since it was a part of foreign capital attracting measures, such project specific revenue as royalties and bonuses will enter the Sakhalin region (UNECE 1998; Chistov 1999). However, the effect of FDI on the revenue expansion of this region may be limited because substantial government revenue was paid from the late 2000s.

---

[21] Based on Rosstat (2005b; 2009b).

[22] On the other hand, in Russia, the rate was 7.3%.

[23] Ivan Malakhov, the acting Governor of Sakhalin region at the time, commented that "Sakhalins 1 and 2 could be detonators for economic growth". He also pointed out that the effects of the Sakhalin Project reach a wide range of areas such as construction and commerce development (article in newspaper Sovetskii Sakhalin in the Sakhalin region, March 23, 2004). The Takugin Research Institute (at the time) in Japan estimated, assuming a resource development period of 30 years, that the new annual average of effective demand will be 360 billion yen (article newspaper in Nihon Keizai Shinbun in Japan, December 1, 2004).

2.8 Effect on upgrading and expanding of social capital

We have been discussing the economic effects of FDI. The last point worth discussing about such effects in the Sakhalin region drawn from the descriptive facts is the role of FDI in the expansion of social capital, including infrastructure development. In the Sakhalin region, with the capital for infrastructure development derived from the Sakhalin Project-related companies, a variety of public facilities have been built, including hospitals, schools, bridges, airports, and ports (Thornton 2007)[24]. Moreover, with the development of Sakhalin Project-related businesses, a wide range of social capital, represented by commercial facilities such as housing and hotels, was increased[25]. As a matter of fact, Sakhalin Energy states that about 280 million dollars were spent on infrastructure development between 2001 and April 2006; this project dragged the economic development of the Sakhalin region forward[26]. These actual performances can probably be quantitatively captured as economic effects at the macro level. The improvement of such social capital as infrastructure development is considered domestic investment. However, note that project-operating corporations are largely involved not only in the operating area of business but also in the infrastructure development of the invested region. Therefore, we will establish a different item for the influence on social capital aside from the influence on domestic investment.

We presented the economic effects of FDI on the local economy in the Sakhalin region using eight hypotheses. In summary, positive effects can obviously be expected in the areas of employment, wage levels, domestic investment, trade (exports and imports), economic growth, and upgrading and expanding social capital, while only limited effects on technological levels, productivity, and government finance can be expected. In the next

---

[24] Regarding infrastructure development, I myself frequently heard about it when I was conducting field research in February 2007. For instance, economic journalist V. Gorbunov of a Sakhalin newspaper, Sovetskii Sakhalin, positively evaluated the Sakhalin Project as a whole while he was using infrastructure development as a concrete example, which includes hospitals and small-scale thermal power plants (based on field research conducted in February 2007).

[25] From newspaper articles in Sovetskii Sakhalin dated March 23, 2004 and July 14, 2004. The same thing was pointed out in a newspaper article in the Nihon Keizai Shimbun dated December 1, 2004.

[26] Within this project, the following are the areas where a large amount of money was spent: 1) road and bridge development done in April 2003 (172.7 million dollars): 2) financial support for disposing of unexploded shells and their research (36.76 million dollars): and 3) repair of Nogliki airport (19.11 million dollars) (Sakhalin Energy 2006).

section, I will examine whether FDI into the Sakhalin region brought economic effects based on the above eight hypotheses.

3.　Analytical Method

This section explains the analytical methods used to verify the above hypotheses.

The analysis term was a 10-year period from 1995 to 2005[27]. I examined the economic effects of FDI in the Sakhalin region from the conclusion of the treaties regarding Sakhalin Project (Sakhalin 1 and Sakhalin 2), which were a major FDI source in this region as stated in Section 1, until the stage at which Sakhalin 1 actually progressed from the construction of facilities to the production of oil and gas. The term through 2005 was under construction in both projects[28]. The implication here is that the economic effects of FDI on the local economy will be different before and after the completion of construction since these oil and natural gas development projects, such as the Sakhalin Project, require a relatively long period for preparation and construction.

Following the discussion in the previous section, the following target items are available for analysis: employment, wage level, technological level, domestic investment, trade activity (exports and imports), economic growth, budget revenues, and social capital. However, it is seen the high price levels in the Sakhalin region because the region's real wages are lower than that of Russia but the nominal wage of the former is higher than that of the latter. Therefore, I analyze both real and nominal wages in view of the high price levels in the Sakhalin region.

The objective for the quantitative analysis is to examine one region: Sakhalin. Therefore, I examine the statistically significant differences of the population mean on the analytical items using the mean value of the Sakhalin region and compare the target regions from a different analytical method from previous studies to the non-availability of the micro data. When the null hypothesis is rejected because the value of the Sakhalin region

---

[27] However, due to data limitations, some items are from the first year of analysis of 1996 or 1997 (Table 4).

[28] The treaties for Sakhalins 1 and 2 were signed in June 1995 and 1994 respectively. Sakhalin 1 started to produce oil and gas and to supply them to the country from October 2005 and started to export oil from October 2006. However, Sakhalin 2 started to produce oil only in July 1999 and to produce oil and gas all-year-around from December 2008 (based on home pages of operational corporations in Sakhalin 1 (http://www.sakhalin1.com/en/benefits/torussia.asp) and Sakhalin 2 (http://www.sakhalinenergy.com/)).

equals or is less than the value of the compared regions, I examine whether FDI into the Sakhalin region positively affects the already described analytical items of the local economy. Due to the unavailability of micro data, I take a different approach from previous studies[29].

The analysis follows two steps. First, I conduct a cluster analysis using two variables, divide them into three groups[30], and extract the federal subjects (target comparison regions) that belong to the same group as the Sakhalin region from these three groups. One of the variables used here is the value of the economic development level of the first year of analysis as one early main economic element[31]. The second variable is the value of each analytical item out of the nine items explained in the hypotheses from the first year of analysis[32].

Second, I examine the significant differences of the population mean between the mean values of the target comparison regions extracted in the first step and the value of the Sakhalin region. In other words, I will be examining the significant differences of the population mean on the value of the target comparison groups and the value of the Sakhalin region after controlling the early economic elements, which are the regional economic development level and each analytical item that are related to the affluence of such regions. This involves two more steps.

First, I examine the scale of the FDI inflow[33]. I examine the significant difference of population mean on FDI first to quantitatively confirm why a large amount of foreign capital was invested in the Sakhalin region. I do this not only by looking at the FDI inflow into it from the stated statistical data but also by verifying that its value was significantly larger from a statistical point in comparison to the target comparison groups whose economic development levels were at the same level in the early economic element.

---

[29] However I do not necessarily mean that the causality was resolved by the result of this analysis.

[30] To secure a certain number of samples and the characteristics of groups, there are three groups.

[31] However, the value of the economic development level from the first year matches the first year values of each analytical item.

[32] As a result of cluster analysis, the same regions were extracted for wage levels (real and nominal), domestic investment, economic growth, and social capital.

[33] There are three FDI indices: FDI cumulative amount, cumulative FDI per capita, and the ratio of foreign fixed capital investment to domestic fixed capital investment.

Next, I examine the significant differences of the population mean about the FDI indices. After confirming the size of FDI's presence in Sakhalin, I examine the significant differences of the population mean of each analytical item and confirm whether the value of the Sakhalin region is significantly larger in a statistical sense than the target comparison groups.

I follow through with the above two steps. If the statistically significant result is that the value of the Sakhalin region is higher than other target comparison groups shown for FDI and is similarly shown for each item for analysis, I conclude that a large amount of FDI inflow into the Sakhalin region positively impacted such items, although the causal relationship of the economic effects of FDI on the local economy was not necessarily examined from the result.

4.   Result

Table 4 shows the definition and analysis result of each analytical item and the details of the target comparison regions. First, I discuss the result of the first step. The statistical significance of the value of the Sakhalin region was confirmed at the 1% level and less on all the FDI indices in all analytical items. In comparison to the target comparison groups, Sakhalin region received a significantly large amount of FDI.

Next, regarding the result of the second step, Sakhalin had statistically significant larger values below the 5% level on nominal wage levels, domestic investment, imports, economic growth, and social capital and below the 10% level on exports. This suggests that on the items where significance was confirmed, positive impacts were possibly brought to the Sakhalin economy due to large FDI inflow. On the other hand, a significant result was not attained on employment, real wage levels, technological levels, and budget revenue.

The following can be pointed out regarding the items in which the economic influence of FDI was not confirmed. First, as mentioned in the second section, the influence of FDI on employment varied depending on the industry (Axarloglou and Pournarakis 2007). In regards to this, the main industry for FDI in Sakhalin was the resource development sector, which is a capital intensive industry that does not need large manpower. Hence, it would not necessarily increase employment in the whole region. But as mentioned in Section 2,

the Sakhalin Project created 22,000 instances of direct employment in 2006 in two areas: the Nogliki district (Sakhalin Project development site) and the Korsakov district (oil export terminal for Sakhalin 2 and the LNG plant construction site)[34]. However, even if employment increases, if the investment activities of local companies were restrained by the influence of FDI, there could be a FDI crowding-out effect where these companies reduce hiring. Therefore, the net employment creation effect might not have significantly affected the result because this crowding-out effect outpaced the crowding-in effect.

Next, the reason the effect on the technological level could not be detected can be attributed to the nonconformity of the proxy variables used for characterizing and analyzing the FDI inflow in the Sakhalin region. As mentioned before, the technology used for resource development like the Sakhalin Project is extremely specialized and the areas are limited where new technology can be developed and existing technology can be transferred or diverted. If the FDI impact affects patent applications, it is merely the tip of the so-called iceberg, and a spillover effect of FDI on technological levels might be manifested. Therefore, I analyzed patent applications as a proxy variable in the track of Cheung and Lin (2004). Probably because the majority of FDI into Sakhalin was related to resource development, this characteristic did not lead to spillover effects in technological levels using the above proxy variable. Further improvement is necessary of this point.

As for budget revenues, the progress of the Sakhalin Project and the change in the distribution of revenue from such projects among central and local governments probably influenced the analysis, explaining why a FDI effect was not observed. In other words, in agreements related to the Sakhalin Project, on top of the regular corporate income tax (corporate profit tax), the project implementing bodies are supposed to pay the royalties for resource development that become the regional government's own financial resource. They also supplement the bonus- and infrastructure development-related expenses that are paid to the Sakhalin Development Fund. These payments actually did not grow until the production was well under way in the late 2000s[35]. In addition, the revenue distribution ratio of the project among the central and local governments was modified in favor of the central

---

[34] Based on materials presented by the Sakhalin Office of the Hokkaido Government.
[35] Based on data presented by the Sakhalin Office of the Hokkaido Government.

government, so the direct income to the Sakhalin region government was not as high as was expected at the project's beginning[36]. For this reason, the effect of FDI on budgeted revenue is insufficient to label it a macroeconomic effect in the period of this analysis.

Last, as for the wage level where different analysis results were derived, on one hand, Sakhalin's nominal wage level was statistically larger and significant; but on the other hand, real wages were not significant. This indicates that Sakhalin's price level was so high that it offset the nominal wage growth.

Table 4 Regional Economic Effects of FDI in Sakhalin Region Compared to Other Regions

Item		Definition	Sakhalin region	Comparison Target Region[1]			One-sided t-value (p-value)[2]
				Mean value	Sample standard deviation	N	
Test Results of Population Mean of FDI by Item							
FDI	Employment	1: Cumulative FDI (1995 to 2005, 1,000$)	11,676,927	1,217,371	3,636,836.5	25	14.38 (0.000) ***
		2: Cumulative FDI per capita (1995 to 2005, $)	22,199.5	351.7	503.1	25	217.15 (0.000) ***
		3: Fixed capital investment mean ratio of foreign capital entering company in total fixed capital investment (1995 to 2005, %)	32.9	10.8	5.7	25	19.52 (0.000) ***
	Wage level (real), wage level (nominal), domestic investment, economic growth, social capital	1: Cumulative FDI (1995 to 2005, 1,000$)	11,676,927	1,263,928	3,790,892.0	23	13.17 (0.000) ***
		2: Cumulative FDI per capita (1995 to 2005, $)	22,199.5	331.5	504.7	23	207.81 (0.000) ***
		3: Fixed capital investment mean ratio of foreign capital entering company in total fixed capital investment (1995 to 2005, %)	32.9	10.3	5.8	23	18.73 (0.000) ***
	Technical level (number of patent applications)	1: Cumulative FDI (1995 to 2005, 1,000$)	11,676,927	1,317,235	3,871,268.4	22	12.55 (0.000) ***
		2: Cumulative FDI per capita (1995 to 2005, $)	22,199.5	343.5	513.2	22	199.75 (0.000) ***
		3: Fixed capital investment mean ratio of foreign capital entering company in total fixed capital investment (1995 to 2005, %)	32.9	10.2	5.9	22	18.08 (0.000) ***
	Exports	1: Cumulative FDI (1995 to 2005, 1,000$)	11,676,927	1,046,489	3,273,524.9	31	18.08 (0.000) ***
		2: Cumulative FDI per capita (1995 to 2005, $)	22,199.5	310.7	459.1	31	265.45 (0.000) ***
		3: Fixed Capital Investment Mean Ratio of Foreign Capital Entering Company in the Total Fixed Capital Investment (1995 to 2005, %)	32.9	10.2	5.6	31	22.36 (0.000) ***

---

[36] In fact, the portion of the central government of the royalties from oil development increased from 40% to 95%. Similarly, royalties from natural gas development increased from 40% to 100%. As a result, the portion of local government decreased dramatically (Newspaper Ekonomika i Zhizn in Russia, No. 21, May 2000, and the Russian Federal Law "O vnesenii izmenenii v Biudzhetnyi Kodeks Rossiiskoi Federatsii v chasti regulirovaniia mezhbiudzhetnykh otnosheni" No. 120-FZ in 2004).

Table 4 Regional Economic Effects of FDI in Sakhalin Region Compared to Other Regions (Continued)

FDI	Import	1: Cumulative FDI (1995 to 2005, 1,000$)	11,676,927	1,317,235	3,871,268.4	22	12.55 (0.000) ***
		2: Cumulative FDI per capita (1995 to 2005, $)	22,199.5	343.5	513.2	22	199.75 (0.000) ***
		3: Fixed capital investment mean ratio of foreign capital entering company in total fixed capital investment (1995 to 2005, %)	32.9	10.2	5.9	22	18.08 (0.000) ***
	Government finance	1: Cumulative FDI (1995 to 2005, 1,000$)	11,676,927	216,745	529,123.1	55	160.63 (0.000) ***
		2: Cumulative FDI per capita (1995 to 2005, $)	22,199.5	182.2	330.9	55	493.49 (0.000) ***
		3: Fixed capital investment mean ratio of foreign capital entering company in total fixed capital investment (1995 to 2005, %)	32.9	6.8	6.3	55	30.57 (0.000) ***

Test Results of Population Mean by Item						
Employment	Employment increase/decrease mean ratio (1995 to 2005, %)	-1.8	-0.3	1.0	25	-7.36 (0.999)
Wage level (real)	Mean monthly real wage increase/decrease mean ratio (1996 to 2005, %)	9.4	9.5	1.8	23	-0.15 (0.345)
Wage level (nominal)	Mean monthly nominal wage increase/decrease mean ratio (1996 to 2005, %)	33.9	32.7	2.5	23	2.16 (0.016) **
Technological level	Cumulative number of patent applications per number of companies (1997 to 2005, cases)	0.004	0.046	0.024	22	-8.33 (0.999)
Domestic investment	Increase/decrease mean ratio of domestic fixed capital investment (1996 to 2005, %)	73.4	33.9	6.1	23	30.94 (0.000) ***
Exports	Cumulativive export amount per capita (1997 to 2005, $)	8,710.8	7,503.2	5,096.0	31	1.32 (0.094) *
Import	Cumulativive import amount per capita (1997 to 2005, $)	9,587.6	2,643.6	3,565.7	22	9.13 (0.000) ***
Economic Growth	Real GDP increase /decrease mean ratio per capita (1996 2005, %)	13.1	6.7	2.6	23	11.70 (0.000) ***
Government Finance	Mean ratio of revenue to GRP (1995 to 2005, %)	18.8	22.7	9.8	55	-2.98 (0.999)
Social Capital	Ratio of construction sector to GRP (1995 to 2005, ruble)	20.3	6.8	1.4	23	47.70 (0.000) ***

Note: 1) Following are target regions for comparison of each item. Region names are based on names of federal subjects (region) on January 1, 2009.
Employment: 25 regions: Lipetsk region, Yaroslavl region, Moscow, Republic of Karelia, Republic of Komi, Arkhangelsk region, Vologda region, Murmansk region, Saint-Petersburg, Republic of Bashkortostan, Republic of Tatarstan, Perm territory, Samara region, Sverdlovsk region, Republic of Khakassia, Krasnoyarsk territory, Irkutsk region, Kemerovo region, Omsk region, Tomsk region, Republic of Sakha (Yakutia), Primorsky territory, Khabarovsk territory, Kamchatka territory, and Magadan region.
Wage level (real), wage level (nominal), domestic investment, economic growth and social capital: 23 regions: Yaroslavl region, Moscow, Republic of Komi, Arkhangelsk region, Vologda region, Murmansk region, St. Petersburg, Republic of Bashkortostan, Republic of Tatarstan, Perm territory, Samara region, Sverdlovsk region, Chelyabinsk region, Krasnoyarsk territory, Irkutsk region, Kemerovo region, Omsk region, Tomsk region, Republic of Sakha (Yakutia), Khabarovsk territory, Amur region, Kamchatka territory, Magadan region.
Technical level: 22 regions: Moscow, Republic of Komi, Arkhangelsk region, Vologda region, Murmansk region, St. Petersburg, Republic of Bashkortostan, Republic of Tatarstan, Perm territory. Samara region, Sverdlovsk region, Chelyabinsk region, Krasnoyarsk territory, Irkutsk region, Kemerovo region, Omsk region, Tomsk region, Republic of Sakha (Yakutia), Khabarovsk territory, Amur region, Kamchatka territory, Magadan region.
Exports: 31 regions: Lipetsk region, Yaroslavl region, Moscow, Republic of Karelia, Republic of Komi, Arkhangelsk region, Vologda region, Murmansk region, Saint-Petersburg, Republic of Bashkortostan, Republic of Tatarstan, Republic of Udmurtia, Perm territory, Nizhny Novgorod region, Orenburg region, Samara region, Sverdlovsk region, Chelyabinsk region, Republic of Khakassia, Krasnoyarsk territory, Krasnoyarsk territory, Irkutsk region, Kemerovo region, Novosibirsk region, Omsk region, Tomsk region, Republic of Sakha (Yakutia), Primorsky territory, Khabarovsk territory, Amur region, Kamchatka territory, Magadan region.
Imports: 22 regions: Moscow, Republic of Komi, Arkhangelsk region, Vologda region, Murmansk region, Saint-Petersburg, Republic of Bashkortostan, Rebublic of Tatarstan, Perm territory, Samara region, Sverdlovsk region, Chelyabinsk region, Krasnoyarsk territory, Irkutsk region, Kemerovo region, Omsk region, Tomsk region, Republic of Sakha (Yakutia), Khabarovsk territory, Amur region, Kamchatka territory, Magadan region.
Government finance: 55 regions: Belgorod region, Bryansk region, Vladimir region, Ivanovo region, Kaluga region, Kostroma region, Kursk region, Lipetsk region, Orel region, Ryazan region, Smolensk region, Tambov region, Tver region, Tula region, Yaroslavl region, Republic of Karelia, Arkhangelsk region, Vologda region, Kaliningrad region, Leningrad region, Murmansk region, Novgorod region, Pskov region, Republic of Adygea, Republic of Dagestan, Republic of Ingushetia, Republic of Kabardino-Balkaria, Republic of Kalmykia, Republic of Karachaevo-Cherkessia, Republic of Northen Osetia-Alania, Astrakhan region, Republic of Marii El, Republic of Mordovia, Republic of Udmurita, Republic of Chuvashia, Kirov region, Orenburg region, Penza region, Ulyanovsk region, Kurgan region, Republic of Altay, Republic of Buryatia, Republic of Tyva, Republic of Khakassia, Omsk region, Tomsk region, Zabaikalsk territory, Republic of Sakha (Yakutia), Primorsky territory, Khabarovsk territory, Amur region, Kamchatka territory, Magadan region, Jewish autonomous area.
2) *** means significant at 1% level, ** 5% level, and * at 10% level.
Source: Created by author using various statistics from Russian government statistics office (Rosstat).

5.   Conclusion

In this paper, I quantitatively analyzed whether the economic effects on the local economy brought by FDI inflow into the Sakhalin region (because of its great presence) have been emphasized solely as descriptive facts.

The analysis result suggests that the abundant inflow of FDI into the Sakhalin region brought superior conditions for nominal wage levels, domestic investment, trade (increases in exports and imports), economic growth, and social capital. This result dovetails with the demonstrated results of previous studies. In such areas as employment, real wage levels, technological levels, and budget revenue, statistically significant effects, which would reject the null hypothesis, were not obtained. As pointed out in the previous section, this analysis result can be explained by the fact that FDI in the Sakhalin region was concentrated in a specialized sector, resource development; the progress of the Sakhalin Project; and its high price level.

Negative effects of FDI on the Sakhalin region's economy exist, which are the opposite of what I have examined here. Especially in the Sakhalin region, its inhabitants are always at the risk of large-scale environmental pollution such as a massive oil spill associated with resource development projects. The damage is unimaginably extensive from such accidents. For example, a catastrophic oil spill occurred in April 2010 in the U.S.

This case study of the Sakhalin region suggests that FDI into resource development sectors can usher in numerous economic effects to the regions of Russia mentioned above. Other regions with existing resources might benefit from economic influences by proactively attracting FDI. The Russian government is expected to positively promote such measures.

References:
Aitken, B. J., Hanson, G. H., and Harrison, A. E., 1997. Spillovers, Foreign Investment, and Export Behavior. *Journal of International Economics*, Vol. 43, No. 1-2, 103-132.
Aitken, B. J. and Harrison, A. E., 1999. Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela. *American Economic Review*, Vol. 89, No. 3, 605-618.
Akaha, T. and Vassilieva, A., 2003. Ikou syakai ni okeru kankyou ishiki: saharin oki sekiyu-gasu kaihatu ni kansuru shimin no ishiki chousa (Environmental consciousness in a transitional community: A survey on attitudes toward Sakhalin oil-natural gas

development). In: T. Murakami, ed. Sakhalin offshore oil and gas development and environmental protection. Hokkaido daigaku tosho kankoukai (Hokkaido University), 235-257. (in Japanese)

Axarloglou, K. and Pournarakis, M., 2007. Do All Foreign Direct Investment Inflows Benefit the Local Economy? *World Economy*, Vol. 30, No. 3, 424-445.

Balasubramanyam, V. N., Salisu, M., and Sapsford, D., 1996. Foreign Direct Investment and Growth in EP and IS Countries. *Economic Journal*, Vol. 106, No. 434, 92-105.

Barrell, R. and Pain, N., 1997. Foreign Direct Investment, Technological Change, and Economic Growth within Europe. *Economic Journal*, Vol. 107, No. 445, 1770-1786.

Blomstrom, M. and Kokko, A., 1998. Multinational Corporations and Spillovers. *Journal of Economic Surveys*, Vol. 12, No. 2, 1-31.

Cheung, K. and Lin, P., 2004. Spillover Effects of FDI on Innovation in China: Evidence from the Provincial Data. *China Economic Review*, Vol. 15, No. 1, 25-44.

Chistov, A. V., 1999. Popravki k Zakonu "O Soglasheniiakh o razdele produktsii": Shans dlia vykhoda toplivho-energeticheskogo kompleksa strany iz krizisa. Kommentapii (The amendment in the law "About Production Sharing Agreement": The chance for a way out of the crisis in a fuel-energy sector). *Inostrannyi capital v Possii: Nalogi, uchet, valiutnoe i tamozhennoe pegulirovanie*, No.1, 12-27. (in Russian)

de Mello, L. R., 1997. Foreign Direct Investment in Development Countries and Growth: A Selective Survey. *Journal of Development Studies*, Vol. 34, No. 1, 1-34.

Dhanani, S. and Hasnain, S. A., 2002. The Impact of Foreign Direct Investment on Indonesia's Manufacturing Sector. *Journal of the Asia Pacific Economy*, Vol. 7, No. 1, 61-94.

Endo, T., 2007. Nichiro keizai kankei no saranaru hatten wo kitai shite (With expectation of progress in Japan-Russia economic relationship). *Roshia NIS keizai sokuho*. Japan Association for Trade with Russia & NIS, No. 1383, 1-10. (in Japanese)

Federalwnaja sluzhba gosudarstvennoj statistiki (ROSSTAT), 2005a. *Investicii v Rossii (Investment in Russia)*. ROSSTAT, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2007a. *Investicii v Rossii (Investment in Russia)*. Rosstat, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2009a. *Investicii v Rossii (Investment in Russia)*. Rosstat, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2008a. *Promyshlennostw Rossii (Industry in Russia)*. Rosstat, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2004. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances)*. Rosstat, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2005b. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances)*. Rosstat, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2006a. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances)*. Rosstat, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2007b. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances).* Rosstat, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2008b. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances).* Rosstat, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2009b. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances).* Rosstat, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2005c. *Rossijskij statisticheskij ezhegodnik (Russian Statistical yearbook).* Goskomstat RF, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2006b. *Rossijskij statisticheskij ezhegodnik (Russian Statistical yearbook).* Goskomstat RF, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2007c. *Rossijskij statisticheskij ezhegodnik (Russian Statistical yearbook).* Goskomstat RF, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2008c. *Rossijskij statisticheskij ezhegodnik (Russian Statistical yearbook .* Goskomstat RF, Moskva.

Federalwnaja sluzhba gosudarstvennoj statistiki (Rosstat), 2009c. *Rossijskij statisticheskij ezhegodnik (Russian Statistical yearbook).* Goskomstat RF, Moskva.

Figlio, D. N. and Blonigen, B. A., 2000. The Effects of Foreign Direct Investment on Local Communities. *Journal of Urban Economics*, Vol. 48, No. 2, 338-363.

Ford, T. C., Rork, J. C., and Elmslie, B. T., 2008. Foreign Direct Investment, Economic Growth, and the Human Capital Threshold: Evidence from US States. *Review of International Economics*, Vol. 16, No. 1, 99-113.

Gorg, H. and Greenaway, D., 2004. Much Ado about Nothing? Do Domestic Firms Really Benefit from Foreign Direct Investment? *The World Bank Research Observer*, Vol. 19, No. 2, 171-197.

Gosudarstvennyj komitet Rossiiskoj federacii po statistike (Goskomstat RF), 2001a. *Investicii v Rossii (Investment in Russia).* Goskomstat RF, Moskva.

Gosudarstvennyj komitet Rossiiskoj federacii po statistike (Goskomstat RF), 2003a. *Investicii v Rossii (Investment in Russia).* Goskomstat RF, Moskva.

Gosudarstvennyj komitet Rossiiskoj federacii po statistike (Goskomstat RF), 1999. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances).* Goskomstat RF, Moskva.

Gosudarstvennyj komitet Rossiiskoj federacii po statistike (Goskomstat RF), 2000. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances).* Goskomstat RF, Moskva.

Gosudarstvennyj komitet Rossiiskoj federacii po statistike (Goskomstat RF), 2001b. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances).* Goskomstat RF, Moskva.

Gosudarstvennyj komitet Rossiiskoj federacii po statistike (Goskomstat RF), 2002. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances).* Goskomstat RF, Moskva.

Gosudarstvennyj komitet Rossiiskoj federacii po statistike (Goskomstat RF), 2003b. *Regiony Rossii: Socialwno-hkonomicheskie pokazateli (Russian Region: social and economic circumstances)*. Goskomstat RF, Moskva.

Gosudarstvennyj komitet Rossiiskoj federacii po statistike (Goskomstat RF), 2003c. *Rossijskij statisticheskij ezhegodnik (Russian Statistical yearbook)*. Goskomstat RF, Moskva.

Greenaway, D., Sapsford, D. and Pfaffenzeller, S., 2007 Foreign Direct Investment, Economic Performance and Trade Liberalisation. *World Economy*, Vol. 30, No. 2, 197-210.

Iwasaki, I. and Suganuma, K., 2005. Regional Distribution of Foreign Direct Investment in Russia. *Post-Communist Economies*, Vol. 17, No. 2, 153-172.

Japan External Trade Organization (JETRO), 2003. Nisenninen no roshia kyokuto nokeizai-gaikoku boueki-gaikoku toushi no gaikyou (Overview of the Economy, Foreign Trade and Investment in Russian Far East in 2002). Available at http://www.jetro.go.jp/world/russia_cis/ru/reports/ (in Japanese)

Japan External Trade Organization (JETRO), 2004. Nisensannen no roshia kyokuto nokeizai-gaikoku boueki-gaikoku toushi no gaikyou (Overview of the Economy, Foreign Trade and Investment in Russian Far East in 2003). Available at http://www.jetro.go.jp/world/russia_cis/ru/reports/ (in Japanese)

Japan External Trade Organization (JETRO), 2005. Nisenyonen no roshia kyokuto nokeizai-gaikoku boueki-gaikoku toushi no gaikyou (Overview of the Economy, Foreign Trade and Investment in Russian Far East in 2004). Available at http://www.jetro.go.jp/world/russia_cis/ru/reports/ (in Japanese)

Japan External Trade Organization (JETRO), 2006. Nisengonen no roshia kyokuto nokeizai-gaikoku boueki-gaikoku toushi no gaikyou (Overview of the Economy, Foreign Trade and Investment in Russian Far East in 2005). Available at http://www.jetro.go.jp/world/russia_cis/ru/reports/ (in Japanese)

JBIC Institute, 2002. Foreign Direct Investment and Development: Where Do We Stand? *Journal of JBIC Institute*, Japan Bank for International Cooperation, Vol. 13, 4-33. Available at http://www.jica.go.jp/jica-ri/publication/archives/jbic/report/review/pdf/13_02.pdf / (in Japanese)

Ledyaeva, S., 2009. Spatial Econometric Analysis of Foreign Direct Investment Determinants in Russian Regions. *The World Economy*, Vol. 32, No. 4, 643-666.

Lutz, S., Talavera, O., and Park, S. M., 2008. Effects of Foreign Presence in a Transition Economy: Regional and Industry wide Investments and Firm-Level Exports in Ukrainian Manufacturing. *Emerging Markets Finance and Trade*, Vol. 44, No. 5, 82-98.

Ma, A. C., 2006. Export Spillovers to Chinese Firms: Evidence from Provincial Data. *Journal of Chinese Economic and Business Studies*, Vol. 4, No. 2, 127-149.

Mencinger, J., 2003. Does Foreign Direct Investment Always Enhance Economic Growth? *KYKLOS*, Vol. 56, No. 4, 491-508.

Mullen, J. K. and Williams, M., 2005. Foreign Direct Investment and Regional Economic Performance. *KYKLOS*, Vol. 58, No. 2, 265-282.

Mullen, J. K. and Williams, M., 2007. Foreign Direct Investment and Regional Productivity Spillovers in US Manufacturing. *Review of Urban and Regional Development Studies*, Vol. 19, No. 3, 185-196.

Odagiri, H., 2000. *Kigyou keizaigaku (Managerial Economics)*. Toyo Keizai (in Japanese)

Ohashi, H., 2003. *Shiriizu gendai chuugoku keizai: Keizai no kokusaika (Series Today's Chinese economy: Internationalization of the economy)*. Nagoya daigaku shuppankai (Nagoya University), No.5. (in Japanese)

Ozturk, I. and Kalyoncu, H., 2007. Foreign Direct Investment and Growth: An Empirical Investment Investigation Based on Cross-Country Comparison. *International Economics*, The Institute for International Economics, Vol. 60, No. 1, 75-80.

Ruzanov, R. N., 1999. Cooperation in the Energy Sector. In: V. I. Ivanov and K. S. Smith, eds. *Japan and Russia in Northeast Asia: Partners in the 21st Century*, Connecticut, London: Praeger, 206-212.

Sakhalin Energy, 2006. *Sakhalin II: A Summary of Social Performance*. Available at http://www.sakhalinenergy.com/en/documents/SEIC_Social_Performance_Summary. pdf/

Sakhalin Energy, 2007. *Annual Review 2007*. Available at http://www.sakhalinenergy.ru/en/documents/Annual_Review_2007_eng.pdf/

Sugimoto, T. and Furuta, K., 1999. Sakhalin Oil and Gas and Japan. In: V. I. Ivanov and K. S. Smith, eds. *Japan and Russia in Northeast Asia: Partners in the 21st Century*, Connecticut, London: Praeger, 259-267.

Tanaka, H., 1994. Chokusetu toushi no kouka (The effects of direct investment).*Journal of Research Institute for International Investment and Development*, Vol. 20, No. 9, 4-35. (in Japanese)

Thornton, J., 2002. Sakhalin Energy: Problems and Prospects. In: J. Thornton and C. E. Ziegler, eds. *Russia's Far East: A Region at Risk*, The National Bureau of Asian Research, University of Washington, 165-191.

Thornton, J., 2007. *Nationalization of Energy Assets and Regional Welfare: Sakhalin 2007*. Working Papers: UWEC-2007-36, University of Washington.

UNECE, 1998. A Note on Production Sharing in Russia. *Economic Survey of Europe*, United Nations Economic Commission for Europe, No. 3, 135-150.

Yudaeva, K., Kozlov, K., Melentieva, N., and Ponomareva, N., 2003. Does Foreign Ownership Matter? *Economics of Transition*, Vol. 11, No. 3, 383-409.