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The Effect of the Border on Chinese Direct Investments: Evidence from Russian Border Regions

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Abstract

This paper describes the effects of the border on Chinese direct investments to Russian border regions. The findings of this paper show that Chinese direct investments to Russia gravitated to industries in the border regions exporting their goods to China and to the production of non-tradable goods in non-border regions. The net Chinese foreign direct investments (FDI) inflow to Russian border regions is very small but the development of border trade led to informal investments between Russian and Chinese border regions. The case study of Amur oblast suggests that informal Chinese investments go to the sectors associated with trade: logging (raw timber primarily exported to China), construction of shopping malls, wholesale and retail. The results suggest that the amount of informal Chinese investments significantly exceeds the amount of formal investments.

Introduction

Since opening Sino-Russian border crossings to private traders and travelers more than 20 years ago, economic interaction between Russia and China has increased tremendously. The development of the relations between these two countries was encouraged by the central authorities as well as authorities and entrepreneurs in the border regions. Following the opening of the border, the development of Russian-Chinese relations was characterized by the prevalence of trade cooperation over other forms of economic interaction. Furthermore, trade cooperation included not only international trade, but also border trade (the term “small” border trade as opposed to “big” international trade is more commonly used in China). As a result other types of economic interaction arose between Russia and China. One was international capital flows, in the form of foreign direct investments (FDI).

At the beginning of the 2000s the percentage of Russian border regions in the Chinese FDI flows to Russia did not exceed 5% and the percentage of these regions in Russian-Chinese trade was 15%, three times higher than in FDI flows (Figure 1).¹ However towards the end of the decade the situation changed significantly: 32% of Chinese FDI in Russia and 12% of Russian-Chinese trade

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¹ Henceforth the term “Russian border regions” refers to Russian regions that have a common land border with China. There are six such regions: Altai Republic, Zabaikalskii Krai, Khabarovskii Krai, Primorskii Krai, Amur oblast and Jewish Autonomous oblast.

was concentrated in the border regions.² So, the share of border regions in the total Chinese FDI to Russia increased by more than six times in ten years. Is this rapid increase in the share of Russian border regions in Chinese FDI flows evidence of a higher rate of the investment cooperation development between China and Russia? Does the border affect Chinese FDI to Russian regions?

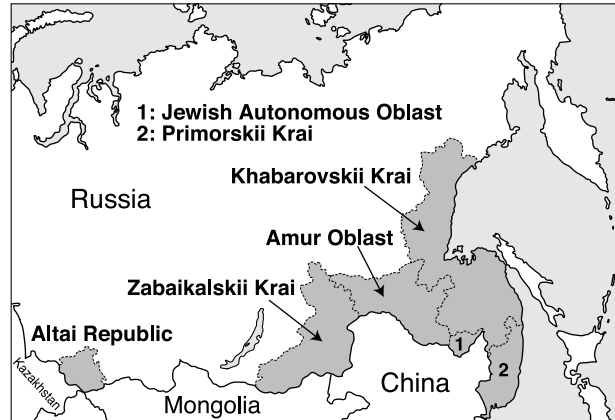


Figure 1: Russian Regions Bordering with China

There has been considerable research on the effects of the border on location of the industrial production, international and border trade, cross-border migrations and others.³ However, this research fails to discuss the effects of the border on FDI between neighboring countries. Moreover, the theory of international capital flow does not consider the border or border location of the countries or regions as a factor encouraging or restraining investments. Nevertheless, the common land border is a sign of the space proximity of border countries or regions. Space proximity of the countries or regions may encourage FDI, which result in the production of goods being exported to the investment country.⁴ But there was no focus on informal economy and FDI.

Research suggests that the amount of Russian-Chinese border trade is underestimated significantly. Thus, the case study of Amur oblast, the Russian region bordering with the Heilongjiang province of China, suggests that at the beginning of the 2000s more than 90% of the total value of import of this region from China were not recorded in official Russian statistics.⁵ This is the result of the development of the informal economy in Russian and Chinese border regions. Different cases concerning the effects of the informal economy on the development of countries and regions were studied by Portes et al. (1989) (the case of developed and less developed countries), Humphrey (1999) (provincial Russia), and Larin (2005) (the Russian Far East).⁶ The case studies of

² The author's calculations were derived from data sets at the Unified Interdepartmental Information System: <http://www.fedstat.ru/indicators/start.do>.

³ Krugman's new economic geography was the inspiration behind this research (for more details see: Paul Krugman, "Increasing Returns and Economic Geography," *The Journal of Political Economy*, January 3:99 (1991): 483-499.

⁴ Elhanan Helpman, "A Simple Theory of International Trade with Multinational Corporations," *Journal of Political Economy*, 92:3 (1984); Elhanan Helpman and Paul Krugman, *Market Structure and Foreign Trade* (Cambridge: MIT Press, 1985).

⁵ Nina Vragova and Iurii Rozhkov, *Valiutnoe Regulirovanie Prigranichnoi Torgovli [Currency Regulation of Border Trade]* (Khabarovsk: KhGAEP Press 2005), 136-152.

⁶ Alejandro Portes, Manuel Castells, and Lauren Benton, eds., *The Informal Economy: Studies in Advanced and Less Developed Countries* (Baltimore Md.: Johns Hopkins University Press, 1989); Caroline Humphrey, "Traders, 'Disorder,' and Citizenship Regimes in Provincial Russia," in *Uncertain Transition: Ethnographies of Change in the Post-socialist World*, eds. Michael Burawoy and Katherine Verdery (Rowman & Littlefield, 1999),

the informal economy in Russian and Chinese border regions, such as Holzlehner (2008) (the case of Primorskii Krai of Russia and Heilongjiang province) and Ryzhova (2003, 2008) (the case of Blagoveshchensk (Amur oblast) and Heihe (Heilongjiang province)), primarily discuss the effects of the informal economy on trade, migration and other forms of international cooperation.⁷ However, there has been no research focusing on the effects of the informal economy on FDI.

The remoteness of Russian border regions from the national capital market is the reason behind the importance of using the advantages of the location and proximity to the border to develop investment cooperation with China. The main question I want to ask in this research is does the border affect Chinese FDI in Russia? To reveal the effects of the border on Chinese FDI in Russia I test two hypotheses. The first hypothesis is that Chinese FDI in the Russian border regions flow to industries exporting their goods to China. This hypothesis applies only to formal FDI resulting from Russia-China agreements, cooperation programs and joint projects. The second hypothesis is that the informal economy in Russian border regions causes informal Chinese FDI.

This paper is divided into four sections. The first section provides the main theoretical background of the effects of the border on FDI. The effects of border location on FDI flows from Chinese to Russian regions are analyzed in the second section. The third and the fourth sections describe the case concerning the investment cooperation between Amur oblast, a Russian border region, and China: the third section describes the official (or formal) FDI flows from China to Amur oblast and the fourth describes the informal Chinese FDI resulting from the development of border trade.

FDI and Border Location

In this section I discuss the effects of the border location as a sign of the space proximity of border countries or regions on FDI. The problem regarding the effects of the space on the flows of FDI is one of the subjects of the new trade theory, which focuses on the general equilibrium model of international trade on the assumption of increasing return to scale.⁸

There are two main approaches to explain incentives for FDI. The factor proportion approach explains FDI in terms of differences between countries in relative factor endowment

19-45; Viktor Larin, *Rossiisko-kitaiskie Otnosheniia v Regionalnykh Izmereniakh (80-e gody XX nachalo XXI veka)* [The Russian-Chinese Relations in Regional Aspects (80 years in the XX - early XXI century)] (Moskva: Vostok-Zapad, 2005), 390.

⁷ Tobias Holzlehner, *Weaving Shuttles and Ginseng Roots: Commodity Flows and Migration in a Borderland of the Russian Far East* (Fairbanks: University of Alaska, 2008); Natalia Ryzhova, "Transgranichnyi Rynok v Blagoveshchenske: Formirovanie Novoi Realnosti Delovymi Setiami chelnokov [Transbordering Market in Blagoveshensk: Business Networks of Shuttle Traders Giving a Rise of the New Reality]," *Ekonomicheskaiia Sotsiologiiia* 4/5 (2003); Natalia Ryzhova, "Informal Economy of Translocations: The Case of the Twin Cities of Blagoveshensk-Heihe," *Inner Asia*, 10:2 (2008): 323-351.

⁸ Paul Krugman, "Increasing Returns, Monopolistic Competition, and International Trade," *Journal of International Economics*, November, 9:4 (1979): 469-479; Paul Krugman, "Scale Economies, Product Differentiation, and the Pattern of Trade," *The American Economic Review*, December 70:5 (1980): 950-959.

accounting for cross-country differences in factor prices.⁹ According to the factor proportion approach FDI between countries arise if countries differ in factor endowment, and the level of trade barriers and transport costs are low or zero. This approach associates incentives to FDI with the ability of firms to exploit cross-country differences in factor prices by shifting production to the cheapest locations. When countries differ in relative factor endowment, firms have incentives through FDI for shifting some production stages to the cheapest locations. Foreign investors geographically spread out the production process across countries in order to use a comparative advantage of the host country. As a result, goods produced with these FDI should be exported to the investment country.

The proximity-concentration approach predicts that firms should expand across borders and geographically separate the production across countries whenever the advantages of access to the destination market and proximity to the customers outweigh the advantages from scale economies.¹⁰ The advantages of the proximity to the customers depend on transport costs and the level of trade and investment barriers. Transport costs are directly related to the distance between trade countries or regions. Firms are more likely to choose FDI over export when transport costs and trade barriers are high and investment barriers are low. The advantages of production concentration depend on the size of scale economies. If the economy of scale at the plant level is lower than at the corporate level, overseas production prevails over export. According to the proximity-concentration approach the terms for FDI are similar factor endowment and size of economy. As a result foreign investors have an opportunity to gain access to the host country's market and avoid high trade barriers. In these terms, goods produced with these FDI are sold in the host country. Using the findings of the factor proportion and proximity-concentration approaches, Markusen has developed a general equilibrium model of international trade on the assumption of increasing return to scale.¹¹

When trade costs (e.g., transport costs, trade barriers and others) are high, foreign investment barriers are low, and countries are relatively similar in both relative factor endowment and the size of their economies, the firms of these countries serve the foreign market through FDI induced by access to the host country's market. In these terms, FDI substitute for exports. When trade costs are low or zero and countries are relatively similar in both relative factor endowment and size of economy there are no incentives for these FDI. The reason for this is that countries have an opportunity to substitute FDI for export because export is associated with lower production costs. When trade costs are low or zero the size of the economy does not affect both FDI and export. If the level of trade barriers is high, the export of these goods is associated with high costs. That is the reason for restraining FDI induced by difference in relative endowment. This finding allowed us to suggest that these FDI create

⁹ Helpman, "A Simple Theory"; Helpman and Krugman, "Market Structure."

¹⁰ Lael Brainard, "A Simple Theory of Multinational Corporations and Trade with a Trade-off between Proximity and Concentration," *NBER Working paper № 4269* (1993); Lael Brainard, "An Empirical Assessment of the Proximity-Concentration Trade-Off between Multinational Sales and Trade," *NBER Working paper № 4580* (1993).

¹¹ James R. Markusen, Anthony J. Venables, Denise E. Konan, and Kevin H. Zhang, "A Unified Treatment of Horizontal Direct Investment, Vertical Direct Investment, and the Pattern of Trade in Goods and Services," *NBER Working paper № 5696* (1996); James R. Markusen, "Foreign Direct Investment and Trade," *CIES Policy Discussion Paper № 0019* (2000).

incentives for the development of international trade between home and host countries.

The effect of the border on FDI and FDI among border regions is not covered by the discussed theories. But the results of these theories enable us to make some very important observations about this subject.

Proceeding on the assumption that border regions are the closest located territories of the host and foreign countries, trade between host and foreign border regions is more closely associated with lower transport costs than trade between non-border host and foreign regions.¹² Besides, the trade regime between border regions is more liberalized than between non-border regions. Consequently, when a border region is relatively better factor endowed than the investing country the vertical FDI, which occurs when trade costs are low or zero, tend to concentrate in border regions. Thus, if border regions are relatively better factor endowed than the investing country, these regions are more attractive than non-border regions for FDI induced by differences in relative endowment. In contrast non-border regions are more attractive than border regions for FDI induced by access to a host country's markets, which occurs when trade costs are high. In this case overseas production and horizontal FDI substitute for export.

Chinese FDI in Russian Regions: Effects of the Border

China has a huge labor force, but lacks equipment and raw materials. So, the major part of Chinese import is comprised of machinery and transport equipment, raw materials and mineral products, chemical and related products. The percentage of these goods imported to China in 2010 was 79%, including 29% of raw materials.¹³

In the last few years the share of border regions in the net Chinese FDI inflow to Russia has increased: in 2006 approximately 7% of the inflow went to the border regions, in 2011 the percentage of these regions increased to 24%.¹⁴ These data show the growth of investment interaction between Russian border regions and China.

According to the findings of the previous section of this paper, Russian border regions are the most attractive Russian territories for Chinese FDI induced by differences in relative endowment because trade costs and trade barriers in these regions are low. Consequently the assumption is that Chinese FDI gravitates to industries in the Russian border regions producing relatively scarce goods in China. Goods produced with Chinese FDI in Russian border regions are primarily exported to China. Chinese FDI in import-competing industries and service sectors substantially gravitates to

¹² According to the gravity approach, which is commonly used in empirical studies of factor proportion and proximity-concentrations approaches, the transport costs depend on the distance between trading countries and regions (see for example: Lael Brainard, "An Empirical Assessment of the Proximity-Concentration Trade-Off between Multinational Sales and Trade," *The American Economic Review*, September, 87:4 (1997): 520-544; Francesca Di Mauro, "The Impact of Economic Integration on FDI and Exports: a Gravity Approach," *CEPS Working Document*, November (2000): 156).

¹³ See the National Bureau of Statistics of China.

¹⁴ The author's calculations were made using data derived from the Unified Interdepartmental Information System <http://www.fedstat.ru/indicators/start.do>.

non-border Russian regions. To test this hypothesis, indexes are used: the share of these regions in total Chinese FDI to Russia and the FDI localization index.

The first index, the share of border regions in total Chinese FDI to Russia, is used to find the position of these regions in Chinese FDI to Russia. This index is calculated for overall amount of Chinese FDI and for separate industries (Appendix, Table A1). The high share of Chinese FDI (approximately 50%) to Russian tradable goods production is concentrated in the border regions. Among tradable goods, the highest share of border regions is Chinese FDI inflow to the primary sector. These are such industries as agriculture, forestry, fishing and hunting, and mining and quarrying. The high share of border regions in Chinese FDI in the agriculture sector is shown by the high level of investments concentrated in forestry, especially in logging. Chinese FDI in manufacturing mostly gravitates to non-border Russian regions.

The share of non-border regions is higher than the share of border regions in the net Chinese FDI inflow to Russian non-tradable goods production. Only one-fifth of Chinese FDI in these industries is concentrated in border regions. Among the non-tradable goods production the border regions are the most attractive for Chinese FDI in financial and insurance activities. The development of investment cooperation between Russia and China led to an increase in the share of Chinese FDI in the border regions, especially in the accommodation, food service, transportation, communication, and construction sectors. Through these FDI, Chinese investors have mainly developed the infrastructure of these regions. In non-border regions, Chinese FDI is directed mostly toward the expansion of retail spaces and real estate activities.

Thus the Sino-Russian border attracts Chinese FDI in goods production, such as raw materials and timber, including the development of transport, financial, and touristic infrastructure in Russian border regions.

The second index for FDI localization is used to reveal the most attractive industries for Chinese direct investors in border and non-border Russian regions (Appendix, Table A2). The index for FDI localization was calculated as follows:

$$I_{loc} = \frac{FDI_{mij}}{FDI_{mj}} \cdot \frac{FDI_{mi}}{FDI_m},$$

where I_{loc} – index for FDI localization; FDI_{mij} – FDI from country m to industry i of region j ; FDI_{mj} – FDI from country m to region j ; FDI_{mi} – FDI from country m to industry i of Russia; FDI_m – FDI from country m to Russia.

When the value of the index for FDI from country m to industry i of region j is greater than 1, this industry accumulates more FDI from country m , than is appointed by the share of this regions in total FDI from country m to Russia. Regarding Chinese FDI in Russia this means that industry i of region j is the most attractive for Chinese foreign investors as compared with industries in other Russian regions. To reveal differences between Chinese FDI and FDI from other countries, an index for FDI localization was also calculated for non-Chinese FDI in border regions.

The highest values of the index for Chinese FDI localization in the Russian border regions are in financial and insurance activities, forestry, construction, mining and quarrying, wholesale and

retail trade, and manufacturing. The share of the border regions in the amount of Chinese FDI in these industries is higher than is appointed by the share of border regions in the net Chinese FDI inflow to Russia. The high value of the index in industries, which produce tradable goods, such as forestry, mining and quarrying, and manufacturing, indicates that Chinese investors are interested in the development of these industries in border regions. The low value of the index for Chinese FDI localization in Russian non-border regions corroborates this finding.

The high value of index for FDI localization in the primary sectors of border regions can be attributed not only to Chinese investments, but also to investments from other countries. The most attractive industries in the border regions for foreign investors excluding China are forestry, mining and quarrying. However, the value of index for Chinese FDI is higher than the FDI from other countries. This suggests that Chinese investors are more interested than non-Chinese investors in the development of these industries in the border regions. Besides, FDI from other countries in border regions flow to transportation and communication, education, and real estate activities. Chinese firms do not invest much in these industries found in border regions.

Chinese FDI in non-border regions is localized only in two industries: wholesale and retail trade and real estate activities. Both of these industries produce non-tradable goods and services. So, Chinese FDI in tradable goods production in Russia gravitates to border regions, but FDI in non-tradable goods production generally concentrate in non-border regions. Investments in forestry and mining and quarrying are concentrated in border regions. The high share of these industries' productions such as raw timber and raw materials in Chinese imports, which is caused by a lack of these goods in this country, suggests that border regions are more attractive than non-border regions for vertical Chinese FDI. Chinese firms investing in forestry and mining and quarrying have an opportunity to log timber and to extract raw materials in the border region. These firms then export timber and raw material to China.

Thus Chinese FDI to Russian border regions flow to raw material production exporting their goods to China. Chinese firms invest in Russian border regions primarily to take advantage of their relative endowment in timber and mineral resources. In contrast, Chinese FDI to Russian non-border regions flow to the production of final goods, which substitutes export to China. The main incentive for Chinese FDI in Russian non-border regions is access to local markets. Non-border regions attract significantly more Chinese FDI than border regions. As a result the amount of Chinese FDI induced by the access to local markets is larger than the amount of Chinese FDI induced by the difference in relative endowment. The prevalence of access to the local markets incentive over the difference in relative endowment incentive for FDI is a worldwide trend.¹⁵

The inflow of Chinese FDI in tradable goods production in border regions is significantly affected by Russian-Chinese major investment projects implemented in these regions. As a rule these projects are the result of initiatives taken by central and local authorities, and they are part of different programs of Russia-China cooperation. The examples of projects initiated by central and local authorities with Chinese FDI are the construction of an electric line and power station in Amur oblast,

¹⁵ Markusen, "Foreign Direct Investment."

the extraction of mineral products in Jewish Autonomous oblast, the development of logging and timber processing in Jewish Autonomous oblast and in Zabaikalskii Krai. These projects are a part of the program for cooperation between the Russian Far East and Eastern Siberia regions and the northeastern region of China in 2009-2018 (Russia-China 2009-2018 Cooperation Program).¹⁶ Consequently the inflow of Chinese FDI in these industries in border regions was substantially comprised of FDI resulting from decisions made by the authorities. The amount of these investments in Russian-Chinese relations is larger than the amount of FDI caused by small business initiatives. On the one hand, this favors the development of those industries in border regions, which attract a large amount of such investments. But on the other hand, the small amount of FDI caused by small business initiatives suggests that the level of investment cooperation between Russian and Chinese small firms is low. Small firms play a major role in social economic development, including investment cooperation, in many countries.

The translocal informal economy has developed in cross-border cooperation between Russia and China. It affects border trade, cross-border migrations, and the activities of mediators.¹⁷ The translocal informal economy is “a product of the social life of the frontier region and does not conform to the vertical hierarchy of the modern organization of the Russian social system.”¹⁸ So it is caused by the initiatives of businesses, not the authorities. How does the translocal informal economy affect inward and outward FDI if it significantly affects Russian-Chinese border trade? Have the initiatives of local entrepreneurs led to a rise in informal FDI between Russia and China? To answer these questions the case of Amur oblast is examined in the next two sections of the paper.

Are Border Regions Attractive for Chinese Direct Investors? The Case of Amur Oblast

The reasons why the case of investment cooperation of Amur oblast with China is the subject of study are as follows. Firstly, border trade liberalization in this region occurred earlier than in other Russian border regions. The liberalization of border trade created incentives for the development of the informal economy. The taking of these measures significantly affected the scale of the informal economy. Secondly, the case of Amur oblast’s informal cross-border cooperation with China is well studied, which provided the background to study informal FDI from China to Amur oblast. But as of now, there has been no research on informal investment cooperation.

To make further comparison of formal and informal Chinese FDI, the formal Chinese FDI in Amur oblast, which is accounted for in official statistics, is analyzed in this section. Since 2002 Amur

¹⁶ “Programma Sotrudnichestva Mezhdru Regionami Dalnego Vostoka i Vostochnoi Sibiri Rossiiskoi Federatsii i Severo-Vostoka Kitaiskoi Narodnoi Respubliki (2009–2018) [Programme of Cooperation of the Far East and the Northeast Siberia regions of the Russian Federation with the Northeast of People’s Republic of China (2009-2018)].” Accessed May 15, 2012. www.kp.ru/upfile/attached_file/559291.doc.

¹⁷ See for example: Ryzhova, “Informal Economy”; Ryzhova, “Transgranichnyi Rynok”; Tatiana Zhuravskaia, “Serii Import na Rossiisko-kitaiskoi Granitse: Chto Novogo? [‘Gray’ Import on the Russian-Chinese border: What’s New?],” *Ekonomicheskaiia sotsiologiia*, 12:5 (2011).

¹⁸ Ryzhova, “Informal Economy.”

Table 1. Chinese FDI Inflow by Industry in 2006-2011, % of Chinese FDI in Amur Oblast

Economic Activities	Year					
	2006	2007	2008	2009	2010	2011
Logging	55.5	91.4	84.9	28.7	13.1	7.6
Construction	14.3	0.1	0.0	65.4	84.9	88.6
Wholesale and retail trade	10.4	0.3	3.7	0.0	1.0	0.0
Other industries	19.8	8.3	11.4	5.9	1.1	3.8

Source: *O Prigranichnom Sotrudnichestve Amurskoi Oblasti s Kitaem: Zapiska [About Cross-Border Cooperation between Amur Oblast and China: Report]* (Blagoveshchensk: Amurstat, 2010).

oblast and China have developed their investment cooperation. The net FDI inflow to Amur oblast from China in 2002 was \$336,000. This is five times larger than in 2000 (in 2001 Chinese firms practically did not invest in Amur's firms and the net FDI inflow was only \$3,000). Before 2002 Chinese firms irregularly invested in Amur oblast and the net Chinese investments inflow to this region was less than 60 thousand dollars a year. The inflow of Chinese FDI in Amur oblast increased 30 times by \$10.1 million over an 8-year period from 2002 to 2010. Thus, the inflow of Chinese FDI in Amur oblast in this period rose significantly.

The reason for the growth of Chinese FDI inflow to Amur oblast is the development of trade between Amur oblast and China in the 2000s. Chinese FDI inflow by industry confirms this finding (Table 1). The largest share of Chinese FDI is concentrated in construction (in this industry Chinese FDI is generally concentrated in the construction of shopping malls) and logging. In 2006, FDI also was concentrated in wholesale and retail trade.

The shares of different industries in Chinese FDI in Amur oblast enable us to make some observations about the motives of Chinese investors. The highest share of FDI was in construction in 2009-2011 (from 65.4% to 88.6%). Almost the whole Chinese FDI in construction (up to 99.9% in 2009) went to the building of houses and shopping malls. The high share of Chinese FDI in building shopping malls suggests that the main motive of Chinese firms investing in Amur oblast at that period was access to the markets of this region. Shopping malls built using Chinese investments are taken by Chinese retail traders selling mass-produced Chinese goods, which are usually informally imported to Amur oblast. Thus, Chinese FDI in construction favors the growth of mass-produced goods, including informal imports from China to Amur oblast.

Another motive for Chinese firms investing in Amur oblast is access to the timber of this region. Thus Chinese FDI in logging promotes the export of Amur raw timber to China. Consequently, the Chinese FDI inflow and international and border trade with China in Amur oblast are interdependent forms of economic interaction. The development of border trade between Amur oblast and China led to the growth of Chinese FDI in Amur oblast. Furthermore, Chinese FDI inflow favors not only the strengthening of border trade but also the growth of international trade between Amur oblast and China.

Since 2002 the net Chinese FDI in Amur oblast has significantly increased the growth of FDI inflow, and is higher than the growth of trade between Amur oblast and China (Table 2). The inflow of Chinese FDI increased 6.2 times by 2006 and 59.9 times by 2011, but the volume of trade with China increased 3.3 times by 2006 and only 8.8 by 2011. In 2003-2011 Chinese investments did

Table 2. The Role of China in the Net FDI Inflow and International Trade of Amur Oblast in 2003-2011

Index	Year						
	2003	2006	2007	2008	2009	2010	2011
Growth of Chinese FDI inflow, times comparing 2002	1.3	6.2	8.6	14.1	21.7	30.2	59.9
Growth of the volume of trade with China, times comparing 2002	1.1	3.3	5.3	7.6	4.5	5.5	8.8
Share of China in net FDI inflow, in %	2.8	1.9	2.3	4.1	3.5	4.8	4.7
Share of China in international trade, in %	74.2	81.7	76.8	75.9	77.9	83.3	87.0

Source: *Amurskaia Oblast' v Tsyfrakh: Kratkii Statisticheskii Sbornik [Amur Oblast in Figures: Statistics Digest]* (Blagoveshchensk: Amurstat, 2011), 365-366; Unified Interdepartmental Information System <http://www.fedstat.ru/indicators/start.do>.

not exceed 5% of the total FDI in Amur oblast, but China's share in international trade was about 75-85%.

An agreement between the Central Bank of Russia and the People's Bank of China, which set the beginning of the experiment in interbank transfers for trade operations in the border territories of Blagoveshchensk (Amur oblast) and Heihe (Heilongjiang province) using the national currencies of Russia and China (i.e., rubles and the yuan) was signed on August 22, 2002 (The agreement of August 22, 2002).¹⁹ This agreement provided strong incentives for the development of border trade between Russia and China. The agreement was extended for all other border territories of Russia and China on August 24, 2004. Researchers suggest that the development of the correspondent relationship between banks in Amur oblast and Heilongjiang province enabled the two regions to quantify the volume of border trade, which is not recorded in Russia's official statistics whereas it is recorded in China's statistics.²⁰

According to our findings, trade between China and Amur oblast significantly affects the inflow of Chinese FDI. Is it possible that the informal trade led to informal investments when FDI and trade flows from China were interdependent? Could the correspondent accounts in banks located in the border territories of Amur oblast and Heilongjiang province be used for informal investments?

Informal Chinese FDI in Amur Oblast

In the forth section I test the second hypothesis that the informal economy in the Russian border regions leads to informal Chinese FDI. To test this hypothesis in the first part of this section I discuss how the inflow of informal Chinese FDI in Amur oblast was explored. The reasons behind the inflow of informal FDI in Amur oblast are described in the second part, while an evaluation of informal Chinese FDI in Amur oblast was done in the third part.

First, I would like to define the term *informal FDI*. Portes et al. (1989) suggest that the

¹⁹ Before the signing of the agreement of August 22, 2002, the US dollar was the only currency used in interbank transfers between Russia and China.

²⁰ See: Natalia Simutina and Natalia Ryzhova, "Ekonomicheskie i Sotsialnye Vzaimodeistviia na Transgranichnom Prostranstve Blagoveshchensk-Heihe [Economic and Social Interactions on Transborder Territories of Blagoveshchensk-Heihe]," *Vestnik DVO RAN*, 5 (2007): 130-144.

informal economy is “a process of income generation characterized by one central feature: it is unregulated by the institutions of society, in a legal and social environment in which similar activities are regulated.”²¹ Thus, informal FDI are directly related to the production of goods by foreign companies, which is unregulated by law and legal institutions. Informal investments are neither illegal nor do Russian banks consider them as foreign investments. For example, they can be recorded in a bank’s statistics as transfers made by persons or companies; or when a foreign investor buys equipment for a foreign invested enterprise it can be recorded as an export.

First, let’s take a closer look at the inflow of informal Chinese FDI in Amur oblast. The findings of the studies on informal trade and the interbank relationship between Amur oblast and Heilongjiang province enable us to suggest three methods of informal investing by Chinese firms and entrepreneurs in Amur oblast:

(1) “Export” investments. These investments directed at Amur oblast through Amur commercial banks' correspondent accounts in Chinese banks are payments for the export of goods to China. According to customs statistics, “export” investments are the difference of Chinese payments for export through Amur commercial banks' correspondent accounts in Chinese banks and the volume of exports from Amur oblast to China. Previous research based on the comparison of Amur banks’ and customs statistics did not confirm the existence of “export” investments from Chinese firms to Amur oblast.²²

(2) “Import” investments occur when the total amount of official (or formal) and informal imports exceed the amount of payments to China through Chinese commercial banks' correspondent accounts in Amur banks. In this case only a part of the income of Chinese firms and entrepreneurs transfers to China. The other part of this income from imports is invested in fixed capital of foreign invested enterprises in Amur oblast by Chinese firms and entrepreneurs. “Import” investments are the difference of the total volume of official (or formal) and informal imports from China to Amur oblast and payments to China through Chinese commercial banks' correspondent accounts in Amur banks.

Previous research suggests that the amount of “import” investments was about \$125 million in 2006. It was 60 times higher than the official Chinese FDI in Amur oblast in that period.²³ The occurrence of “import” and “export” investments between Amur oblast and China resulted from the signing of an agreement on August 22, 2002.

(3) Cash assets import and export or “cash” investments. Unlike “import” and “export” investments, the occurrence of this type of investment was not attributed to the agreement of August 22, 2002. “Cash” investments result from the peculiarities of the social and economic cooperation between Russian and Chinese border territories. As a rule participants of such cooperation are small firms and entrepreneurs. The transactions between these firms are made at a “low level,” without

²¹ Portes et al., “The Informal Economy,” 12.

²² Nina Vragova and Natalia Simutina, “Mezhsbankovskie Raschety kak Factor Tsivilizovannogo Razvitiia Vneshnetorgovykh Otnoshenii Prigranichnykh Regionov Rossii i Kitaia [Interbank Payments as a Factor of Civilized Development of the Foreign Trade Relations of Cross-border Regions of Russia and China],” *Dengi i Kredit*, 2 (2007): 56-62.

²³ Simutina and Ryzhova, “Ekonomicheskie i Sotsialnye Vzaimodeistviia.”

using bank services or other organizations. Often small firms and entrepreneurs in the border territories of Russia set up close relationships with such firms and entrepreneurs in China. The setting up of close relationships is the result of long-term trade cooperation. Furthermore, the turnover of small firms and entrepreneurs and the volume of transactions are also small. That is why they prefer cash transactions to bank transfers. Previously, the amount of “cash” investments has not been quantified.

Now I would like to describe the reasons behind informal Chinese FDI inflow to Amur oblast. To understand informal investments more fully, I analyzed the characteristics of the enterprises in Amur oblast that China invested in, the differences of starting and doing business by Russians and foreign investors, and legislative restrictions for foreign invested enterprises. The reasons behind informal Chinese FDI in Amur oblast are as follows:

(1) Characteristics of enterprises in Amur oblast. China invested enterprises in Amur oblast generally are small or medium-sized firms.²⁴ The turnover of these firms is not large: the turnover of China invested enterprises ranges from 50 million rubles (or \$1.7 million) per year for logging firms to 300 million rubles (or \$10 million) per year for wholesale enterprises. Consequently the amount of investments to these enterprises is not large either. For these firms, informal investments provide a quicker and easier way to invest their capital.

(2) Russian legislative restrictions for foreign invested enterprises. According to Russian legislation, only two types of business organizations are allowed for foreign invested enterprises. These are limited liability companies (LLC) and joint-stock companies, which are judicial persons.²⁵ However, Chinese firms in Amur oblast invest not only in LLC and joint-stock companies, but also in entrepreneurs. According to Russian legislation, entrepreneurs are not judicial persons, and Russian laws do not regulate FDI to entrepreneurs. Consequently Chinese investments to entrepreneurs in Amur oblast are informal.

(3) The complicated Russian legal system. Procedures to set up foreign invested enterprises do not significantly differ from the procedures to set up national enterprises.²⁶ However, Chinese investors, usually small firms or entrepreneurs, establishing a foreign invested enterprise in Amur oblast, often do not know well Russian legislative peculiarities regulating the starting and doing

²⁴ According to the author’s calculations, businesses in Amur oblast attract Chinese investments, which are related to logging, construction, wholesale and retail trade, and are small or medium-sized firms.

²⁵ In Russian legislation foreign direct investment is an acquisition by a foreign investor of not less than 10% of a share in the authorized (reserve) capital of a commercial organization; an investment to the fixed assets of a foreign legal entity subsidiary founded in the territory of the Russian Federation; financial lease (leasing) of the equipment with the customs value of not less than one million rubles carried out by a foreign investor acting as a leaser (The Federal Law “On Foreign Investment in the Russian Federation” established in 1999).

²⁶ In Russia the procedures to set up foreign invested enterprises are regulated by the same law that covers procedures to set up national enterprises (The Federal Law “On Government Registration of the Legal Persons and Individuals Entrepreneurs”). However, the procedures to set up foreign invested enterprises include the requirement to submit for the registration more documents than national enterprises, and to translate all necessary documents to Russian.

business by foreign invested enterprises.²⁷ That is why some of these firms or entrepreneurs employ a Russian person who knows these peculiarities and can register an enterprise. When the firm is a small-scale enterprise, benefits of foreign invested enterprises in Russia compared with Russian enterprises do not play a significant role. To avoid formalities this firm may be registered as a Russian enterprise, but the fixed capital is formed by a Chinese firm or entrepreneur. Consequently the investments in fixed capital of these firms are not recorded as Chinese FDI. They are considered informal investments.

(4) Export and migration barriers. As I described above the major part of Chinese FDI in Amur oblast is concentrated in logging, construction, wholesale and retail. The activities of foreign invested enterprises in these industries are significantly affected by legislative restrictions.

The motive for China invested enterprises in the logging of Amur oblast is gaining access to timber for export to China. About 80% of the timber export from Amur oblast to China is raw timber.²⁸ In 2010, the total amount of raw timber produced in this region was 773.4 thousand cubic meters, and 773.2 thousand cubic meters were exported to China.²⁹

Since 2007, Russian tariff policy has aimed at increasing the duty rate for exporting timber and the liberalization of processed timber export. The aim of this policy is the creation of incentives for timber processing in Russia and for processed timber import. Chinese FDI in the logging of Amur oblast are induced by the difference in relative endowment. The growth of trade barriers leads to an increase in these FDI. The export duties hike on raw timber resulted in a decrease of Chinese FDI in logging by 40% and in a decrease of raw timber export to China by more than 50% in 2009 compared to 2008.³⁰ Nevertheless statistics show that the reduction of logging was less than 30% in 2009 compared to 2008. Besides, at that period domestic consumption and export to other countries and regions of raw timber did not increase.³¹ One possible reason is that China invested enterprises in the logging of Amur oblast export timber informally or even illegally. This export is not accounted for in customs statistics. Ryzhova (2008) discussed the informal and illegal schemes of timber export from Amur oblast to China, such as presenting double and triple mediation agreements for export, buying and selling illegal wood and timber several times to be legalized through legal contracts, sending higher than officially documented volumes of wood and other materials.³² Furthermore, both Russians and Chinese firms illegally cut down trees.³³ This illegally logged timber is also exported to China

²⁷ Aleksandr Gorbatov, "Puti Kitaiskogo Biznesa v Rossii [Development Options of Chinese Business in Russia]," *RASPP*, July 27, 2012. Accessed July 30, 2012. http://www.raspp.ru/novosti/eurasia-news/puti_kitajskogo_biznesa_v_rossii/.

²⁸ According to the custom statistics of Amur oblast.

²⁹ According to data from the Unified Interdepartmental Information System, <http://www.fedstat.ru/indicators/start.do>; and custom statistics of Amur oblast.

³⁰ In 2009 the customs duty for raw timber sharply increased. The customs duty for some types of timber increased from 24 euro per one cubic meter to 100 euro per one cubic meter.

³¹ *Amur Statistic Yearbook 2010*.

³² Ryzhova, "Informal Economy."

³³ "Zolotoi les" [Golden forest] *Amur.info*, May 13, 2004. Accessed May 16, 2012 <http://www.amur.info/news/2004/05/13/1.html>; "Kitaiskaia Kompaniia na Severe Priamuria Nezakonno Vyrubila 70 Gektarov Lesa [Chinese

using informal or illegal schemes.

The decrease of formal Chinese FDI in logging and formal export of raw timber and the increase of informal export of raw timber to China are the possible reasons behind informal Chinese investments in the logging of Amur oblast. Besides, when the level of trade barriers for raw timber export is high, the share of informal investments in the net Chinese FDI inflow to logging in Amur oblast is also high.

The barriers for doing business in construction and wholesale and retail trade are determined by the restrictions imposed by Russian immigration legislation. In Russia, immigration quotas are determined annually, so firms hiring foreigners have to obtain immigration and work permits for each of them.³⁴ Often authorities refuse permission to these firms. These laws are used only for low-skilled workers who are a major part of the workforce in China invested enterprises, such as construction, wholesale and retail trade in Amur oblast. This leads to immigration legislation infractions by these firms. The questionable legal activity of these firms causes informal investments from Chinese co-owners.

Finally, I would like to evaluate informal Chinese FDI in Amur oblast. The evaluation of informal Chinese investments enables us to recognize investments from the net Chinese FDI inflow to Amur oblast. This allows us to estimate the scale of border investment cooperation between Amur oblast and Heilongjiang province.

Using customs statistics, the evaluation of “export” investments is based on the comparison of payments from China through correspondent accounts with the volume of exports from Amur oblast to China. The data suggest that the volume of exports exceeded the amount of payments from China in 2000-2006 except in 2002 (Table 3).

The possible reasons for this are as follows:

Firstly, the excess of exports over payments might have resulted from capital flight from

Table 3. Chinese “Export” Investments Inflow to Amur Oblast in 2000-2006, in million US dollars*

Index	Year						
	2000	2001	2002	2003	2004	2005	2006
(1) Payments from China	30.4	25.2	64.8	48.5	53.1	54.6	36.2
(2) Export to China	47.0	47.3	49.0	51.4	72	135.3	101.2
(3) “Export” investments (3) = (1) – (2)	-16.6	-22.1	15.8	-2.9	-18.9	-80.7	-65.0

Source: The author’s calculations were made using data derived from Nina Vragova and Natalia Simutina, “Mezhhankovskie Raschety kak Factor Tsivilizovanogo Razvitiia Vneshnetorgovykh Otnoshenii Prigranichnykh Regionov Rossii i Kitaia [Interbank Payments as the Factor of Civilized Development of the Foreign Trade Relations of Cross-border Regions of Russia and China],” *Dengi i Kredit*, 2:60 (2007); Custom statistics of Amur oblast.

* The evaluation of informal Chinese investments was done until 2006, so data on interbank transfers between Amur oblast and China are not available between 2007-2011.

Firm Illegally Cuts Down 70 Hectares of Wood in the North of Priamure.],” *Amur.info*, March 28, 2007. Accessed May 16, 2012. <http://www.amur.info/news/2007/03/28/21.html>; “Za Kontrabandu Lesa Amurchanina Oshtrafovali na 200 Tysiach Rublei [For Wood Contraband Amurchanin Fined 200 Thousand Rubles],” *Amur.info*, May 13, 2008. Accessed May 16, 2012. <http://www.amur.info/news/2008/05/13/4.html>.

³⁴ According to Federal Law “On Legal Status of Foreigners in the Russian Federation,” established in 2002.

Russia. Russian firms exporting their goods to China might not transfer payments for export to Russia. The comparison of real interest rates in Russia and China shows that in 2000-2006 the average real interest rate of deposits in Russia was -8.89% while in China it was 1.03%.³⁵ Negative real interest rates in Russia and positive real interest rates in China are one of the possible reasons for the capital flight from Russia. Another reason was the high inflation rate in Russia. In 2000-2006 the average inflation rate in Russia was 15.0% while in China it was only 1.2%. In order to avoid devaluation of export receipts Russian exporters did not return it to Russia.

Secondly, a major portion of the exports from Amur oblast to China in that period was raw timber. This timber was exported by China invested enterprises. Some of these enterprises received their investment gain in the form of produced goods, particularly in the form of raw timber. Thus there were no payments for this exported raw timber.

Thirdly, the volume of export to China according to customs statistics included not only the export of enterprises working in Amur oblast but also the export of enterprises working in other Russian regions through the customs of Amur oblast. But the data from payment statistics included payments from China for only the export of enterprises working in Amur oblast.

To evaluate “import” investments the value of informal imports from China to Amur oblast was estimated.³⁶ To evaluate the volume of informal import from China to Amur oblast I used a method utilized by the Central Bank of Russia. This method is based on the comparison of retail commodity turnover in the region with import goods from other Russian regions and from other countries and domestic production:

$$II = RT - OI - RI - DP,$$

where *II* – informal import of the region; *RT* - retail commodity turnover of the region; *OI* – official import of the region from other countries; *RI* – trade of the region with other Russian regions; *DP* – domestic production consumed in the domestic market of the region.

My evaluation shows that in 2000-2006 informal investments increased by 2.5 times from \$287.4 million in 2000 to \$710.4 million in 2006 (Table 4). Besides, from 84% to 95% of Chinese imports to Amur oblast were informal.

The difference of official and informal imports from China and payments to China through interbank correspondent accounts at the beginning of the 2000s was not “import” investments (Table 4). In that period, despite the increase in correspondent accounts, cash was primarily used in transactions between Amur oblast and China. Since 2002 the evaluation of “import” investments has been correct. In that period, interbank relationships between the border territories of Amur oblast and Heilongjiang province started to develop.

³⁵ The author’s calculations were made using data derived from the Unified Interdepartmental Information System <http://www.fedstat.ru/indicators/start.do>; National Bureau of Statistics of China <http://www.stats.gov.cn>; World Development Indicators & Global Development Finance <http://data.worldbank.org/>.

³⁶ “Metodicheskie Printsipy Otsenki Otdelnykh Statei Platezhnogo Balansa [Methodological Basis of Balance of Payment Sheet Accounts Evaluation],” *Central Bank of Russia*. Accessed April 21, 2012 www.cbr.ru/statistics/credit_statistics/principle.pdf.

Table 4. Chinese “Import” Investments Inflow to Amur Oblast in 2000-2006, in million US dollars

Index	Year						
	2000	2001	2002	2003	2004	2005	2006
(1) Official import from China	12.3	16.5	21.5	27.7	44.1	86.7	131.3
(2) Informal import from China (2) = (2.1) – (2.2) – (2.3) – (2.4)	287.2	304.4	318.3	383.8	508.7	520.6	710.4
(2.1) Retail turnover	406.0	450.0	491.3	618.9	850.1	989.6	1330.9
(2.2) Import from other countries	16.6	21.8	24.3	36.8	61.7	114.3	146.1
(2.3) Trade with other regions	12.8	15.8	16.0	18.8	24.7	38.1	35.2
(2.4) Domestic production consumed on domestic market	89.3	108.0	132.6	179.5	255.0	316.7	439.2
(3) Payments to China	2.7	14.3	140.9	206.7	309.0	381.8	589.1
(4) “Import” investments (4) = (1) + (2) – (3)	296.8	306.6	198.9	204.8	243.8	225.5	252.6

Source: The author’s calculations were made using data derived from Nina Vragova, and Natalia Simutina “Mezhsbankovskie Raschety kak Factor Tsivilizovannogo Razvitiia Vneshnetorgovykh Otnoshenii Prigranichnykh Regionov Rossii i Kitaia [Interbank Payments as the Factor of Civilized Development of the Foreign Trade Relations of Cross-border Regions of Russia and China] *Dengi i Kredit*, 2:60 (2007);” Custom statistics of Amur oblast; Unified Interdepartmental Information System <http://www.fedstat.ru/indicators/start.do>.

Evaluated informal investments went from 1.5 to 41.0 times higher than the official FDI from all countries and went from 94.6 to 3897.8 times higher than the official Chinese FDI in Amur oblast in 2002-2006 (Table 5). However, the difference of the amount of informal and official investments declined in that period. The reason for it is that the activities of the mediators significantly increased in that period. As a result the growth rates of official trade between Amur oblast and China were higher compared with the growth rates of informal trade. These led to lower growth rates of “import” investments in contrast with the growth rates of official Chinese FDI.

The problem with this research method, which is used for evaluating informal investments, is determining the payments from China for export from Russia and payments to China for import to Russia. Concerning payments from and to China, data should include all international and border trade transactions between Amur oblast and Heilongjiang province in order to adequately evaluate “export” and “import” investments. But according to Vragova and Simutina, payments through interbank correspondent accounts represented 75% of international and border trade profit

Table 5. Ratio of Informal Investments from China to Official FDI from China and from All Countries to Amur Oblast in 2002-2006

Index	Year				
	2002	2003	2004	2005	2006
(1) Informal investments (“Export” investments + “Import” investments), in million of US dollars	214.7	201.9	224.9	144.8	187.6
(2) Official FDI from China, million US dollars	0.34	0.05	0.52	1.53	0.93
(3) Ratio (3) = (1)/(2)	639.0	3897.8	433.6	94.6	202.6
(4) Official FDI from all countries, million US dollars	5.2	15.7	42.6	95.3	110.9
(5) Ratio (5) = (1)/(4)	41.0	12.9	5.3	1.5	1.7

Source: Author’s calculation using the data from Table 3, 4 and the Unified Interdepartmental Information System <http://www.fedstat.ru/indicators/start.do>.

Note: Data from 2000-2001 are not shown in Table 5, because interbank relationships between border territories of Amur oblast and Heilongjiang province, which allowed for the evaluation of informal Chinese investments, had started to develop only since 2002.

repatriation in 2006 and only 29% of it in 2002.³⁷ As a consequence, “payments from China” in Table 3 and “payments to China” in Table 4 are underestimated, which leads to the underestimation of “export” investments and the overestimation of “import” investments. If the percentage of international and border trade profits paid through interbank correspondent accounts suggested by Vragova and Simutina is right, it means that “export” investments to Amur oblast were \$174.4 million in 2002 (as opposed to the \$15.8 million estimated in Table 3). Besides, there was an outflow of \$146.1 million of “import” investments from Amur oblast in 2002 (as opposed to the inflow of \$198.8 million of “import” investments estimated in Table 4). These estimations show that the main source of informal investments to Amur oblast in 2002 was payments from China. The same estimations for 2006 show that “export” investments were -\$52.9 million (as opposed to the -\$65.0 million in Table 3) and “import” investments were \$56.2 million (as opposed to the \$252.6 million in Table 4). A re-estimation of payments from and to China through interbank correspondent accounts resulted in a reduction of informal investments, but this does not discount the hypotheses about informal investments from China to Amur oblast. So, in 2002 informal investments in Amur oblast were \$28.4 million, and in 2006 they were \$3.3 million.

Vragova and Simutina also wrote that only \$70.7 million was paid through correspondent accounts as payments for imports from China in 2006, which represented 54% of the official imports in Amur oblast.³⁸ As a result, a residual 46% of official imports were not paid for through interbank correspondent accounts. These data also confirm that payments to China are significantly underestimated and the real informal investments to Amur oblast might be larger. The evaluated amount of informal investments does not include “cash” investments, which are difficult to evaluate. Consequently, informal investment to Amur oblast might be bigger as well as smaller than estimated.

Further liberalization of trade between the Russian and Chinese border regions led to the elimination of the requirement to open accounts in designated banks for interbank transfers. In 2011, the residents of Russia and China acquired the right to do interbank transfers in freely convertible currencies (e.g., rubles and yuans) without opening accounts. Interbank transfers, without the need to open accounts, complicate the evaluation of informal investments.

Conclusion

The theory of international capital flow does not consider the border or border location of the countries or regions as a factor encouraging or restraining FDI. However, as the case of the Sino-Russia border suggests, the border matters for Chinese FDI to Russia. The border is not a barrier. The common land border is viewed as a sign of the space proximity of the neighboring Russian and Chinese border regions.

Firstly, the Sino-Russia border increases Chinese FDI to Russian industries in border regions exporting their goods to China. As a result, Chinese FDI in border regions create incentives for the

³⁷ Vragova and Simutina, “Mezhsobankovskie Raschety,” 60.

³⁸ *Ibid.*

development of trade between Russian border regions and China. Consequently, this leads to the growth of interaction and integration between these regions. Chinese FDI in non-border Russian regions is concentrated in the production of non-tradable goods. Consequently, Chinese FDI restrain exports in non-border Russian regions.

Secondly, the border affects not only formal investments but also encourages informal Chinese FDI. The translocal informal economy is developed in cross-border cooperation between Russia and China. It affects border trade, cross-border migration, and the activity of mediators. This enables us to assume that the translocal informal economy also affects Chinese FDI in Russia's border regions.

The case study of Amur oblast, which has a common land border with China, confirmed this assumption. The development of informal trade and border trade liberalization led to the emergence of informal Chinese investments in this region. The reasons behind China's informal investments are due to the characteristics of Chinese invested enterprises in Amur oblast (usually these are small or medium-sized firms); legislative restrictions; and difficult procedures for Chinese investors to set up foreign invested enterprises. Using official statistics, my evaluation of informal investments suggests that the net inflow of these investments exceeds the net formal Chinese FDI inflow to Amur oblast.

Appendix

Table A1. The Share of Border Regions in the Net Chinese FDI Inflow to Different Industries of Russia, in %

Economic Activities	Year		
	2006	2008	2011
Total	6.7	15.0	24.2
Tradable goods:	42.9	43.6	48.7
Agriculture, forestry, fishing and hunting	99.5	88.8	99.1
Forestry	100.0	89.6	100.0
Mining and quarrying	14.5	32.4	98.1
Manufacturing	10.3	10.1	31.5
Nontradable goods:	3.5	9.2	20.9
Construction	21.0	0.4	53.9
Wholesale and retail trade	44.5	4.1	13.7
Transportation and communication	0.0	55.2	54.8
Accommodation and food service activities	7.9	97.0	96.2
Financial and insurance activities	100.0	100.0	100.0
Real estate activities	1.8	2.6	0.7

Source: The author's calculations were made using data derived from the Unified Interdepartmental Information System <http://www.fedstat.ru/indicators/start.do>.

Note: According to the Standard Industrial Classification (SIC) of the United Nations tradable goods include agriculture, forestry, fishing and hunting, mining and quarrying, manufacturing. The production of all others industries is non tradable.

Value 100.0 means that the net Chinese FDI inflow to industries concentrated in Russian border regions; value 0.0 means that the net Chinese FDI inflow to industries concentrated in Russian non-border regions.

The industries, in which Chinese firms did not invest (e.g., electricity; gas and water supply; education; public administration and defence, compulsory social security), and industries, in which the share of Chinese FDI were less than 0.1% or equal to zero (e.g., human health and social work activities; other public and personal service activities), were excluded.

Table A2. Index for Chinese FDI Localization in Russian Border and Non-Border Regions, and Index for Non-Chinese FDI Localization in Russian Border Regions (value in 2006, 2008, 2011)

Economic Activities	Chinese FDI in border regions			Chinese FDI in non-border regions			non-Chinese FDI in border regions		
	2006	2008	2011	2006	2008	2011	2006	2008	2011
Agriculture, forestry, fishing and hunting	14.9	5.9	4.1	-	0.1	-	0.8	1.5	0.6
Forestry	15.0	6.0	4.1	-	0.1	-	4.1	2.5	2.8
Mining and quarrying	2.2	2.2	4.1	0.9	0.8	-	2.7	0.9	1.2
Manufacturing	1.5	0.7	1.3	1.0	1.1	0.9	0.1	-	0.3
Construction	3.1	-	2.2	0.8	1.2	0.6	-	-	1.3
Wholesale and retail trade	6.7	0.3	0.6	0.6	1.1	1.1	-	-	-
Transportation and communication	-	3.7	2.3	1.1	0.5	0.6	1.4	15.4	3.6
Financial and insurance activities	15.0	6.7	4.1	-	-	-	-	-	-
Real estate activities	0.3	0.2	-	1.1	1.1	1.3	0.1	0.3	2.4
Education	-	-	-	-	-	-	-	-	19.5
Other public and personal service activities	-	-	-	1.1	-	-	-	-	-

Source: Author's calculation using data derived from the Unified Interdepartmental Information System
<http://www.fedstat.ru/indicators/start.do>.