UNIVERSITY OF WUPPERTAL
BERGISCHE UNIVERSITÄT WUPPERTAL

EUROPÄISCHE WIRTSCHAFT
UND
INTERNATIONALE MAKROÖKONOMIK

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Significance of Foreign Direct Investment for the Development of Russian ICT sector

Diskussionsbeitrag 198
Discussion Paper 198

Europäische Wirtschaft und Internationale Wirtschaftsbeziehungen
European Economy and International Economic Relations
ISSN 1430-5445

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May 2014

Herausgeber/Editor: Prof. Dr. Paul J.J. Welfens, Jean Monnet Chair in European Economic Integration

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JEL classification: L43, L96, N14, O31
Key words: FDI, Regulation, Telecommunication, EU, Russia, Innovation, Convergence

Summary: The paper contains an overview of main FDI theories. The focus is on the role of FDI inflows within development of national ICT sector (case of Russia). General trends (volumes, structural distribution) in FDI inflows in Russian ICT sector are identified and summarized. Some recommendations regarding the opportunities to attract FDI in Russian ICT sector are given.

Zusammenfassung: Im Aufsatz werden die wichtigsten FDI- Theorien zusammengefasst. Im Vordergrund steht der Beitrag der ausländischen Direktinvestitionen zur Entwicklung des nationalen IKT-Sektors (am Beispiel Russlands). Die wichtigsten Tendenzen, die FDI-Zuflüsse in russischen IKT-Sektor charakterisieren (Volumina, Struktur), werden identifiziert und analysiert. Einige Empfehlungen bezogen auf die Wirtschaftspolitik zur Steigerung der Attraktivität des IKT-Sektors Russlands für die ausländischen Direktinvestitionen werden gegeben.

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1. Introduction

Foreign direct investments (FDI) belong to the most important indicators of globalization. Globalization is characterized through an enormous increase in the international activities of enterprises. An important aspect of these international activities is connected with inward and outward FDI. According to the International Monetary Fund, "direct investment is the category of international investment that reflects the objective of obtaining a lasting interest by a resident of another economy. The lasting interest implies the existence of a long-term relationship between the direct investor and significant degree of influence by the investor on the management of the enterprise. Direct investment comprises not only the initial transaction establishing the relationship between the investor and the enterprise but also all subsequent transactions among them and among affiliate enterprises, both incorporated and unincorporated" (IMF 1993). Many firms, above all multinational corporations (MNC), consider FDI to be an instrument to create long-term relationships with foreign markets. From the view of the national economy, FDI can contribute to structural dynamics and increasing international competitiveness of national firms.

For the last four decades a rapid development of FDI was typical. The FDI volumes increased from 12,6 Md. US-$ in 1972 to 1408,1 Md. US-$ in 2000. A new boom of FDI activities happened after 2004. A new maximum of FDI volumes was reached in 2007 (2355,3 Md. US-$). The world economic crisis (2008-2009) caused new fluctuations of FDI volumes. So, in 2011 they were about 1399,6 Md. US-$.

The developed countries (countries with high income) are most active as both international investors and as places for FDI location. However, some changes in distribution of FDI inflows happened during last decade. So, the share of USA declined from 22,8% in 2000 to 16,2% in 2010 and the share of China increased at the same time from 2,7% to 12,7%. Generally the developing and transition economies now play a more important role in FDI development than was the case 15-20 years ago. According to the World Bank data, the FDI inflows to countries with low and middle income increased from 21,7 Md. US-$ in 1990 to 633,8 Md. US-$ in 2008. Some fluctuations concerned these countries too. Just recently the FDI inflows declined from 514,2 Md. US-$ in 2010 to 268,3 Md. US-$. Such fluctuations could be explained by different estimations of risk factors at different time periods. Sometimes (first of all during economic crises) some investors suspend their direct investments abroad or withdraw the invested money.

Besides aggregate volumes of inward and outward FDI and their regional structure, the distribution of FDI between different sectors is very important. Such distribution characterizes the balance of interests of investors within national economies. In this paper, we analyse the inward and outward FDI in the ICT (information and communication technologies) sector.

ICT belong to the most important elements of globalization. They play a crucial role in the internalization of activities of many firms. FDI in the ICT sector of a national economy could be interpreted as an indicator of its general attractiveness for FDI. FDI activities in this sector have an immediate influence on the structural development and economic

growth of the country. However, the significance of FDI for the development of ICT can vary between different countries and regions. The transformation economies have some specific features because the FDI phenomenon appeared for them practically only since the end of the 1980's. In our paper we analyse these processes using the example of Russia.

2. FDI activities: theoretical foundations

As an important factor of economic development during the last decades, FDI were researched in many studies. The main theories of FDI can be divided into 3 groups (Dudáš 2010; Ventila 2010):

- FDI concepts on the macro level,
- FDI concepts on the micro level,
- development theories of FDI.

The *macroeconomic concepts* of FDI are capital market theory, dynamic macroeconomic FDI theory, FDI theory based on exchange rates, FDI theory based on economic geography, FDI theory based on institutional analysis (Stevens 1993; Lin and Chen 2011). One of the oldest theories of FDI is a *capital market theory*. This theory is based on the classical macroeconomic concepts. Foreigners want to go to countries offering the highest rates of return. According to the classical approach, the profit rate has a tendency to drop in industrialized economies along with the increasing domestic competition. This fact motivates the firms from industrial countries to engage in FDI in underdeveloped (labor-intensive and capital-poor) countries. FDI are practically capital transfers in order to increase profits (Straker 2008).

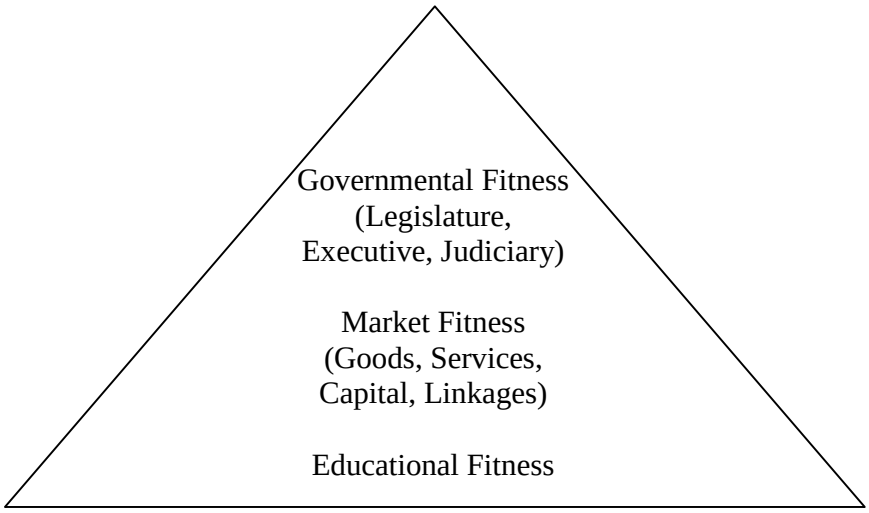
Dynamic macroeconomic theory considers FDI to be a long term function of FDI strategy. FDI decisions depend on timing. The crucial factors defining time for FDI are both the macroeconomic environment at that particular period in the host country and its degree of openness as well as its degree of economic growth.

The *institutional concept* refers to a country's ability to attract, absorb, and retain FDI. This concept includes the so-called FDI Fitness pyramid which consists of four spheres: socio-cultural fitness, educational fitness, market fitness and governmental fitness (figure 1). In all these spheres some countries can have advantages and others disadvantages (Wilhelms 1998).

To *microeconomic* theories of FDI belong the concept of existence of firm specific advantages, oligopolistic FDI theory, theory of internalisation. The *concept of firm specific advantages* points out that MNC engage in FDI to realize some advantages by investing in foreign countries. To firm-specific advantages belong advantages connected with specific assets and capabilities which bring a superior competitive position to the possessing firm. These advantages can be classified into two groups: transaction-specific advantages and international management capabilities. Transaction-specific advantages are derived from the key resources which the firm accumulates over the time (proprietary product,

specialized technology or knowledge, and specific know-how). In addition to the firm-specific advantages, the success of the firm in the foreign market depends on its competencies in coping with different environments in terms of economic, political and legal systems as well as cultural distances. These competencies could be interpreted as international management capabilities. The existence of the firm specific advantages determines the entry mode to the foreign market (Hoshino and Siripaisalpipat 1999).

Figure 1: Pyramid of FDI Fitness Institutions



Source: Whilhelms 1998

The *oligopolistic FDI theory* is based on the hypothesis about structural market imperfections. The oligopolistic market structure implies that the decisions of one firm are influenced by behavior of other firms present on the market. This structure leads to the mutual interdependence of players in the industry. This idea can be used for the explanation of FDI when "a firm's decision to engage in FDI hinges on the behaviour or expected behaviour of its rivals"(Hoenen and Hansen 2011).

The *FDI theory of internalization* is based on market imperfection too. According to Buckley and Casson, the MNCs present the model of entering the foreign markets centred on the relationship between knowledge, market imperfections and the internalization of markets for intermediate goods. Internalization (in the form of FDI) will happen only if the benefits could be higher than the costs of communication, co-ordination and control. This concept evolves from the theory of market failure. It is more efficient to do some transactions (incl. FDI transactions) inside the firm than in the market (Vyasyechko 2012).

The *development theories of FDI* are life cycle theory and Japanese FDI concepts. The *life cycle theory of FDI* suggested by Vernon gives the explanation of the FDI phenomenon based on four stages of production cycle: innovation, growth, maturity and decline. According to this concept, FDI can usually bring benefits during both the maturity and decline stages. In the first stage, national firms create new innovative products for local consumption and export the surplus to the foreign markets. Later these innovations become wide-spread. Other firms from foreign countries try to copy them. This happens usually

during both the maturity and decline stages. To keep their positions, national firms have to engage in the FDI.

Japanese FDI theories were developed mostly in the 1970's and oriented to the identification of stages in the country development as crucial factors defining inward and outward FDI. Three development stages were identified. In the first stage, the country is underdeveloped. The inward FDI are possible if foreign companies want to use some of its advantages (such as low labor costs). In the second stage, the country makes progress in development. Growing internal markets lead to FDI inflows. The motivation to FDI outflows is to be explained through growing labor costs. In the third stage, the competitiveness of the country is based on innovation. The inflows and outflows of FDI are motivated by both market factors and technological factors (Dudáš 2012).

This short summary of FDI concepts shows that the number of factors defining FDI decisions is very large. An attempt of systematization of these factors is given in the *eclectic theory* of Dunning. Dunning suggests that a firm engages in FDI if three conditions are satisfied:

- It possesses net ownership (O-advantages) vis-à-vis firms from other countries.
- It is beneficial to internalize (I-advantages) those advantages rather than to use the market to pass them to foreign firms.
- There are some reasons (L-advantages) for using the firm's ownership advantage in a foreign location rather than at home.

A short description of these three advantages is to be found in Table 1.

Table 1: OLI-concept by Dunning

Advantages	Description
O (ownership) advantage	Three types of advantages: • monopoly advantages in the form of privileged access to markets through ownership of limited natural resources, patents, trademarks; • technology and knowledge as a basis for all forms of innovation activities; • economies of large size (economies of learning, economies of scale and scope, better access to financial capital)
L (location) advantage	Three types of advantages: • economic benefits (quantitative and qualitative production factors, costs of transportation and communication, market size etc.); • political advantages (common and specific government policies that affect FDI flows); • social advantages (relatively short distance between home and host countries, cultural diversity, attitude towards strangers etc.)
I (internalization) advantage	Internalization (through FDI) brings advantages in comparison with other forms of entering the foreign market

Source: Denisia 2010

In spite of many factors considered in these theories some important questions remain without certain answers. These questions are as follows:

- Why some countries are more attractive for FDI activities than others?
- What factors define a structural distribution of FDI in different countries?
- How to explain the dynamics of inward FDI within one specific branch (for example the ICT sector)?

Some answers could be found based on the theories mentioned above. First of all, the *institutional theory of FDI* can be used for the estimation of attractiveness of countries (and branches) for FDI activities. The institutional factors determine a relative independence of FDI activities from both the size of the country and the endowment of resources (Fig. 1).

The main institution is the socio-cultural system. It is most diffused, complex and time intensive to change. Other institutions are derived from the socio-cultural platform. The second element in the pyramid is education. It is a crucial factor defining the flexibility of the socio-cultural system. Educational fitness is very important for attracting FDI because it has a positive impact on the ability to process the information. Development of education enhances creativity in research and technology innovations and creates an FDI attractive environment. The third element in the pyramid is market fitness. Different characteristics of market development have an impact on country attractiveness for FDI activities. For example, open competitive markets are normally more attractive for FDI than markets with

strong directive regulation. The last (highest) element in the pyramid is government. Government plays an important role in creating political capital for attracting FDI.

This theory assumes that FDI fitness institutions in some countries are more developed than in others. In this way it is possible to explain investors' preferences in their FDI decisions. Likewise it could be an explanation for the structural distribution of FDI. In some sectors and branches within one country the FDI fitness institutions could be more developed than in others. As for the dynamics of FDI within one branch, it is possible to assume that FDI fitness institutions change over time. That is why some branches could be more or less attractive for FDI.

Another opportunity to answer these questions is based on the *OLI-concept*. Firms (first of all MNC) have different ways to enter foreign markets. They choose FDI only if all these three advantages are given. It is possible to assume that in some countries these advantages could be more significant than in others. The same hypothesis could be made for different branches. These advantages (and their relationships) can influence the structural distribution of FDI and lead some trends in the FDI dynamics within one branch. The level of these advantages is probably changeable. Some advantages may disappear over the time. Such changes have an impact on both the FDI structure and dynamics within one branch (i.e. ICT).

It is possible to use the theoretical basis to answer these three questions. However, for checking hypotheses *empirical studies* involving both countries (for example Russia) and selected sectors (for example ICT) are necessary. The determinants of FDI were researched in many empirical studies. In these studies, many important factors were identified. The most important of them have been summarized by S. Lall (Table 2).

Table 2: Host country determinants of FDI

Economic conditions	Markets	Size, income levels, urbanization, stability and growth prospects, access to regional markets, distribution and demand patterns
	Resources	Natural resources, location
	Competitiveness	Labour availability, cost skills, trainability, managerial technical skills, access to inputs, physical infrastructure, supplier base, technical support
Host country policies	Macro policies	Management of crucial macro variables, ease of remittance, access to foreign exchange
	Private sector	Promotion of private ownership, clear and stable policies, easy entry/exit policies, efficient financial markets, other support
	Trade and industry	Trade strategy, regional integration and access to markets, ownership controls, competition policies, support for SMEs
	FDI policies	Ease of entry, ownership, incentives, access to inputs, transparent and stable policies
MNC strategies	Risk perception	Perceptions of country risk, based on potential factors, macro management, labour markets, policy stability
	Location, sourcing, integration, transfer	Company strategies on location, sourcing of products/inputs, integration of affiliates, strategic alliance, training, technology

Source: Lall 1997

Thus, it is possible to find answers to these three questions based on blocks summarized in Table 2. FDI attractiveness of a country depends on both economic conditions and policies. FDI decisions are a part of MNC strategies. These blocks determine not only the general attractiveness of a country but the attractiveness of some branches as well. So, these blocks are the determinants of FDI structure too. Some factors (first of all MNC strategies) are crucial for FDI dynamics within one branch (incl. ICT).

Based on the overview of different theories, the following conclusions can be made:

- FDI is a very important element of a firms' international activities. FDI dynamics is a significant indicator of globalization during the last four decades. Inward and outward FDI are considered to be one of the crucial resources for the branch development within a national economy.
- The phenomenon of FDI was researched in many studies. Therefore there are a number of FDI theories. There are micro- and macroeconomic FDI theories as well as FDI development concepts. There were some attempts of eclectic concepts such as the OLI-theory by Dunning. However only some of them can provide explanations for FDI attractiveness of countries, structural distribution of FDI and

FDI dynamics within one branch. All these questions are crucial for the problems stated in our paper (significance of FDI for the ICT development in Russia).

- Besides theoretical concepts, empirical research for identification of FDI contribution to the development of some branches within national economies is necessary. The results of such research could test hypotheses based on theoretical concepts.

These conclusions are valid for all branches, however every branch has some specifics. These specific features are to be taken into account in research of FDI activities. In the next section we consider the role of FDI for the development of ICT sector.

3. FDI in ICT sector

Generally the ICT sector is one of several branches defining the structure of a modern national economy. FDI activities in ICT can have a local significance for an economy as investments influencing only one sector. However, in some studies ICT are interpreted as an important new determinant of FDI activities (Addison and Heshmati 2002). First of all they offer an opportunity for countries to free themselves from the influences of geographical factors. The application of ICT eliminates the role of distance in supplying goods and services. ICT (first of all, Internet, personal computers, and wireless telephony) change the nature of global relationships and give new sources of competitive advantages. A modern telecommunication infrastructure contributes not only to the economic growth at the national level. It is a prerequisite for participation in global competition and for the attraction of new investments. Nowadays it influences practically all sectors. Thus, ICT is (in this context) not only one of many other sectors in the national economy. It is one of the crucial modern factors of globalization. The development of ICT is an important method of FDI attraction. So, the relationships between FDI and ICT could be sophisticated and diverse:

- FDI and ICT can stimulate each other and contribute together to economic growth of the country.
- The development of ICT can harness the FDI activities in many sectors.
- ICT can be considered as an important sector for FDI attraction

The link between ICT development and FDI attraction is really very close. FDI offers significant potential for development by providing access to both capital and technology. The development of ICT increases the potential to attract further FDI, which will in turn spur economic development. In our study we concentrate on FDI activities regarding the ICT sector. FDI in this sector (as practically in all other branches) may lead to some positive effects:

1. *Capital transfer*

Every branch needs resources for development. Through FDI inflows, the capital comes from abroad. FDI are usually investments in long-term projects significant for the branch strategic development.

2. *Modernization of technology*

Through FDI not only money but technology innovations can be transferred. That is why there is a positive correlation between FDI inflows and both productivity and economic growth.

3. *Additional market access*

FDI provide access to export markets. The growth of exports can lead to spill-over-effects such as technological learning or competitive stimulus.

4. *Positive impact on domestic investments*

FDI contribute not only to the development of branches itself. They also stimulate domestic investments. Many empirical studies confirm this fact.

All these effects are possible in ICT sector. FDI in ICT have not only a local significance within this branch but they also play an important role for strengthening the position of a country in the globalizing world. Empirical researches should identify the general attractiveness of a country for FDI in general and FDI attractiveness of its ICT sector in particular. A challenging issue is to identify general trends of the development of FDI to the ICT sector and to measure a real input of direct investments to the growth of this sector. FDI in ICT in some regions were researched in several empirical studies. Thus, the research of Khalil Hamdani emphasizes the role of FDI in the promotion of ICT for development.

This research concerns first of all developing countries. According to it, ICT-related industries (telecom) of developing countries dominated the inflow of FDI in infrastructure. So, over the period of 1990-2003 the share of FDI in telecom was about 47% (for comparison: electricity – 28%, water and sanitation – 5%, airports – 2%). At that time (1992-2002) FDI in ICT related projects more than doubled in developing countries. It is to be explained by measures of economic policy such as the privatization of state-owned telecom operators, the introduction of competition in telecom services and the creation of independent regulatory authorities (Hamdani 2007). General opportunities of national governments to attract FDI in ICT are summarized in Table 3.

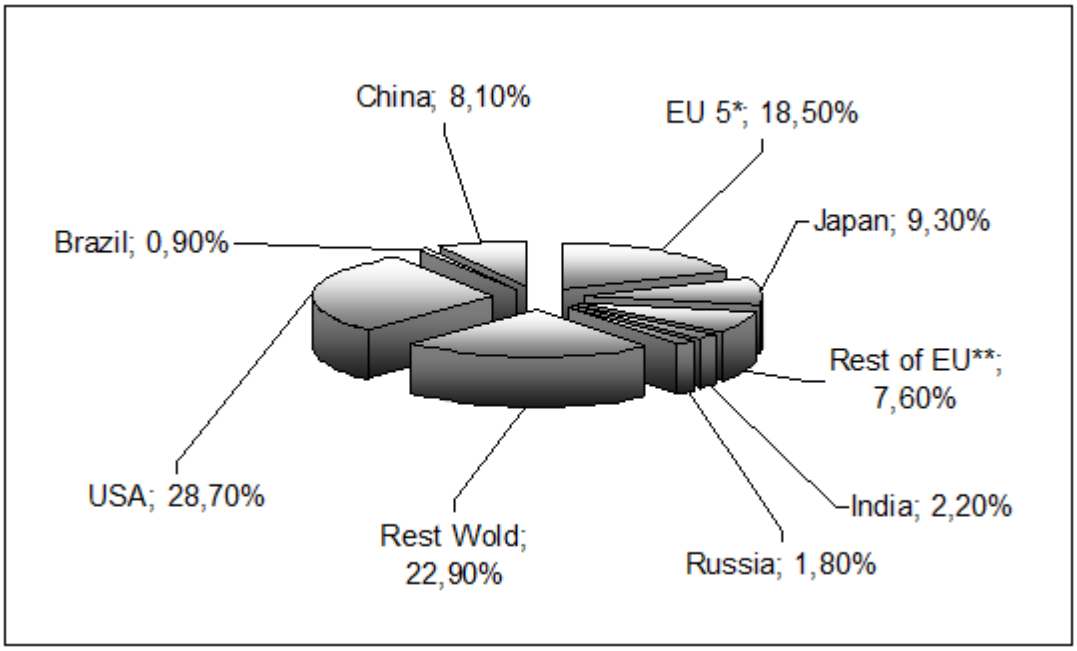
Table 3: How can national governments attract FDI in ICT?

Players	Process steps	Implications
Incumbents	Privatization	Government sells all or part of its stake (either private or public IPO) Provision of incentives to investors
	Privatization and liberalization	Combination of both approaches to increase efficiency of incumbent and to introduce competition
New entrants	Liberalization	Allowing competitors into the market Incumbent remains owned by government but is subscribed to competition

Source: Hamdani 2007

The research of Simon emphasizes the development of ICT in BRIC countries. In this research, many spheres defining the attractiveness of the national sector are considered such as trade deficit of ICT, total expenditure in ICT, total number of patents by national ICT sector etc. Besides it Simon analyses some general trends in the development of global ICT market. Their structure is presented on the figure 2.

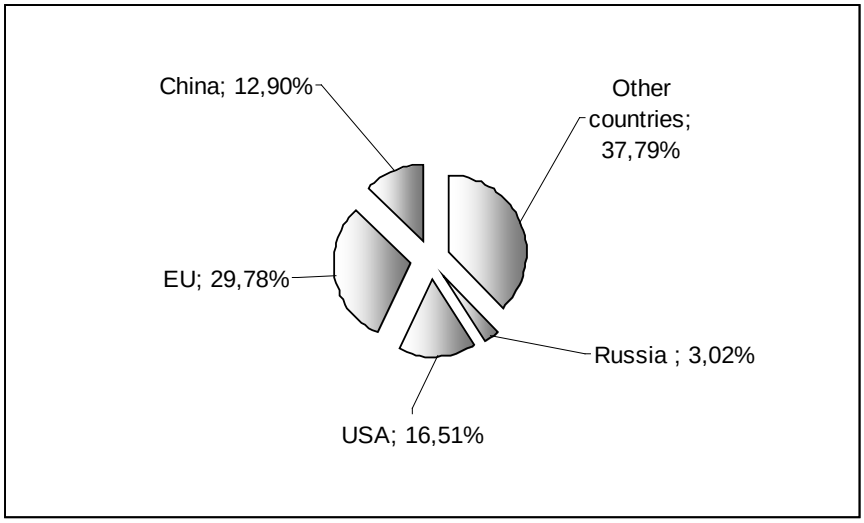
Figure 2: Regional structure of global ICT market



Source: Simon, 2011

This structure shows a clear domination of developed countries. Out of BRIC countries, only China has a significant share on the global ICT market. It is interesting to compare this structure with a world structure of FDI inflows (Fig. 3).

Figure 3: World structure of FDI-inflows



Source: www.worldbank.org; own calculations

The biggest part of FDI inflows is concentrated in developed countries. Among the developing countries, only China plays an important role as a place for location of FDI. So, the developed countries remain the leaders of the globalization process. It is true both for the ICT development and general attractiveness for FDI. It is possible to assume that FDI play an important role first of all in developed countries. But there is no total correlation between the development of national ICT sector and the attractiveness of national economy for FDI (Table 4).

Table 4: Kearney FDI Confidence Index and Network readiness index

Country	FDI CI (2010-12)	NRI (2010)
China	1,87 (1)	4,31 (37)
India	1,73 (2)	4,09 (43)
Brazil	1,60 (3)	3,80 (61)
Malaysia	1,41(10)	4,65 (27)
South Africa	1,40 (11)	3,78 (62)
Russia	1,39 (12)	3,58 (80)
Turkey	1,39 (13)	3,68 (69)
Vietnam	1,38 (14)	3,87 (54)
South Korea	1,35(19)	5,14 (15)
Poland	1,30 (23)	3,74 (65)

Source: www.itu.int

So, the countries with top Kearney FDI Confidence Index (CI) stay ahead in developing of ICT sector. As for Russia, its shares of both the global ICT market and world FDI inflows are relatively low. But a relatively high FDI CI let us assume that foreign investors see some prospects in the Russian economy in general and in the Russian ICT sector in particular. In the next section we analyse the FDI activities in the Russian ICT sector.

4. Russian ICT sector as a subject for FDi inflows

Recent years have been turbulent literally for all main world economies. Financial crisis of 2008-2009 caused a drop in both domestic and foreign investments. High-tech industries, including ICT sector, suffered from the lack of private investments as well. However, governments of several countries (for instance, the USA, Japan, EC, China, India, Brazil) considered investments in technological development, including information and communication technologies, as an important anti-crisis measure.

It would have been very important for the Russian economy as well due to its high dependence on raw materials export and necessity to transform the structure of the economy. Probable global demand decrease for Russian oil and gas due to technological advancements would exert a dramatic influence on the well-being of the Russian state. Thus, the issue of creating information economy and developing ICT sector is of current interest for Russia.

4.1 The structure of inward FDI to the Russian economy

As shown above, foreign direct investments can be a driver of structural transformation of a national economy. At present, Russia is one of the largest recipients of foreign direct investments: in 2011, the amount of inward foreign investment reached 56,3 Md. US-$ (Central Bank 2012), which places Russia, according to UNCTAD, among top ten countries by this parameter. Out of every $100 of global foreign investment, $3,5 have gone to Russia. The inflow of foreign direct investment constitutes about 3% of GDP, which is a higher ratio than of the USA and China, the largest importers of foreign investment.

However, to answer the question if investments received by Russia can be a source of the economic growth, we need to look at their structure. The Central Bank of the Russian Federation (Central Bank 2012) divides foreign direct investments into the following types:

- greenfield investments and additional issue of shares;
- reinvestment of profits in companies belonging completely or partially to a foreign owner;
- mergers and acquisitions (M&A);
- other investments (debt securities and credits).

In 2011, the share of “other investments” was equal to 41%: these are investments that are given for a certain period of time and should be returned. The reinvested income constituted 38% of inward FDI. And foreign direct greenfield investments amounted just to 15,6 Md. US-$ out of 56,3 Md. US-$ total FDI.

In other words, the inflow of FDI to the Russian economy is largely connected with credit operations and results of the activities of companies themselves. These are the assets either borrowed or earned inside Russia (Kuvshinova 2012).

Thus, inward FDI in Russia are formed rather by monetary assets than by technologies and know-how. This is attested by the Global Competitiveness Report of the World Economic Forum: according to the rating of 2011-2012, Russia holds 129th place out of 142 countries by the indicator "FDI and technology transfer" (Schwab 2011). This indicator reflects an answer to the question: "To what extent does FDI bring new technology into the country?" The low position of Russia in this rating shows that the role of FDI as a source of new foreign technologies appears to be not very significant.

The largest investor to the Russian economy is Cyprus. According to the data of the Central Bank of the Russian Federation, by January 2011 the accumulated FDI from Cyprus to Russia amounted to 36,3% of the total inward investment (179,2 out of 493,4 Md. US-$). Cyprus is followed by Bermuda Islands, Virgin Islands, and the Netherlands – countries with preferential tax treatment zones. These countries together provide the further 29,1% of the accumulated inward FDI to Russia.

Most probably, these FDI are formed by the capital of a Russian origin. By the estimation of the director of the Centre for Post-Industrial Studies V. Inozemtsev, over 70% of the assets controlled by 30 largest Russian companies are owned by off-shore firms (Kuvshinova 2012). Such types of operations related to FDI would not normally lead to new foreign technologies transfer.

It is also important to analyze the sector distribution of inward FDI. In 2011, the leading sectors attracting FDI in Russia were (Central Bank 2012):

- wholesale and retail trade (17,8 Md. US-$);
- finance and insurance (10,1 Md. US-$);
- extraction of natural resources (4,9 Md. US-$).

The share of these three sectors in total inward FDI approaches 60%. Other important recipients of FDI are food, beverages and tobacco production, metallurgy, production and distribution of electric energy, gas and steam, construction and real estate. Firstly, this structure of FDI reflects the specialization of the Russian economy on the extractive industries sector: Russia is a major global energy exporter. In 2011, 70,3% of Russia's export receipts come from mineral products (Federal State Statistics Service 2012). However, the economic dominance of the natural resources sector has been changing and in 2010, manufacturing provided 60% of aggregate GDP growth in Russia. Russian manufacturing grew by 12,3% in 2010, while Russian extractive industries grew by 4,7% (The World Bank in Russia 2011).

Secondly, the sectorial structure of inward FDI reflects the main competitive advantage of Russia, which is a large and still growing market size: according to the Global Competitiveness Report of the World Economic Forum, Russia holds rank 8 out of 142 countries by this indicator. That is why an important direction of inward FDI to Russia is the sectors satisfying demand of domestic final consumers. Thus, the amount of FDI is limited by the size of the domestic Russian market and not a global one.

An interesting approach to analysis of the sector distribution of inward FDI is offered by Ernst & Young European Investment Monitor. Ernst & Young's database tracks FDI projects that have resulted in new facilities and the creation of new jobs. By excluding portfolio investments and M&A, it shows the reality of investment in manufacturing or services operations by foreign companies (Ernst & Young 2011). Such investment may with a higher likelihood lead to technology transfer.

Table 5 lists the amount of projects connected with inward FDI to Russia. It shows that 54% of the total FDI in Russia in 2010 was used to create projects in the Russian manufacturing sector. In particular, the first rank is given to the automotive sector. This can be explained in part by a government policy to facilitate automotive production.

Table 5: Foreign direct investment in Russia by business sector, 2010

Rank	Sector	Number of FDI projects
1.	Automotive	29
2.	Non-metallic mineral products	17
3.	Food	16
4.	Chemicals	15
5.	Machinery and equipment	13
6.	Logistics	12
7.	Business services	11
8.	Other transport equipment	11
9.	Electrical	9
10.	Plastic and rubber	8
	Other	60
	Total	201

Source: Ernst & Young (2011) Growing opportunities. Russia FDI report

ICT sector has not deserved a special mention in table 5 due to a relatively low number of FDI projects in this branch. It is obvious that ICT is not ahead of other branches in attracting FDI. In the next subsection, we will concentrate on the economic development of this sector in Russia.

4.2 Trends in ICT market development in Russia

The interest in ICT development has emerged relatively recently. That is why understanding of the components of ICT sector varies among different countries and institutions. One of the most widely used is OECD classification of 2009, which comprises the following components (OECD 2009):

- computers and peripheral equipment;
- communication equipment;

- consumer electronic equipment;
- miscellaneous ICT components and goods;
- manufacturing services for ICT equipment;
- business and productivity software and licensing services;
- IT consultancy and services
- telecommunications services;
- leasing or rental services for ICT equipment;
- other ICT services.

Federal State Statistics Service of the Russian Federation has recently introduced several important changes in order to analyze the dynamics of information society formation in Russia. However, most of these changes were connected with measuring information society (access to and usage of ICT) and not ICT market (production of and investment to specific ICT goods and services). The structure of statistical data mostly reflects the needs of monitoring not information but industrial economy. That is why the data for analyzing in detail investment into production of ICT goods and services on the Russian market is relatively limited.

Russian ICT market is expanding quite fast on the background of expanding consumer demand and economic growth. As it is shown in table 6, communication services dominate the Russian ICT market with the share of 70,6% (data of 2010). They are followed by hardware market with the share of 15,1%.

Table 6: ICT market volume in Russia, million RBL

	2010	**2012***	**2014***	**Annual growth, %**
Hardware	290 700	353 700	439 100	+ 11%
Software	114 100	154 100	217 900	+ 18%
IT services	160 900	208 400	273 500	+ 14%
IT total	***565 700***	***716 200***	***930 500***	***+ 13%***
Communications	1 355 550			

*-forecast
Source: Ministry of Communications of the RF

The Ministry of Communications of the Russian Federation projects the annual growth of ICT market at the level of 11-18%. Earlier the growth in this sector was driven mainly by private consumption and business demand; ICT usage by the state authorities and state policy in ICT regulation were underdeveloped. This situation has recently changed due to the start of several state initiatives in the framework of the "Strategy of Information Society Development in Russia" adopted in 2008. This shift has been reflected in the E-government survey 2012 by UNO, where Russia's rank improved by 32 positions compared to 2010 and reached place 27 out of 193 countries.

The forecasted growth rates of the Russian ICT markets increase the attractiveness of investments in this sector. These investments are characterized in table 7. About 3% of the total investments in the country come to the ICT sector. Out of this sum, the overwhelming

share (86-87%) falls on the telecommunications. No other subsector received more than 5% of the total investment. On one hand, telecommunications are an investment-intensive service. On other hand, it is also connected with the low output of industries producing ICT equipment.

Table 7: Investments in the Russian ICT sector, million US-$

	2008	2009	2010
Investments in ICT sector	12784,3	8083,3	8985,1
Investments in ICT sector in % to all branches	3,6%	3,2%	3,0%
Including: Investments in telecommunications	11117,8	7057,2	7742,0
Investments in telecommunications in % to total investments in ICT sector	86,9%	87,3%	86,1%
Production of office equipment and computers	26,2	22,1	19,8
Production of insulated wires and cables	271,3	114,8	65,4
Production of electronic components, equipment for radio, TV and communications	361,1	268,3	352,4
Production of devices and instruments for measurement and control	332,0	266,6	313,9
Production of devices for controlling technological processes	1,5	0,6	2,0
Wholesale of ICT products	36,4	41,1	25,6
Rental of office equipment, incl. computers	22,0	9,5	45,7
Activities connected with application of computers and IT	616,0	303,0	418,3

Source: Higher School of Economics

The distribution of foreign investment in the Russian ICT sector is shown in table 8. Several conclusions can be drawn from this table. Firstly, foreign investments and credits play a major role in the development of the Russian ICT sector: in 2009, they constituted 63% of the total investment in the sector and in 2010 – 60%. It is possible to assume that without foreign investments the tempo of the Russian ICT sector would not be high.

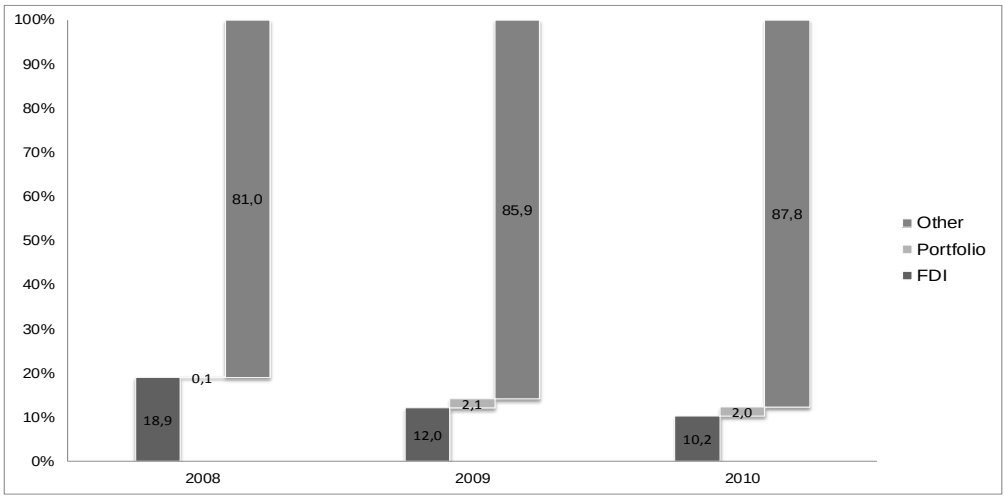
Table 8: Foreign investments in the Russian ICT sector, million US-$

	2008	2009	2010
Foreign investments in ICT sector	2304	5067	5389
Including: Foreign direct investments	436	608	550
Foreign direct investments in % to total foreign investments	18,9%	12,0%	10,2%
Portfolio investments	2	105	110
Other investments	1866	4354	4729

Source: Higher School of Economics

Secondly, we can point out that the share of direct investments in total foreign investments in the ICT sector is minor and fluctuates between one tenth and one fifth (figure 4). It means that a dominating share of foreign financing comes to the Russian ICT sector in the form of commodity credits. This ratio is characteristic for the Russian economy as a whole: for instance, in 2010 the share of FDI in the total foreign investment to the economy was 12%.

Figure 4: The structure of foreign investment in the Russian ICT sector, %

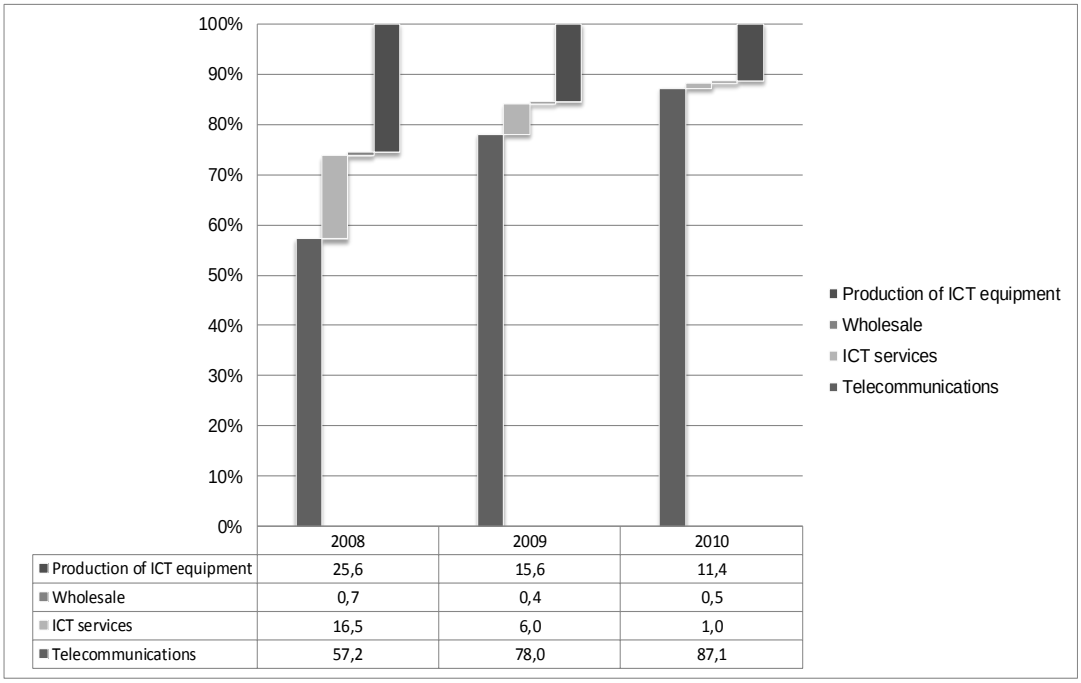


Source: calculated by the authors based on the data of table 8

Thirdly, the share of FDI to the ICT sector in the total FDI to the Russian economy is minor, as it was shown in section 4.1. Moreover, it seems not to follow the fluctuations in the size of FDI caused by the financial crisis and global recession of 2008-2009. FDI to Russia increased substantially reaching its maximum in 2008, decreased by more than twice in 2009 and started to recover in 2010 not coming back yet to its maximal value. FDI to the Russian ICT did not suffer during the financial crisis of 2009. It might be explained by the fact that markets of many types of ICT products and services did not experience a decline during the crisis. Examples of such Russian markets growing during the crisis are anti-virus software, Internet advertising, paid-for TV, on-line games, and readers.

The sectorial structure of FDI to the Russian ICT sector is shown on figure 5. It repeats the trends of total investments to the Russian ICT sector with the dominating share of telecommunications, which share reached in 2010 87,1%.

Figure 5: Distribution of foreign direct investment in the Russian ICT sector, %



	2008	2009	2010
Production of ICT equipment	25,6	15,6	11,4
Wholesale	0,7	0,4	0,5
ICT services	16,5	6,0	1,0
Telecommunications	57,2	78,0	87,1

Source: Higher School of Economics

Thus, at present Russian ICT do not seem to belong to the sectors most attractive for the foreign direct investments: the absolute values of FDI are quite low in this sector. On the other hand, the development of the Russian ICT sector is to a large degree dependent on foreign finance. However, mostly it comes not in a form of direct investments but of different types of credits. At the same time, the underestimated role of FDI in the Russian ICT sector might increase in the near future.

4.3 FDI concepts as basis for explanation of general trends of FDI inflows in Russian ICT sector

It seems to be interesting to consider the question about some connections between the theoretical concepts of FDI mentioned above and FDI inflows in the Russian ICT sector. In section 2, three general questions were formulated.

As for *the first question* (about general attractiveness of countries for FDI) the case of Russia demonstrates first of all relatively high inflows of foreign investments during last years. It could be explained through many factors mentioned among FDI concepts. To such factors belong a relative economic stabilization, existence of large and growing market, and obvious growth of real incomes in the 2000's in comparison to 1990's. All these factors arise in *macroeconomic FDI theories*.

The answer to *the second question* is related to the structural distribution of FDI in Russia. Macroeconomic aspects play an important role in understanding the structure of foreign investments in Russia. Relatively high interest rates motivate foreign investors to prefer

first of all credit operations (*capital market theory*). The same trends are noticed in the Russian ICT sector in particular. Thus, it explains the clear domination of monetary assets in foreign investments to the Russian economy.

In spite of high volumes of FDI inflows in the last years, many trends show that the Russian economy is not enough attractive for FDI. Such trends are related to the regional structure of FDI. A dominant share of FDI comes from Cyprus, Bermuda Islands, Virgin Islands, and Netherlands. These are actually money of Russian origin and not "real" FDI.

FDI in the Russian economy do not play an important role as a source of technological innovations. So, the unattractiveness of the Russian economy for FDI can be explained by the *institutional aspects*. All institutional spheres mentioned in Fig. 1 have weaknesses in Russia. These institutional problems make many projects in Russia too risky so that foreign companies often prefer investing in other countries.

The biggest part of FDI inflows to the Russian economy goes to three sectors: wholesale and retail trade, finance and insurance, extraction of natural resources. It could be explained by *the OLI-concept*. It is possible to assume that foreign companies see OLI-advantages first of all in these sectors. In other sectors, they prefer other forms of entering the Russian market (mostly export).

The answer to *the third question* can be found by analyzing the trends within FDI inflows to the Russian ICT sector. Here the attention is drawn to a recent growth of FDI activities combined with clear domination of telecommunications. This phenomenon is possible to explain by many factors which are mentioned both in the *microeconomic theories* and *development theories of FDI*. Thus, the firm specific advantages and challenges of market structure can motivate the companies to make FDI in the Russian ICT sector. Perhaps, foreign companies see these advantages first of all in telecommunication sector. The main cause of FDI in the Russian ICT sector seems to be connected with a general increase in demand and economic growth. These factors are mentioned in the development theories of FDI.

The connection between the theories of FDI and FDI inflows in the Russian economy (especially in ICT sector) is summarized in the table 9.

Table 9: Host country determinants of FDI (case of Russian economy in general and Russian ICT sector in particular)

Economic conditions	Markets	Large and growing country economy, growing market of ICT products
	Resources	Rich natural resources, which do not play an important role in ICT sector
	Competitiveness	Labour availability, trainability of personnel, technical skills, technical support. But: underdeveloped infrastructure, both financial and informational
Host country policies	Macro policies	Relative economic stabilization, high economic growth, increasing of incomes. But: relatively high inflation rates in comparison with developed countries
	Private sector	Guarantees of private ownership for foreign investors in Russian law. But: weak system of protection of private ownership
	Trade and industry	In general, liberalized international trade system. But: contradictory competition policy. Announced WTO accession, which could change the situation in the near future
	FDI policies	Opportunities of foreign investments regulated by the Russian law. But: no clear priority given to the support of FDI activities
MNC strategies	Risk perception	Many factors considered risky for foreign investors, first of all institutional factors (lack of transparency and corruption)
	Location, sourcing, integration, transfer	FDI considered as one of the opportunities to enter the Russian markets. Limited technology transfer. No well-established clusters. Other forms of interaction (exports, commodity credits) often preferred

Source: own interpretation of the information given in Table 2

4.4 Challenges and opportunities of FDI attraction to the Russian ICT sector

The main barriers hindering the inflow of FDI to the Russian ICT sector are two-fold. On one hand, they are formed by difficulties of starting and doing a business in Russia by a foreign company. These difficulties are reflected in FDI regulatory restrictiveness index by the Organization for Economic Cooperation and Development. This index includes four main types of restrictions on FDI: foreign equity limitations, screening or approval mechanisms, restrictions on the employment of foreigners as key personnel, and

operational restrictions. Russia's index of 2012 is 0,189, which is much larger compared to OECD average – 0,083 (OECD 2012).

Another insight is provided by the Corruption perception index of Transparency International which measures the perceived levels of public sector corruption. Russia's rank in 2011 was 143 out of 183 countries, which largely reduces the country's attractiveness for FDI.

On the other hand, there are specific features in FDI attraction to the ICT sector. Firstly, one should look at the domestic demand, which is influenced on the Russian ICT market by rather high piracy rate. Moreover, the business demand on the ICT market in Russia is relatively limited: many companies tend to save on software and ICT services. However, the global character of demand on ICT market reduces somewhat the significance of this factor.

Secondly, this sector nowadays is highly innovative and relies heavily on *talented and skillful personnel*. Russia does not offer labor costs advantages compared to, for instance, Indian programmers. In addition, Russia experiences brain drain of well-educated mathematicians and IT specialists.

Thirdly, FDI are attracted by the *availability of rapidly expanding innovative businesses* that might be of interest for strategic investors. The entrepreneurship appeal is still underdeveloped in Russia: only 4% of Russians would like to become entrepreneurs. Many of those who decided to start a business tend to do it abroad striving for well-developed infrastructure and interconnectedness of well-established clusters (i.e., Silicon Valley). One should admit, though, that entrepreneurship is developing in Russia and is especially visible, for instance, in e-commerce where many new companies appear.

These factors hindering FDI attraction to the Russian ICT sector might be mitigated in future. One of the evidences of such positive development is signing OECD Anti-Bribery Convention by Russia that entered into force in April 2012 (OECD 2012). It was considered to be a major step toward upholding international anti-bribery standards.

Russia pursues the economic policy of decreasing the dependency on extracting industries and developing research-intensive high value adding industries. The program of economy modernization and fostering innovations will have direct and indirect influences on the development of ICT sector.

Such developments allowed Ernst & Young to conclude that "FDI opportunities will come from knowledge-intensive sectors such as business services, software and R&D, which account for the bulk of FDI in Europe, but are currently underinvested in Russia" (Ernst & Young 2011). The consultants expect that Russia will gradually follow the way of the European countries where 15% of FDI projects is coming in the sphere of software creation, development and maintenance.

In order to get richer FDI inflows to the certain knowledge-intensive sectors of the national economy, including ICT, the country's attractiveness should be strengthened in several dimensions. Firstly, it is *institutional development* that would improve judicial system, decrease market monopolization level, fight against corruption, and reduce piracy rates.

Secondly, it is *development of strong companies* in the ICT sector. These companies would, on one hand, create a stronger domestic demand in business services and, on the

other hand, become an attractive object for investments. Business development could be facilitated by several measures. These are financial and infrastructural support for innovational small and medium-sized enterprises, combination of technical and entrepreneurial education and well-thought cluster policy, to mention some of the most important.

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