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- A Statistical Analysis -

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Abbreviations

Bill	- Billion
BD_r	- Share of Budget Deficit to Real Gross Domestic Product in Investor's Country r
BD_u	- Share of Budget Deficit to Real Gross Domestic Product in Investor's Country u
CPI_r	- Consumer Price Index in Investor's Country r
CPI_u	- Consumer Price Index in Investor's Country u
DT_r	- Ratio of the Debt to GDP in Country r
DT_u	- Ratio of the Debt to GDP in Country u
EX_r	- Export from Country r
EX_u	- Export from Country u
ER_r	- Exchange Rate in Country r
ER_u	- Exchange Rate in Country u
FDI	- Foreign Direct Investment
FDI_{jr}	- Foreign Direct Investment Inflow in the Country r in the Year j
FDI_{iu}	- Foreign Direct Investment Inflow in the Country u in the Year i
GDP	- Gross Domestic Product
GDP_r	- Real Gross Domestic Product in Investor's Country r
GDP_u	- Real Gross Domestic Product in Investor's Country u
IM_r	- Import to Country r
IM_u	- Import to Country u
MIGA	- Multilateral Investment Guarantee Agency
Mill	- Million
MNC	- Multinational Company
MNE	- Multinational Enterprise
NIS	- New Independent States
OPIC	- Overseas Private Investment Corporation
PI	- Portfolio Investment
PS_r	- Share of Private Sector in Industrial Production in investor's country r
PS_u	- Share of Private Sector in Industrial Production in investor's country u
R&D	- Research and Development
RIR_r	- Real Interest Rate in investor's Country r
RIR_u	- Real Interest Rate in investor's Country u
r	- Russia
u	- Ukraine
UNCTAD	- United Nations Conference on Trade and Development

Tables

Graphs

This 10th issue of the Statistical Papers contains research results by Dr. Olga V. Nosova from Kharkov State Polytechnic University in Ukraine. She spent June to August 1998 at the University of Potsdam. Editor and Author owe much graditude to the German Academic Exchange Service (DAAD) for financing this scholarship. Although the report is not immediately dedicated to statistics it can be considered a valuable contribution to the Statistical Papers of the University of Potsdam for its effective exploitation of rather poor statistical sources in order to get maximum information on Foreign Direct Investment in Ukraine and Russia. Thanks are due to Alexandra Franke for assistance with tables and figures as well as for revisions and rewrites.

Potsdam, October 1998 Hans Gerhard Strohe

Abstract

In this paper a comparative exploration of the potential for foreign investment and real inflow to Russia and Ukraine are examined. The analysis showed that primarily both countries enjoyed significant comparative advantages in attracting foreign capital. Since the foundation of independent states in 1992 attractiveness began to diverge dramatically. This difference is clearly explained by the determination of the Russian government to reform the economy earlier than the Ukrainian government. The transition to a market economy is closely connected with the development of a favorable investment climate in both countries. It includes the foundation of a stable system of property rights and a conducive legal environment.

Key words: foreign direct investment, investment climate, system of property rights.

1. Introduction

The process of globalization of capital markets has been accompanied by an increase of capital movement throughout the world, including into Eastern Europe. The liberalization of domestic markets in the region opened new opportunities for capital inflow. Russia and Ukraine have the greatest potential to attract significant foreign investment. Both have comparative advantages that should be of interest to multinational companies (MNCs): expansive natural resources, cheap and highly skilled labor forces, low transfer costs among others. In addition, the economic climate in Russia and Ukraine shows some progress in macroeconomic stabilization. Yet several factors have discouraged potential investors: 1. political instability and corruption on every level; 2. insecure property rights; 3. lack of developed internal markets. Previous analysis of the investment environment in Russia and Ukraine have emphasized their similarity. In contrast, this paper offers a comparative exploration of capital inflow into Russia and Ukraine and demonstrates that in fact there are considerable differences between the two.

2. Foreign Direct Investment in Russia and Ukraine

The transition process to the market is the key issue in the Eastern European countries. A successful transition depends not only on the usage of domestic resources, but also on the inflow of foreign capital into the country. Foreign direct investment (FDI) is defined as ownership of assets in one country by residents of another for purposes of controlling the use of those assets.[1] FDI carries with it several advantages for the receiving country. FDI is one of the most important ways of disseminating new knowledge and technologies; it contributes to the transformation of native rules and institutions, and it promotes the renovation of existing fixed capital and increases the circulation of capital. There are three different types of direct investment: first, investment in existing or newly established enterprises in the form of a cash contribution, setoff of claims, non-cash capital contribution, or the transfer of rights; second, loans and other allocations to enterprises by investors to reinforce these companies' resources; third, reinvestment of profits, i.e., retention rather than disbursement of at least a portion of the profit earned by the direct investment

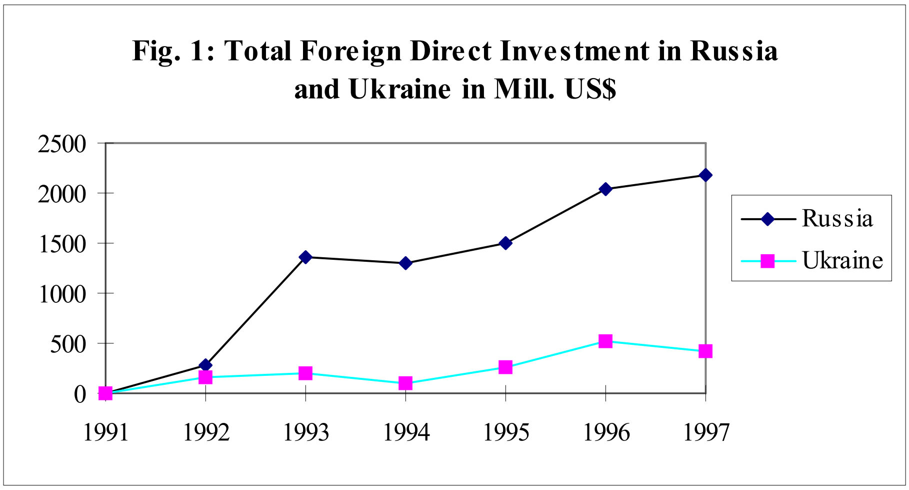
[1] See Graham, Krugman (1994), p. 8: In accordance with international standards, foreigners must own a minimum stake of 10 percent of a venture for it to be classified as "direct." Portfolio investment is ordinarily distinguished from direct investment, and is not considered for the purposes of direct investment calculations because it does not contribute to actual foreign control.

enterprise. There are three basic means of FDI: the greenfield, indirect acquisition (joint ventures), and direct acquisition (privatization).

Both the Czech Republic and Hungary have reformed and stabilized their economies and have thereby succeeded in attracting considerable private capital. The other countries of Eastern Europe, however, have not reformed their economies sufficiently to attract significant FDI. In fact, foreign investment in Eastern Europe as whole has been falling. According to the Annual World Investment Report by the United Nations Conference on Trade and Develop-ment (UNCTAD) there was a decline in FDI from over $14.3 billion invested in 1995 to $12.2 billion in 1996 in the Central and Eastern European region. Perhaps due to this decline, the majority of Eastern European countries have now taken an interest in improving the investment climate in their countries. They are considering or implementing economic policies designed to attract foreign capital, including legal reform, abolishing existing trade restrictions, tax incentives, protection against property expropriation. The competition for FDI is fierce.

Turning now to the situation of Russia and Ukraine, both countries need FDI to infuse capital investment in the industrial sector; to spread new technologies and managerial skills to develop their economic infrastructure, and to create new employment opportunities. Indeed, both countries enjoy significant comparative advantages in attracting FDI, including: 1. large stocks of natural resources; 2. low energy prices; 3. low wages; 4. a highly skilled labor force; 5. existing industrial capacity; 6. low competition; and 7. advantageous geopolitical situation. However, the existence of dire need or attractive business opportunities does not in itself guarantee a high level of return on investment. On the other hand, there are several kinds of impediments preventing the attraction FDI in Russia and Ukraine. These include political instability and corruption, crime, arbitrary interference of government authorities in the private sector, lack of an effective legal framework, insecure property rights, undeveloped internal market, and the absence of a well-managed tax system.

Following the collapse of the Soviet Union, the investment attractiveness of Russia and Ukraine faltered due to economic and political instability. FDI rose, but at a very slow rate. More recently, as the situation has become more stable and FDI has increased at a more rapid pace, though it is still far below what is needed in both countries. Beginning in 1992, the attractiveness of the two countries seems to begin to diverge dramatically, as can be deduced from Figure 1.



Source: Hunya, Stankovsky (1998).

This difference is clearly explained by the determination of the Russian government to reform the economy earlier than the Ukrainian government. (Table 1).

Table 1: ***FDI Outflow from Russia and Ukraine (Mill. US$)***

	1994	**1995**	**1996**
Russia	386	191	406
Ukraine	8	10	24

Source: World Investment Report (1997), p. 312.

According to the World Bank's estimation of relative attractiveness, Ukraine lagged behind Russia and, as a result, succeeded in attracting less cumulative FDI by 1994, as can be seen in Table 2.

Table 2: ***The Cumulative Inflow of Foreign Direct Investment***

	FDI 1994 (Mill. US$)	**Group of attractiveness** (1-the most attractive to 4)
Russia	3900	3
Ukraine	950	4

Source: World Bank Report (1996), p. 21.

The gap continues to be very wide today: In the period from January to September of 1997 the amount of direct investment in Russia increased to 2.179 billion while the amount of FDI in Ukraine over the same period declined to US$ 328.3 million, less than half of the foreign investments at the same period in 1996[2]. Comparison of FDI per capita in Russia and Ukraine paints a similar picture. Over the period 1990-1993 Russia averaged US$ 7.8 of FDI per capita, while Ukraine averaged only US$ 1.5.[3] FDI per capita is not consistent for East European countries during the period from 1990 to 1997. It is explained of different database for calculation. The following three years show a similar if less drastic disparity, as can be seen in Table 3.

Table 3: ***Foreign Direct Investment per capita in US$***

	1992	**1993**	**1994**	**1995**	**1996**	**1997 Jan.-Sept.**
Russia	1.9	9.0	8.6	10.00	13.6	14.50
Ukraine	3.4	4.0	1.8	4.52	10.5	8.39

Source: Calculated on the basis of data of International Financial Statistics (1997), p. 591, 717.

Paradoxically, Ukraine needs FDI more than Russia though it receives much less.

The Russian economy now has significant internal investment, the result of several years of economic reforms and modest development. In contrast, Ukraine has a very low rate of internal savings and a comparatively low level of investment capital. Therefore, Ukrainian businesses must seek capital outside the country in order to stimulate their business activity.

3. Factors Affecting Foreign Direct Investment in Russia and Ukraine

The most general reason FDI is lower in Ukraine than in Russia is that the Ukrainian economy as a whole is less developed, and therefore less attractive to foreign investors. Analysis of general economic indices such as output, inflation, fiscal balance, unemployment, current accounts, reflects the problems of transition in both countries and the relative disadvantage of Ukraine in comparison to Russia, as can be seen in Table 4. Output is declining in both countries, though it is falling more rapidly in Ukraine. Similarly, a tightening of financial policies in both countries has led to a decrease in the rate of inflation, though the rate of currency stabilization is greater in Russia than Ukraine. Although both Russian and Ukrainian statistics suggest that unemployment is low, these figures are unreliable because they mask hidden unemployment and underemployment.

[2] See *International Financial Statistics* (1997) , p. 591, 717.
[3] See Booth (1994-1995), p. 4.

Table 4: ***Russian Federation and Ukraine: Key economic indicators in per cent***					
	1994	1995	1996	1997*	1998*
	Russia				
Output	-12.6	-4.0	-6.0	2.0	5.0
Inflation	226.0	131.0	22.0	15.0	12.0
Unemployment	14.8	13.1	12.5	12.0	11.0
Fiscal Balance	-10.4	-5.7	-7.0	-5.0	-5.0
Current Account	11.0	10.0	9.0	4.0	4.0
	Ukraine				
Output	-19.0	-12.0	-9.0	N/A	N/A
Inflation	401.0	181.0	40.0	N/A	N/A
Unemployment	0.4	0.6	1.6	N/A	N/A
Fiscal Balance	-8.6	-4.0	-4.0	N/A	N/A
Current Account	-1.4	-1.3	-1.0	N/A	N/A

*Forecast
Source: National Authorities and OECD Secretariat (1997).

The fiscal balance is comparable in Russia and Ukraine, both countries suffering a moderate though declining deficit. Russia's current account is positive, largely due to the export of energy resources. Ukraine's current account is still negative. In sum, an assessment of all main macroeconomic indices suggests that although neither country has completely stabilized, Russia is moving more rapidly toward a steady state than Ukraine. As one might expect, the latest data of October, 1997 produced by the State Statistics Committee of Russia shows that the decline in living standards has stopped. In March 1997, wages in Ukraine averaged US$ 82.7 per capita, far below the rate in Russia.[4]

The assessment of global economic freedom made by the Heritage Foundation/Wall Street Journal[5] in 1997 allows us to be more specific about the problems faced by the Russian and Ukrainian economies in their effort to attract FDI. Both Russia and Ukraine scored very poorly among the Eastern European countries. The existing restrictions in trade policy, monetary policy, government regulation, insecure property rights, and a flourishing black market in both countries are slowing down economic development. Ukraine, however, scored

[4] See Экономический бюллетень (1997), p. 17.
[5] See *1997 Index of Economic Freedom* (1997).

worse than Russia, specifically in the areas of taxation and banking, as can be seen in Table 5.

Table 5: ***1997 Index of Economic Freedom Rankings***		
	Russia	**Ukraine**
Trade	5	4
Taxation	3.5	4.5
Government intervention	4	3
Monetary Policy	5	5
Foreign Investment	3	3
Banking	2	4
Wage / Price	3	3
Property Rights	3	3
Regulation	4	4
Black Market	4	4
1997 Score	**3.65**	**3.75**

Source: Holmes, Jihnson and Kirkpatrick (1997).

The Ukrainian taxation system is characterized by high rates that shrink revenues and a banking sector that is tightly controlled by the government, which limits the availability of capital. In addition to the relatively poor state of the Ukrainian economy, other factors also hinder the inflow of FDI into the country: a lack of predictable and enforceable laws and rules, unstable taxation, bureaucratic barriers to concluding transactions, and corruption.

For all these reasons, Ukraine appears to Western investors to be a relatively more risky place to invest than Russia. A recent analysis of risk assessments in Russia and Ukraine supports this conclusion. For the purposes of Table 6, country risk is defined by the potential for non-payment or non-servicing of payment for goods or services, loans, trade related finance, and dividends, and the risk of the non-repatriation capital.

In the Euromoney assessment of country credit-worthiness, Russia moved from the 86th place in September 1996 to the 91st place in March 1997. As far as Ukraine is concerned, its position changed from 135th place to 136th place at the same period.

Table 6: ***Countries' Risk Rating: A Euromoney Ranking***		
	Rank in September 1996	Rank in March 1997
Russia	86	91
Ukraine	135	136

Source: Euromoney (1997), p.164.

Because of uncertainty, foreign investors tend to engage in short term ventures rather than investing for long periods.

As we have seen, the attraction of FDI in both Russia and Ukraine is a difficult problem. Neither country has succeeded in drawing sufficient capital from abroad, though Russia has been marginally more successful. The transition to a market economy is closely connected with the development of a favorable investment climate in Russia and Ukraine. The creation of such an environment requires the foundation of a stable system of property rights and a conducive legal environment. In the remainder of this paper, these two factors will be discussed with reference to FDI in Russia and Ukraine.

4. The system of property rights and the mechanism of property disposal

The process of transformation from a command to a market economy depends on the existence of a defined system of property rights which will enable investors to make rational decisions. The foundation of the system of property rights and setting up new rules at all levels of the economy are directed to ending inefficient structures of production and irrational distribution of scare resources. The lack of market institutions which could provide the decision making process with minimum transaction costs lessens the investment attractiveness of Russia and Ukraine.

The strategies of foreign investors are based on the competition for access to international capital. According to the recent investigation of the International Finance Corporation and the World Bank more than half of FDI in Central and Eastern Europe have been made in privatized firms.[6]

Currently the Russian and Ukrainian governments are reforming the system of property rights, decentralizing state ownership, and promoting competition among firms so as to attract foreign investors. Furthermore, the success of economic reforms is closely

[6] See *The World Bank Report* (1996).

connected with the establishment of mechanisms of property conveyance (transfer) and the creation of well-ordered financial institutions which can carry out the redistribution of state control of enterprises to external shareholders.

The new economic institutions should promote the transformation process from the command system to a market economy. Privatization in Russia and Ukraine is aimed at to reinforcing the transformation process of the previous institutional superstructure to a new one.

The share of private sector of GDP distinguishes the consequences of earlier and more rapid privatization in Russia in comparison with Ukraine. Delayed privatization in Ukraine has resulted in a delay in property transfer, as can be seen in the Table 7.

Table 7: ***Share of Private Sector of GDP in per cent***

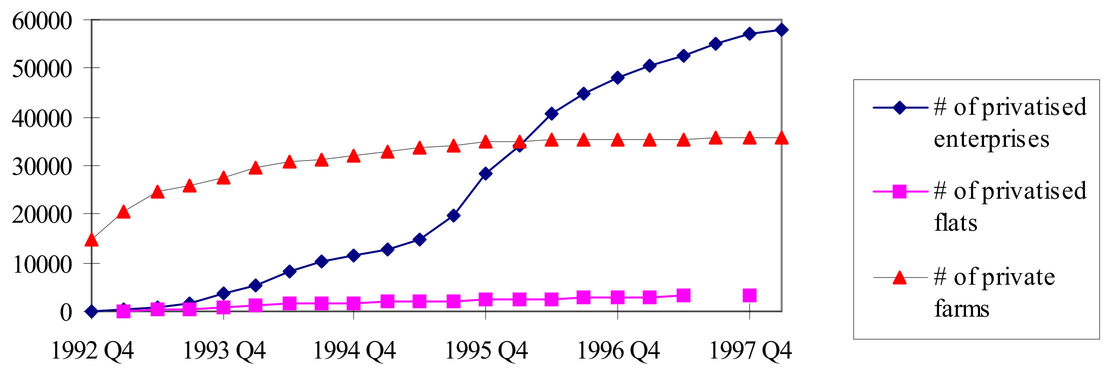
	1995*	**1996***
Russia	50	65
Ukraine	5	35-40

*Forecast
Source: Анташан (1995); Commercial Overview of Russia (1997); Commercial Overview of Ukraine (1997).

In the second stage of mass privatization in Ukraine, the major part of shares will be carried out through investment and special competitions which include selling huge blocks of state enterprise shares on the basis of investment commitment. Foreign investors have a right to participate in case of auction or competition without special permission, and payments must be made in hard currency according to the exchange rate set by the National Bank of Ukraine. The exclusion of profitable enterprises from privatization, numbering about 1.396 enterprises, is a distinguishing feature of Ukraine (Figure 2).

When speaking about positive results of privatization in Russia, it must be noted that it has led to increased revenue for the budget, and additional investment by investors in the property they have acquired. A negative consequence is that a considerable share of property is concentrated in the hands of several powerful financial industrial groups in Russia.

Fig. 2: Privatization in Ukraine from 1992-1997



Source: Ukrainian Economic Trends (1998), p. 84.

Opinions on economic reforms in both countries are presented in Table 8. The survey results of the enterprise's perspective on reforms demonstrate confidence in the irreversibility of reform process in both countries.

Table 8.: ***The Enterprise's Perspective on Reforms in Ukraine and Russia. Survey Results, 1995-1996 in per cent***[7]

	Russia	Ukraine
Is the reform process irreversible?		
No	60	71
Yes	10	23
Reforms have not started	30	6
Have the reforms had a positive impact on your business?		
Yes, already	27	36
Not yet, but soon	8	1
Not at all	65	63

Source: Data analysis based on March 1996 survey in 5 large Ukraine cities and 3 large Russian cities.

One third of all respondents in Ukraine believe that reforms have not yet started, while the majority of respondents do not believe reforms have positive impact on their business.

The different respondent opinions indicate a discrepancy between reforming the economic system at the macro level, and real transformation at the micro level in Russia and Ukraine.

[7] See Cornelius and Lenain (1997), p. 234-275.

The survey results support the point of view that the privatization process has had real positive effect on business activity in both countries.

One of the most debated questions is what share of foreign capital should be permitted in the "strategic sector". Official documents in Russia and Ukraine adhere to the opinion that the level of foreign control of enterprises has to be determined in accordance with the interests of the state. The full control of foreign owners in some industries negatively impacts competition. Some MNCs attempt to limit access to the market, fix prices, and participate in anticompetitive mergers.

Under the new privatization 37 companies are to be sold in 1998 in Russia according to the report of State Committee for the Management of State Property of Russia. Most of the companies are to be privatized by commercial tenders or at auctions, with the government keeping a controlling stake in many of the firms. There is subordination at the local, regional and federal levels in Russia. Foreign investors can participate in privatization of certain sectors and enter "strategic" sectors with permission of the government. Most enterprises in "strategic" sectors are to remain in state hands and under state control (land ownership, defense, natural resource sector, telecommunication businesses, including public television and etc.).

In conformity with the decision of the Cabinet of Ministers of Ukraine on February 18, 1997, and April 10, 1997 there have been confirmed privatization plans for about 55 "strategically" important enterprises which should be privatized under individual privatization plans.

In conclusion, it should be mentioned that in spite of some positive results of privatization in Russia and Ukraine, there are still urgent problems to be solved - the decentralization of ownership control, and property conveyance to outsiders. The pace of that process in Ukraine has to be accelerated for medium and large enterprises. New economic institutions will adjust new business opportunities through market mechanisms. A private sector with the appropriate system of property rights is the economic precondition of promoting inflows of private capital to Russia and Ukraine.

5. Legal and regulatory framework

The examples of transitions in Central Europe demonstrate that the creation of a favorable legal environment is the most important factor in attracting foreign investment.

There is a direct connection between the willingness of foreign investors to invest in a country and the legal environment in the country. The creation of a mutually beneficial legal regime could promote FDI in Russia and Ukraine.

Experts distinguish two stages of FDI development: the first stage is connected with liberalization of investment conditions, where the average FDI amount is declining. In the second stage, investment conditions are already stabilized, and the average FDI increases as a result of larger investors' interest to enter the country. Russia and Ukraine are still at the first stage due to the comparatively late adoption of legal regulations for foreign investors.

Legal reform is directed to freeing up factor prices, decreasing transaction costs, and reducing risk exposure. The legal definition of lower factor prices on main inputs in domestic country is an important motivation for foreign investors. Different kinds of international organizations provide insurance for foreign investment. The protection and guarantee against government expropriation in domestic legislation is a significant factor in providing the legal framework for attracting foreign investment into the country. Russia and Ukraine have joined the Multilateral Investment Guarantee Agency (MIGA) which provides risk coverage up to 90 percent of foreign investment against losses caused by civil strife, expropriation, inconvertibility of the local currency and government non-compliance with obligations vis-à-vis foreign investors. Bilateral agreements on investments assign conditions of access to foreign firms and defend their interests in internal market. The Overseas Private Investment Corporation (OPIC) in the US makes loans, guarantees and insures against political risk.

At the present time, the governments of Russia and Ukraine are beginning to change the legal framework and adopted laws on foreign investment in order to provide a stable legal environment for foreign investors. The law "On Foreign Investment in the RSFSR" of July 4, 1991 in the former USSR was enacted to create a favorable legal framework for foreign investors, and is still in effect in Russia. It permits 100 percent foreign ownership of business.

The law on "On regime of Foreign Investment in Ukraine" was meant to create a consistent framework for foreign investment[8] The decree determined a qualified foreign investment to be at least 10 percent of statutory capital. The decree also provided for the establishment of wholly owned foreign subsidiaries. The law defined some priority industries and areas where a qualified foreign investment is granted some special tax relief and other privileges.

[8]Ведомости Верховного Совета Украины (1994), p. 111-117.

The new law on Foreign Investments on 23 April 1996 in Ukraine replaced the law of 1993. It defines the types of foreign investment, identifies ten “grandfather” clauses against any subsequent changes in legislation, and protects from expropriation.

The unstable legislation concerning foreign investment in Russia and Ukraine continues to restrict investors’ opportunities, reduces the flow of foreign capital to the country, and lowers its long-term economic growth. The new draft law “On Foreign Investment” contains detailed definitions of “foreign investment,” and includes a distinction between foreign investors from Russian companies fully or partly owned by foreign investors, it also governs investments made in the form of providing loans to Russian companies. The law has a list of more than 100 banned and restricted activities. Foreign investors are not allowed to invest in natural resource sectors defined as “strategic” without special permission. The law does not offer any special privileges in custom regulations, exchange controls and export restrictions. The new legislation does not define the amount of foreign investment needed for a Russian company to qualify as a company with foreign investment.

Government approval of new tax codes in Russia and Ukraine aims to create unified legislation to encompass all types of taxation, reduce the number of taxes, simplify penalties, and to change taxes on investment. Radical reform of the tax system reflects the problem of non-payment of taxes, wages, budget deficit. Tax exemptions are directed to create preferential treatment for foreign investment and stimulate foreign investment.

The adoption of laws conducive to foreign investment plays the key role at the initial stage of transition. New legal regulations are designed to reduce uncertainty and transaction costs, lower bureaucratic barriers, secure property rights, and simplify the taxation system.

6. Economic Impact of Foreign Direct Investment in Transition in Russia and Ukraine

In order to trace the economic impact of FDI in transition in Russia and Ukraine, let us consider the impact of indirect acquisitions (joint ventures). The establishment of financial institutions financing ventures is an urgent task in both countries. Venture capital funds finance venture enterprises by helping them to incorporate expansive innovations into their businesses. Joint ventures are considered to be the form of enterprises combining the business opportunities of domestic and foreign affiliates. The changes in the stock of number of projects can be seen from Table 9.

Table 9: *FDI in East Europe - Stock of Number of Projects*						
	1992	**1993**	**1994**	**1995**	**1996**	**1997**
Czech Republic	9,000	14,052	23,005	32,946	41,895	39,988
Slovakia	2,825	5,143	7,207	8,740	10,113	10,500
Hungary	17,182	20,999	23,557	25,096	26,130	31,000
Slovenia	2,815	3,124	3,604	4,007	3,819	4,175
Poland	10,010	15,167	19,737	24,086	28,622	32,889
Russia	6,000	12,000	13,300	14,276	17,258	14,664
Ukraine	2,000	5,000	1,775	2,969	4,000	5,963

Source: Hunya and Stankovsky (1998).

There is the relative increase in the number of projects with foreign investment in Russia in comparison with Czech, Hungary, Poland, and Ukraine (Table 10).

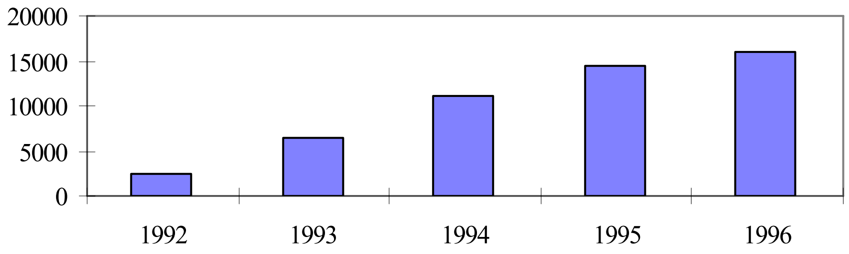
Table 10: *FDI (Number of Projects - Annual Increase)*						
	1991	**1992**	**1993**	**1994**	**1995**	**1996**
Czech Republic	3200	5333	5052	8950	9940	8950
Hungary	5642	4101	4286	4431	3720	4088
Poland	3151	5214	5157	4570	4349	4536
Slovakia	1600	992	2318	2064	1533	1373
Slovenia	491	1490	1154	480	403	-188
Russia	1825	4461	5490	1300	1200	3000
Ukraine	N/A	N/A	3500	3042	1200	1000

Source: Hunya and Stankovsky (1998).

Official statistics (Goskomstat) show that some joint ventures do not reach the stage of the level of real transfer of capital by the Western partner. The information on foreign affiliates R&D confirms that the share of R&D carried out by foreign affiliates is generally smaller than that of their turnover or production.[9] There is no resulting increase in their statutory funds. Total investment in the joint ventures has reached US$ 1.5 billion, which makes up a quarter of all foreign investment in Russia (Figures 3,4).

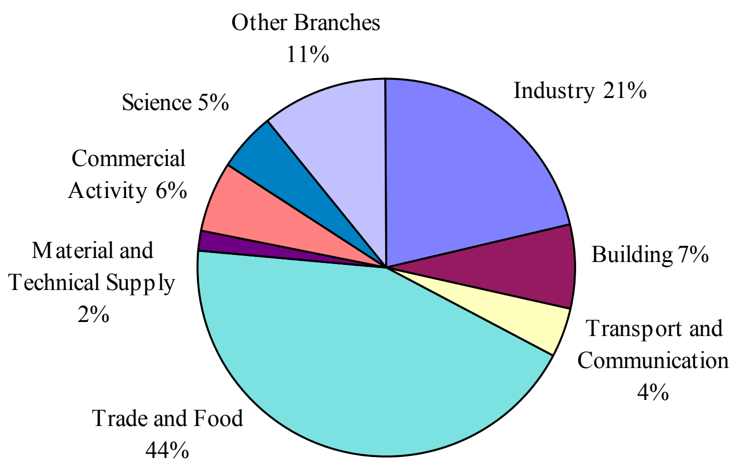
[9] See *The Performance of Foreign Affiliates in OECD Countries* (1994), p. 63-64.

Fig. 3: Number of Joint Ventures in Russia



Source: Госкомстат России (1997), p. 369.

Fig. 4: Number of Joint Ventures by Sectors of Economy in Russia in 1996



Source: Госкомстат России (1997), p. 370.

The Ministry of Economics of Ukraine reports about 4114 joint ventures in March 1997 where the share of such enterprises in comparison with another is very small.

The absence of special regulations promoting favorable conditions and economic incentives for setting venture capital discourages substantial injections of venture capital. The restoration of the capacity for innovation in medium-sized enterprises is the starting point of economic stabilization and future sustainable growth in both countries. Such primary investment in the venture enterprises should benefit with multiple effect both the investor and recipient in future. The forecast of FDI growth in 1996-2000 indicates a low potential for Ukraine to attract a considerable amount of FDI in the future due to the strong competition from East European countries. It can be seen from Table 11.

Table 11: ***Foreign Direct Investment in East Europe in Mill. US$***				
	1994	**1995**	**1990-1995**	**1996-2000***
Hungary	1146	4400	11200	12968
Poland	1875	2500	7148	21969
Czech	878	2500	5666	15466
Russia	1000	2000	4400	26960
Ukraine	91	113	574	1400

* Forecast
Source: Economist Intelligence Unit, (1997).

If Russia and Ukraine are unable to change their economic policies and create a more favorable environment for the inflow of foreign capital, these countries will suffer relative to their competitors.

The economic impact of FDI in transition in Russia and Ukraine can be seen from the comparative analysis of the regional distribution of FDI levels of investment from abroad. There is a disparity between the potential demand for FDI and actual levels of it in regions of both countries. The lack of internal financial capital forces the governors of the regions to find the additional sources in the form of foreign investment.

Regional distribution of direct investment shows an uneven capital inflow to different regions in Russia and Ukraine. The major part of all FDI is concentrated in capital cities. The rest of the investment does not make up a considerable share of capital which could significantly alter the economic situation in regions of either country. (Table 12). The distribution of foreign investment in the first half of 1997 in Russia depicts the dominant position of the Center regions, especially Moscow.

Table 12: ***Regional Distribution of FDI in Russia in the First Half of 1997, Bill. US$***			
	FDI	**PI**	**Other**
Central	1856.8	121.0	3612.4
North-West	69.8	14.8	95.8
Povolzskii	52.7	0	147.5
Uralskii	49.4	1.4	10.9
West-Siberian	20.7	0	397.3
Far-East	73.1	0	29.5

Source: Commercial Overview of Russia (1997).

Resource rich regions, large machine-building centers, and regions adjacent to foreign borders are starting to play an important role in attracting international capital. The deficit of capital in the major industrial regions Povolzskii, Uralskii, Far East, etc. gives rise to the question of attracting and redistribution capitals among these regions.

Table 13: ***Foreign Investment in Ukraine by Regions through 1996 in US$***

Region	FI	Region	FI
Kiev City	556,510	**Kharkiv**	19,476
Odessa	114,746	**Ivano-Frankivsk**	18,721
Crimea	92,604	**Zaparozhia**	15,605
Dnipropetrovsk	88,187	**Sumy**	13,329
Donetsk	76,339	**Mykolaiv**	11,835
Lviv	54,139	**Volyn**	10,643
Cherkasy	41,055	**Ternopil**	10,586
Kiev (region)	35,077	**Kirovohrad**	8,826
Zhytomyr	32,077	**Rivne**	8,259
Zakarpatska	28,874	**Kherson**	6,229
Luhansk	24,397	**Chernovitsi**	5,782
Chernihiv	22,349	**Vinnytsia**	5,042
Poltava	21,131	**Sevastopol**	1,936
		Ukraine total	***1,355,887***

Source: Министерство Статистики Украины, (1996).

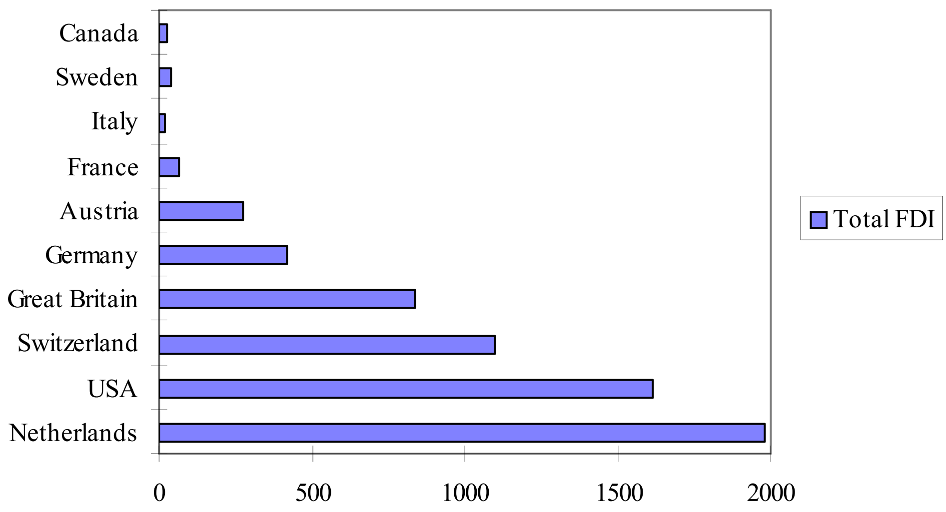
The same trends are evident in Ukraine, where there is not uniform regional distribution of foreign capital flow among different regions. In Table 11, we see that the majority part of foreign investment went to Kiev, Odessa, Crimea, Dnipropetrovsk, Donetsk, and Lviv regions in 1996.

The corresponding flows of foreign capital could be explained via the geographic advantages of these regions. It is difficult to explain the low activity of foreign capital in such highly industrialized regions such as Kharkiv, Zaparozhia, and Mykolaiv regions. An analysis of the structure of investments coming to Ukraine shows that they are small investments with quick profit and are not serious long-term investments.

The comparative analysis of the top foreign investors in Russia and Ukraine indicates the largest foreign investors are the USA, Germany, Great Britain and etc.

The inflow of foreign investment to Russia of ten developed countries made up 95.6 percent of all investment in the first half of 1997.[10] The Top Ten of foreign investors are shown in Figure 5.

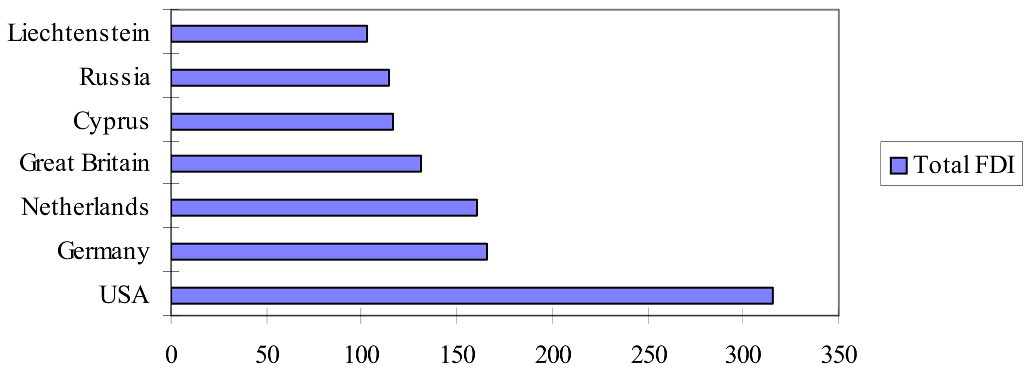
Fig. 5: Top 10 of Foreign Investors in Russia in the First Half of 1997, Bill. US$



Source: Current Statistical Survey (1997), p. 45.

The total foreign investment of seven developed countries in Ukraine in 1992-1997 is accounted US$ 1.656 billion.[11] (Figure 6).

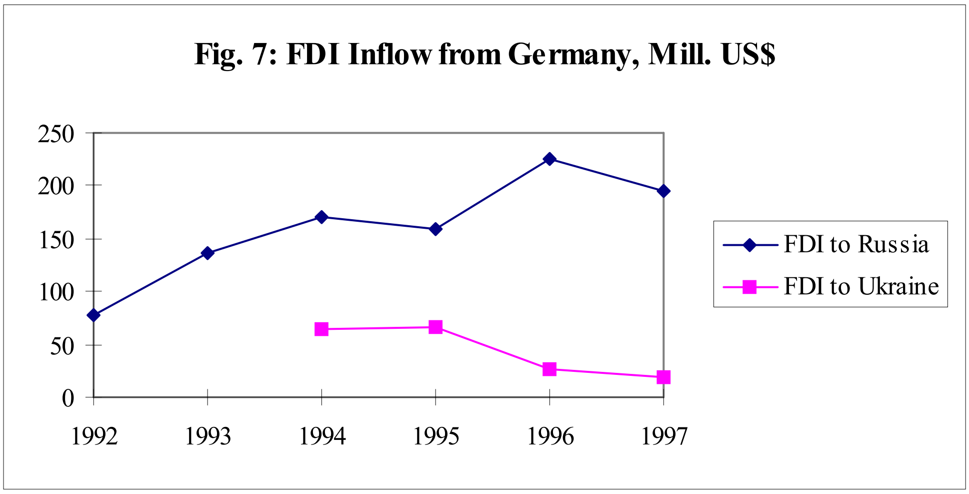
Fig. 6: Foreign Investors in Ukraine in 1992 - 1997, Mill. US$



Source: Welcome (1997), p. 7.

[10] See Госкомстат Российской Федерации, p. 132.
[11] See *Welcome*. (1997), p. 7.

The global economic transformation in Eastern European countries opens new markets for Western European countries to transfer capital, technology and managerial skills. Germany is considered one of the biggest investor in Eastern Europe. The stocks of German FDI are increased from 1 billion US$ in 1991 to 1,4 billion US$ in 1993[12]. The FDI inflow from Germany to Russia and Ukraine does not achieve the desired level. (Figure 7).



Source: Wirtschaftslage und Reformprozesse in Mittel und Osteuropa. (1998), p. 165 - 186.

The improvement of the economic conditions is the base for attracting FDI in Russia and Ukraine. It will stimulate the development of business activity, firm competitiveness, tax collection and new employee opportunities in both countries.

7. Econometric Considerations

A substantial body of literature exists which explains the motives of foreign investors in making their investment decisions.[13] The sources of attracting FDI in Central and East Europe as well as basic ways of investment and influence on economic development in Poland are considered by Bellas, Bochniarz and Jermakowicz (1994). The theory of behavior of MNCs, their role on industrial organization, efficiency of MNCs are investigated by Gomes-Casseres and Yoffie (1993).

A great number of authors compare marginal returns to marginal costs in all possible locations of the capital, some authors try to measure expected and discounted profits[14]. The

[12] See Döhrn (1996), p. 129.
[13] See Suturnin (1997), Chesnais and Letto-Gilles (1997) , Artisien-Maksimenko and Adjubei (1996).
[14] See Agawal and Jamuna (1980); Shaukat and Mirza (1998).

risk concerning future profit, risk of expropriation, financial risk, country risk, environmental risk are considered as the key issue in entry investment strategies to transition countries.[15]

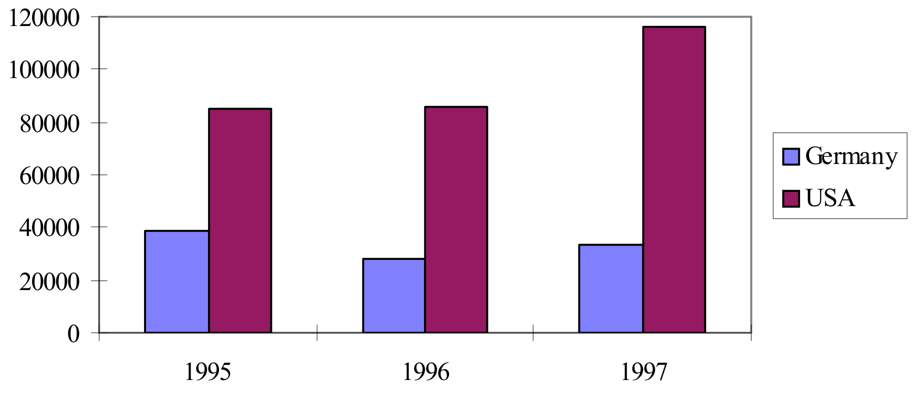
The analysis of the latest publications on the specified problem is based on the specification of econometric dependencies of FDI from various economic variables. Some ideas of econometric modeling can be found in Multinelli and Pistello (1997), based on the results of the distinction of strategies of Italian firms investing in East Europe. Others profile UK firm's characteristics and explore their investment motives[16] or test a gravity model of FDI stocks and flows[17] by economic methods.

The specification and estimation of macromodels for the attractiveness of FDI in Russia and Ukraine aim to estimate the influence of macroeconomic policy on inflow of FDI in the countries, to investigate the impact of inflow of FDI on the processes of stabilizing the economy and creating the preconditions of economic growth, to assess the role of realization of economic reforms with adaptation to the international competition between the countries in their searches for new sources of capital, new technologies, the newest methods of management, and favorable market conditions. The openness of new markets and the free access to those markets open new opportunities for countries with comparative advantages.
Outflows of FDI in the global economy have grown faster than international trade, world production, and have risen twenty-five fold during the last quarter of the century, from $14 billion to $350 billion a year.[18] The study of OECD countries showed the direct dependency of the FDI growth on additional exports, trade exports, and better paid jobs.

The growing integration between countries has brought an increase of FDI outflow from OECD above FDI inflow to that countries. Germany and the USA are considered the biggest investors in the world. In comparison FDI outflow from OECD to both countries (Figure 8) exceeds FDI inflow to OECD from Germany and the USA.

[15] See Shama (1997), A. Klavens J. and Zamparuti (1995).
[16] See Shaukat and Mirza (1998).
[17] See Döhrn (1996).
[18] See *Open Markets Matter: The Benefits of Trade and Investment Liberalisation* (1998), p. 2.

Fig. 8: Foreign Direct Investment Outflow from OECD



Source: OECD - Based on national sources.

The FDI inflow to OECD from Germany has decreased since 1995 to 1997. The opposite tendency has been traced for the FDI inflow to OECD from the USA. (Table 14)

Table 14: ***Foreign Direct Investment Inflow into OECD in Mill. US$***

	1995	**1996**	**1997**
Germany	12,050	-3,243	-188
United States	69,414	78,828	109,827

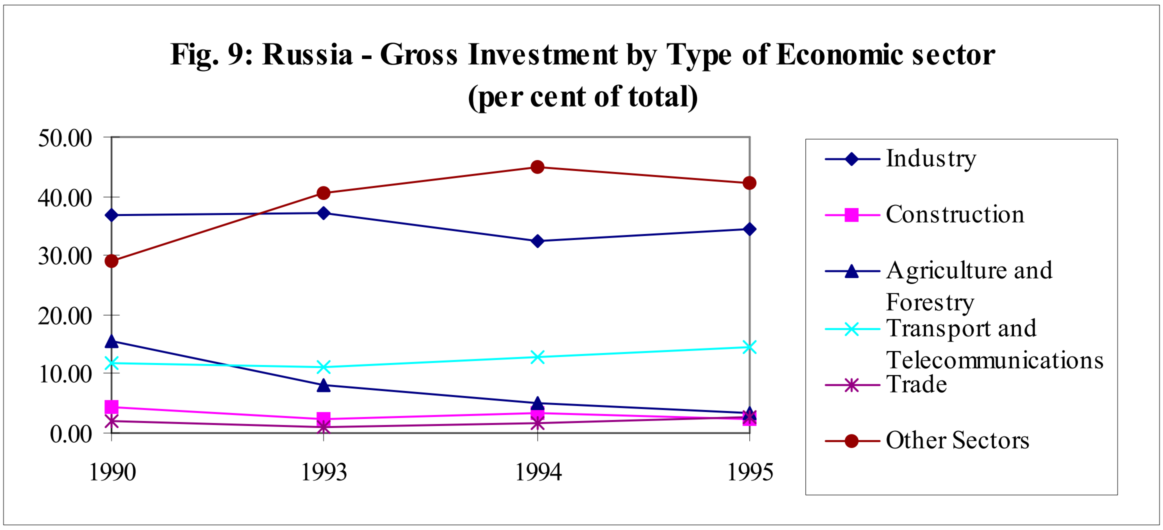
Source: OECD - Based on national sources.

The previous comparative analysis of the situation in Central and Eastern Europe shows the growing diversity in economic activities in attracting FDI. Russia and Ukraine belong to the group of the countries with slower progress of reforms, which decelerate the attractiveness for foreign capitals in spite of the existence of significant comparative advantageous in this countries. The real investment in the Russian economy continued to fall. Table 15 shows that net investment diminished from 10 per cent to 1.1 per cent in Russia during the period from 1990 to 1994.

Table 15: ***Share of Investment and Depreciation of Fixed Capital in GDP in Russia in per cent***					
	1990	**1991**	**1992**	**1993**	**1994**
Gross investment, including:	30.1	39.1	35.5	32.8	27.7
Gross investment in fixed capital	28.7	25.1	19.6	23.8	24.0
Change of stocks	1.4	14.0	15.8	9.0	3.7
Depreciation of fixed capital	18.6	10.9	14.1	19.8	22.9
Net investment	10.1	15.1	3.8	4.0	1.1

Source: Стабилизация Российской экономики (1996), p. 56.

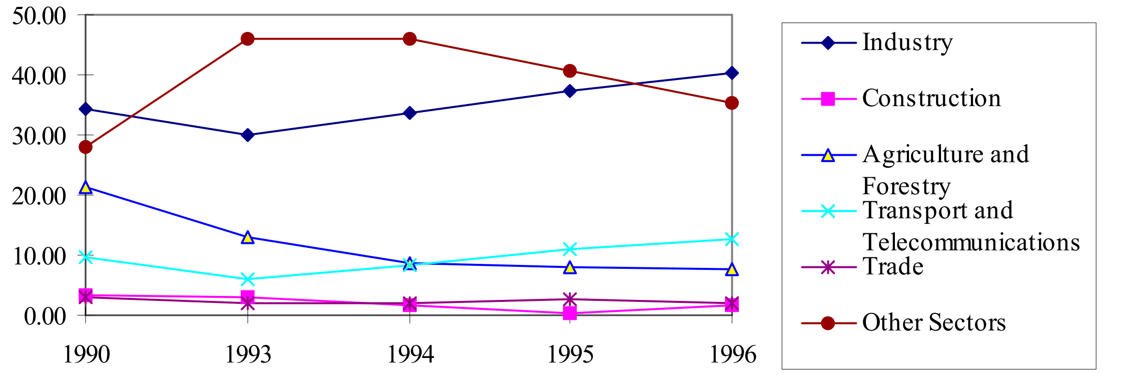
There has been a continuation of this tendency in Russia in 1997, when the real investment was 9 per cent lower than at the same period of 1996.[19] The process of diminishing the net investment takes place in Ukraine, too. This demonstrates that both countries suffer the problem of additional reinvestment because of earlier loss of accumulated capital. (Figures 9,10).



Source: Countries in Transition 1997 (1997), p. 221.

[19] See *Government of the Russian Federation* (1997), p.76-80.

Fig. 10: Ukraine - Gross Investment by Type of Economic Sector (in per cent of total)



Source: Countries in Transition 1997 (1997), p. 224.

As a result, these countries seek foreign capital from abroad. After a slowdown in 1996, the inflow of FDI in Eastern European economies nearly doubled in the first half of 1997 and reached $7,7 billion.[20] Hungary, Czech Republic, Slovenia have been the biggest recipients of FDI net flow to GDP in the region. In comparison with the relative growth of cumulative inflow per capita in these countries Russia and Ukraine have not succeeded in raising foreign capitals into their countries as can be seen from Table 16.

Table 16: ***Indicators of Foreign Direct Investment in East Europe in US $ and per cent***

	FDI net flow / GDP (per cent)			Cumulative inflow per capita (US $)		
	1995	1996	Jan.-Jun. 1997	1995	1996	Jan.-Jun. 1997
Czech Republic	5.0	2.5	1.6	566	707	753
Slovakia	0.9	1.1	-0.2	127	164	171
Hungary	10.0	4.5	4.6	1113	1311	1430
Poland	1.0	2.1	1.7	71	142	174
Slovenia	0.9	0.9	1.8	300	393	483
Russian Federation	0.5	0.5	0.8	37	55	74
Ukraine	0.7	1.5	0.9	16	26	31

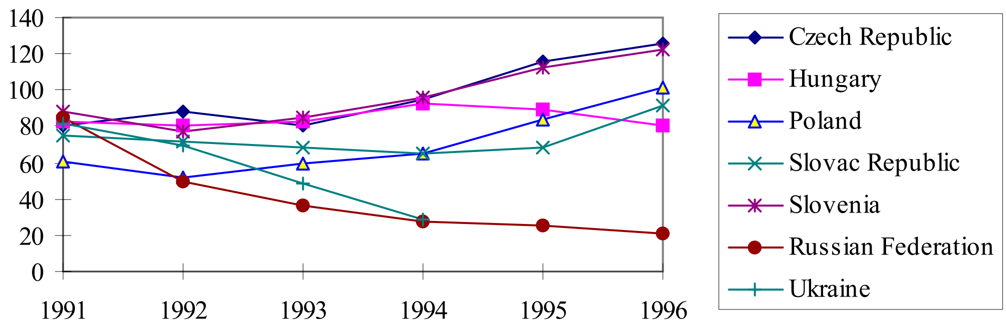
Source: Economic Bulletin for Europe, (1997), p. 93.

The increase of magnitude of net investment in GDP in Russia and Ukraine thus provide the real base for a renovation of the fixed capital and the speed of the circulation of capital.

[20] See *UNCTAD* (1996), p. 307, 312.

Enlargement of the internal sources of accumulation of capital and attraction of new credit means of banks and financial organizations are the necessary conditions for the formation of a stable base for attracting private investment. In order to determine the size of FDI inflow it is usually compared with the gross fixed capital formation and FDI stocks is compared with the volume of GDP.

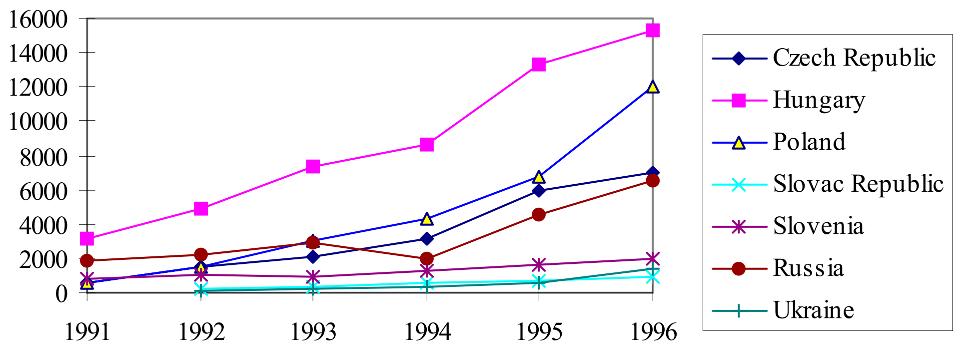
Fig. 11: Real Gross Fixed Capital Formation



Source: Economic Bulletin for Europe (1997), p. 162.

The data of the real gross capital formation depicts the high rate above average in Czech Republic, Hungary, Poland, and Slovenia, except of Slovakia. (Figure 11).

Fig. 12: Total FDI (stock, end of period)



Source: Hun, Stankovsky (1998).

The same indicators for Russia and Ukraine reflect a decreasing level of it from 1990 to 1996 which shows low stocks in these countries with the lowest FDI penetration among all transition countries. (Figure 12)

The low attractiveness of FDI in Russia and Ukraine can be examined by regression analysis. The absence of a sufficient database on FDI in Russia and Ukraine, the existence of inconsistent and contradictory information complicate the modeling of FDI in these countries. Some results of the regression analysis of the FDI inflow to Russia and Ukraine shows that in spite of similarity of economic conditions there are big differences in the pace of economic reforming. The modeling has been based on a sample of annual data of FDI inflow to Russia and Ukraine from 1992 to 1997.[21] The theoretical framework of the empirical analysis is based on the following hypothetical equations:

$$FDI_{iu} = FDI_{iu}\ (GDP_u, PS_u, RIR_u, CPI_u, BD_u, EX_u, IM_u, ER_u, DT_u) \quad (1)$$

$$FDI_{jr} = FDI_{jr}\ (GDP_r, PS_r, RIR_r, CPI_r, BD_r, EX_r, IM_r, ER_r, Dt_r) \quad (2)$$

where:

FDI_{iu} - Foreign Direct Investment inflow in the country u (Ukraine) in the year i;
GDP_u - Real Gross Domestic Product in investor's country u;
PS_u - Share of Private Sector in Industrial Production in investor's country u;
RIR_u - Real Interest Rate in investor's country u;
CPI_u - Consumer Price Index in investor's country u;
BD_u - Share of Budget Deficit to Real Gross Domestic Product in investor's country u;
EX_u - Export from country u;
IM_u - Import from country u;
ER_u - Exchange Rate in country u;
DT_u - the Ratio of the Debt to GDP in country u.

The meaning of variables at the second equation is similar to the first equation. Index r denotes Russia.

Unfortunately, the lack of data did not permit to estimate empirically such complex equations 1,2. Instead I tried to estimate less complex models. The results of linear regression analysis on the base of very short time series can be summarized in the following equations 3 - 8. There is a significant relationship between the FDI inflow to Ukraine and the real interest rate and the ratio of the debt of GDP. (Equation 3). The values in parentheses are t-values.

$$FDI_{iu} = \underset{(6,3)}{1137,1} + \underset{(5,3)}{23,9}\ RIR_u - \underset{(-4,8)}{38,6}\ Dt_u \quad (3)$$

[21] Data from *Wirtschaftlage und Reformprozesse in Mittel und Osteuropa* (1998), p. 165,166, 184 - 186.

The significant of the coefficient is tested at the 5 per cent level. The real interest rate is considered as a measure of economic stability in the country and indicator of future perspectives for foreign investors. The ratio of the debt to GDP is an indicator of the creditability of a country.

The analogous relationship for Russia shows the absence of significant coefficient for real interest rate and the ratio of the debt to GDP, as well as of a significant intercept. (Equation 4).

$$FDI_{ir} = -1076{,}7 - 13\ RIR_r + 534{,}7\ Dt_r \quad (4)$$

$$(-0{,}7) \quad (-1.23) \quad (2)$$

Instead of this nonsignificant relationship, it can be shown that the existence of uncertainty, high risks for foreign investment, and unstable legal system considered in the model of dependency of FDI inflow to Russia on real interest rate and exchange rate has got significant coefficient but no intercept. (Equation 5).

$$FDI_{ir} = -14.9\ RIR_r + 0.6\ Er_r \quad (5)$$

$$(-4{,}5) \quad (12)$$

The similar modeling for Ukraine depicts the lack of any significant dependency of FDI inflow to Ukraine on real interest rate but a significant role of the exchange rate. (Equation 6).

$$FDI_{ju} = -7.2\ RIR_u + 308.8\ Er_u \quad (6)$$

$$(-0.95) \quad (5{,}5)$$

The FDI inflow significantly depend on the gross domestic product in modeling in Russia and Ukraine. (Equation 7,8).

$$FDI_{ir} = 3180{,}5 + 172{,}2\ GDP_u \quad (7)$$

$$(7{,}1) \quad (3{,}5)$$

$$FDI_{ju} = 756{,}8 + 31{,}9\ GDP_u \quad (8)$$
$$(6{,}9) \qquad (4{,}2)$$

The estimations of dependencies of FDI inflow on the share of private sector in industrial production, consumer price index, export, import and budget deficit did not produce any significant coefficient. FDI inflow to Russia and Ukraine depends significantly on time. All the other variables I take in consideration as time dependent as well, therefore the estimated significant regressions can be spurious.

Results of empirical tests show that the most significant variables are gross domestic product, real interest rate, exchange rate and the ratio of debt. They have influence on FDI inflow in Russia and Ukraine. The lack of data on other variables have made the modeling difficult and explaines the existence of discrepancy in the results of estimations.

8. Conclusions

The results of the investigation show that the attraction of additional foreign capitals into both countries in the form of FDI aims to stabilize economics and create preconditions of economic growth. The continuous economic reforming is the base for stabilizing economics, attracting FDI in Russia and Ukraine.

In order to accelerate the transition, Russia and Ukraine need inflow of foreign capital, which could be promoted on the state level through special economic policies of attracting FDI.

Such policies should include:

1. Establishing a favorable investment environment, reducing barriers for direct investment and decreasing uncertainty and risk;
2. fulfillment of privatization programs, establishment of secure property rights;
3. legal reform, aimed to define legal regulations;
4. adoption of a new tax system, encouraging foreign investors to invest;
5. incentives for stimulating foreign investment activity.

Modeling FDI in transitions countries can provide a base for such estimations of present situations in NIS. It also can be a base for forecasts in the decision making process for policy makers.

References

Agawal and Jamuna, P. (1980): Determinants of Foreign Direct Investment: A Survey. Weltwirtschaftliches Archiv, Vol. 116, Heft 4.

Анташан, В. (1997): Большинство постсоциалистических стран на последней стадии. Украина не включена в их число..., Финансовая Украина, May 25.

Artisien-Maksimenko, Adjubei, Y. (1996): Foreign Investment in Russia and Other Soviet Successor States, Macmilan Press Ltd.

Bellas, C., Bochniarz, Z. and Jermakowicz., W. (1994): Foreign Privatization in Poland, Warsaw.

Booth, S. (1994-1995): Foreign Direct Investment in Eastern and Central Europe: Trends, Effects and Institutional Problems, England, Vol. VII, No 294, Series A.

Ведомости Верховного Совета Украины (1994): Издательство Верховного Совета Украины, Kiev.

Chesnais, F. and Letto-Gilles, G. (1997): Transnational Companies and their Activities: Implications for Performance, Social Cohesion and Policies in Europe, Working paper of the TSER Program of the European Commission 1997.

Commercial Overview of Russia (1997), Bisnis.

Commercial Overview of Ukraine (1997), Bisnis.

Countries in Transition (1997): WIIW Handbook of Statistics, WIIW.

Cornelius, P.K. and Lenain, P. (1997): Ukraine: Accelerating the Transition to Market, International Monetary Fund, Washington.

Döhrn, R. (1996): EU Enlargement and transformation in Eastern Europe Consequences for Foreign Direct Investment in Europe, Konjunkturpolitik, Vol. 42.

Economic Bulletin for Europe (1997): Secretariat of the Economic Commission for Europe, United Nations, New York and Geneva, Vol. 49.

Economist Intelligence Unit (1997).

Graham, E.M.and Krugman, P.R. (1994): Foreign Direct Investment in the United States, Institute for International Economics, Washington D.C.

Euromoney (1997), London, March.

Госкомстат России (1997): Россия в цифрах, Статистический Сборник, Moscow.

Gomes-Casseres, B. and Yoffie, D. (1993): The International Political Economy of Direct Foreign Investment.

Government of the Russian Federation (1997): Working Centre for Economic Reform, Russian Economic Trends, Moscow, No. 3.

Holmes, K.R., Jihnson, B.T. and Kirkpatrick, M., ed. (1997): 1997 Index of Economic Freedom, Washington D.C. Dow Jones & Company, Inc.

International Financial Statistics (1997): International Monetary Fund, September.

Klavens, J. and Zamparuti, A.(1995): Foreign Direct Investment and Environment in Central and Eastern Europe: a Survey, The World Bank.

Министерство Статистики Украины (1997): СтатистическийСборник, Kiev.

Multinelli, M. and Pistello, L. (1997): Differences in the Strategic Orientation of Italian MNEs in Central and eastern Europe. The Influence of Firmspecific Factors, International Business Review, Vol. 6, No. 2.

National Authorities and OECD Secretariat (1997).

Open Markets Matter (1998): The Benefits of Trade and Investment Liberalization. OECD. Policy Brief, No. 6.

Shama, A. (1997): From Exploiting to Investing: A Survey of US Firms Doing Business in Russia. The International Executive, John Wiley & Sons, Inc, Vol. 39.

Shaukat, A., and Mirza, H. (1998): Country-Specific Investment Motivations in Central Europe: Evidence from British Firms, Journal for East European Management Studies, Vol. 3, No. 2.

Social Cohesion and Policies in Europe (1997): Working paper of the TSER Program of the European Commission 1997.

Стабилизация Российской Экономики (1996): Сборник Информационно-справочных Материалов по Вопросам Макроэкономической Политики, Moscow.

Suturnin, S. (1997): Russia´s International Economic Strategy: a general Assessment. Review of Economies in Transition, No. 4.

Transition Countries in the First Quarter 1998 (1998): Widening Gap Between Fast and Slow Reformers, Review on the CEE Region, WIIW.

Welcome (1997): Ukrainian Investment Magazine, March.

The World Bank Report - 1996 (1996): From Plan to Market.

Экономический бюллетень (1997): Украина в числах. Отчёт за первый квартал 1997. No. 23.

UNCTAD (1996): World Investment Report 1996, United Nations, New York and Geneva.

Wirtschaftslage und Reformprozesse in Mittel und Osteuropa (1998): Sammelband.

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