THE DETERMINANTS OF FDI: CAN TAX HOLIDAY COMPENSATE FOR WEAK FUNDAMENTALS? CASE OF UKRAINE

by

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Abstract

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Throughout the world countries are interested in attracting foreign direct investments into their economies. The investment climate that includes fundamentals and institutions, have a great impact on the FDI flow into the country. One of the approaches that suggest the relationship between FDI and investment climate is neoclassical theory. Using this approach I try to explain uneven distribution among the transition countries, which characterized by the larger flow of FDI into middle-income countries than into low-countries. During the 1992-1996 Ukraine used tax holiday as the main "remedy" for unfavorable investment climate. In this work, using empirical analysis, I show that this policy was ineffective due to its incredibility and inability to influence the productivity factors. The thesis proposes policy implications of its main findings.

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GLOSSARY

Direct foreign investment (FDI). 1. Investment in the form of equipment, real estate, made by the resident of the foreign country. 2. Acquisition part of ownership in the foreign company, significant part (the size of part depends on country) of which is owned by the non-residents of the country-investor.

Home country. A country, where the base office of the international corporation is settled.

Host country. A country, where international corporation settles its subsidiaries.

Free trade. Government policy of minimal intervention in the international trade, which is determined by supply and demand.

Free trade zone. Part of the territory of the country with special favorable investment climate, which mostly reflected in the tax exemptions or low tax rates.

Investment. A flow of output in given period that is used to maintain or increase the future productive power of the economy.

Multinational company. A company, headquarters of which is owned by the capital of more than one country and its subsidiaries situated in different countries.

OLI paradigm. The propensity of a firm to undertake foreign production according to the combination of ownership, location advantages and internalization opportunities.

Protectionism. Government policy of protecting the domestic market from foreign competition through the use of tariff and non-tariff instruments of trade policy.

Tax holiday. Device for encouraging firms to locate in particular area; under tax holiday a firm is given a reduced (or zero) tax rate for some period of time, after which the firm is paying usual tax rate.

Chapter 1

INTRODUCTION

Foreign direct investments (FDI) are one of the most important and interesting aspects in each economy. This issue is especially important for countries where domestic savings cannot meet the increasing demand for capital. Besides pushing the capital market into equilibrium, it plays important role in many other aspects of economy. FDI is "cool" or long-term capital in the sense that these investments come to the country for longer period of time. Thus, the country does not experience the risk of sudden fluctuations in the money supply or exchange rate dynamics, as it takes longer period of time for investor to repatriate their capital than, for example, in the case with portfolio investments (Mykytiv, 2000). Foreign investors have access to the world capital markets, which are usually closed to weak economies. They also provide technological progress in the country through transfer of technologies and technological spillovers (Ponomareva, 2000). FDI can cause the increase in the level of domestic investments. They induce shifts in level of employment and personal incomes in direct way by creation of the new jobs and in indirect way by affecting demands for durable goods (Berndt, 1996).

A number of works describe the relationship between FDI and trade performance of the country. Erickson and Leichenko (1997) in their empirical study for the economy of USA showed the positive relationship between FDI and exports. Finally, investment induces economic growth of the country.

However, FDI cannot be considered as the best "remedy" for less developed economies. Besides of advantages they bring to the host

economies, investments might cause serious problems. For example, technology spillover effect is ambiguous, as sometimes these spillovers negatively effect the productivity of local companies (Ponomareva, 2000). Along with the improvement in the competitiveness of the industry, FDI might force domestic companies to leave their markets. The advanced technology that MNC (the main source of FDI in the contemporary world) supposed to bring to the development countries may appear to be old fashion, because of unwillingness of these companies to create the potential competitor on the other world markets in future. Hence, the government policy regarding FDI should be cautious, taking into account both benefits and costs that a brought with them.

To predict investment flow into the country, one should consider the determinants of FDI into the country. Many works done in this field propose different country-specific factors of the decision to invest abroad, such as level of tariffs in the country, transport cost of exporting, the extend of product differentiation, the dependence on natural resource inputs and the access to these resources (Horst, 1972). The investment decision is influenced also by the motives of investors. Size of the market, legal and regulatory framework and macroeconomic environment are also one of the determinants of the FDI (Holland, Owens, 1996). And finally, the great number of economists also considers the issues of taxation and its impact on the flow of investments. For example, Altshuler, Grubert, Newlon found that investment location decisions of MNC are sensitive to the difference in host country tax rates.

Besides of common motives, fundamentals influence the decision of investors. Zebregs (1998) in his research done for developing countries tries to investigate uneven distribution of FDI in that countries. This research became the basis for my investigation of the same problem for transition economies.

As tax factors are easier for the government to determine than influence the non-tax determinants, different tax incentive policies are used by them. According to Holland and Owens (1996), there are several categories of tax incentives: tax holiday, investment allowance and tax credits, timing differences, or reduced tax rates. The issue of tax holiday is of the most interest for us as the government of Ukraine recently was discussing the issues of tax breaks. A tax holiday is targeted at new firms. With these tax holidays, the firms are "allowed a period of time free from the burden of income taxation"[1]. Tax holiday often considered being one of the factors that determines the investments. During this period, a firm receives reduced tax rate and it has to pay a normal one after the end of the period of tax holiday.

Different sources of literature appeal to the tax holidays as an appropriate instrument for increasing the stock of investments in the country (Bond, Samuelson, 1996). A bargaining-based explanation of this policy first was offered by Doyle and Van Wijnbergen (1984). They argue that once the company entered the host country the other markets became less attractive to it, because of sunk costs invested in the economy. "Country can exploit this lock-in effect to increase tax rates"[2]. Bond and Samuelson (1996) enlarge this approach by examine the role of tax holiday as a signal through game theory analysis. They considered tax holidays as an opportunity for high-productive countries to distinguish themselves among the others.

Really interesting approach to the analysis of investment incentives, among which was tax holiday policy, was made by Bond and Guisinger (1985). They considered these incentives as "another form of non-tariff barrier that may be substituted for tariffs in the protection packages"[3].

[1] Holland D., Owens J. 1996, p.54.

[2] Bond E., Samuelson L., 1986, p.820.

[3] Bond E., Guisinger S. 1985, p.91.

Many papers propose concrete models and methods to estimate the costs and benefits of the tax holiday policy. Bond (1981) analyses the effects of tax holiday program in Puerto Rico on the behavior of firms locating there. This program was begun in 1949 and was considered by now to be one of the most successful programs in the world. The author considered tax holiday as "the subsidy to capital offered by tax exemption"[4]. This article also rises an interesting problem regarding special group of firms which entry the industry just to use the privileges given by tax holiday program and then exit it after its finishing. This might promise some problems to the economy of host country, which expected long-term investments in the country.

Economists are always searching for different ways of increasing the capital stock of the country, taking into account both domestic and foreign sources. Different policies of encouraging FDI into the country do not always lead to the expected positive outcomes: sometimes they are ineffective, sometimes their results are ambiguous. That is why analysis of the effects of different policies is of great importance for determining whether they are beneficial for the country as a whole and, thus, whether they are worth of being implemented.

Tax holiday policy is widely used throughout the world. The best example of successful use of tax holiday is Ireland. This policy is very successful and makes this country one of the major recipient of the capital in the Europe. The fundamentals of this country are not bad, but the country still uses this instrument as an incentive for investors. The main reason is that huge inflow of capital into the country allows achieving economic development. Ireland increased the number of jobs significantly, developed new high technological and export-oriented industries (Irish Trade Web, 1996). The benefits obtained

[4] Bond E., 1981, p.

from developing of the economy exceed the losses of the tax payments, thus, inducing the government to use this policy now. The experience of Puerto Rico also shows that the policy can be effective. Providing the tax exemption for the foreigners after the World War II allows the country to increase it capital stock. This policy was also successful their as studying show that the presence of this policy matters for investors when they make their decision. This policy is still used by many other countries and they proved to be successful. Success of the countries, induce us to check whether this policy was successful in Ukraine.

All of the literature mentioned above investigates the problem of investment decision making at the level of individual firm. I have not found the works, which set these questions at the scale of the whole country. That is why I decided to investigate the problem from the country side. In my MA thesis I propose a framework for analysis why FDI comes or does not come to the country; what is important for attraction of the foreign investors (improvement of the long-term conditions for doing business, namely a country's fundamentals and institutions (non-tax issues); proposal of the short-term incentives, such as tax exemptions (tax issues); other motives to invest into the country); can a short-term solution (tax incentives) compensate for weak fundamentals into the country; and, finally, policy implications of the obtained results – suggestion for using tax- or non-tax incentive policy for drawing foreign capital into the country. The work also tries to investigate uneven distribution of foreign capital across different transition countries and suggest preconditions for it using neoclassical approach.

For Ukraine, FDI is essential as it is considered to be one of the main sources of capital in the country. During the whole period of independence, our government proclaims creation of favorable investment climate to be one of the most important tasks for the country. They use different instruments for

reaching their goal, and for some period of time counted mainly on “tax holiday”. For the period of 1992-1996 Ukraine was using this instrument as the main incentive for drawing foreign direct capital to its economy, after which tax exemptions were abated. Consequently, I want to test next hypothesis: whether tax holiday policy introduced during the period of 1992-1996 was effective, namely whether the presence of this policy have increased the flow of FDI into the country; whether fundamentals and institutions matter for foreign investors in Ukraine and other transition countries.

The work is actually split into two parts. The second chapter determines the effectiveness of the tax holiday policy in the country, while the third investigates the influence of fundamentals and institutions on distribution of FDI. Both parts propose theoretical approaches and methodology for hypothesis testing and are supported by the data and empirical results for the case of Ukraine and other transition countries. Conclusions represent the policy implications of the obtained results.

Chapter 2

TAX HOLIDAY AS A POLICY FOR IMPROVING INVESTMENT CLIMATE

2.1. Theoretical Approach

Investment is considered to be one of the most important factors in every economy. The level of investments influences significantly the volume of the national revenue of the society; many macro processes depend on their dynamics. Investment is a flow of output in given period that is used to maintain or increase the future productive power of the economy (Lindert, 1986).

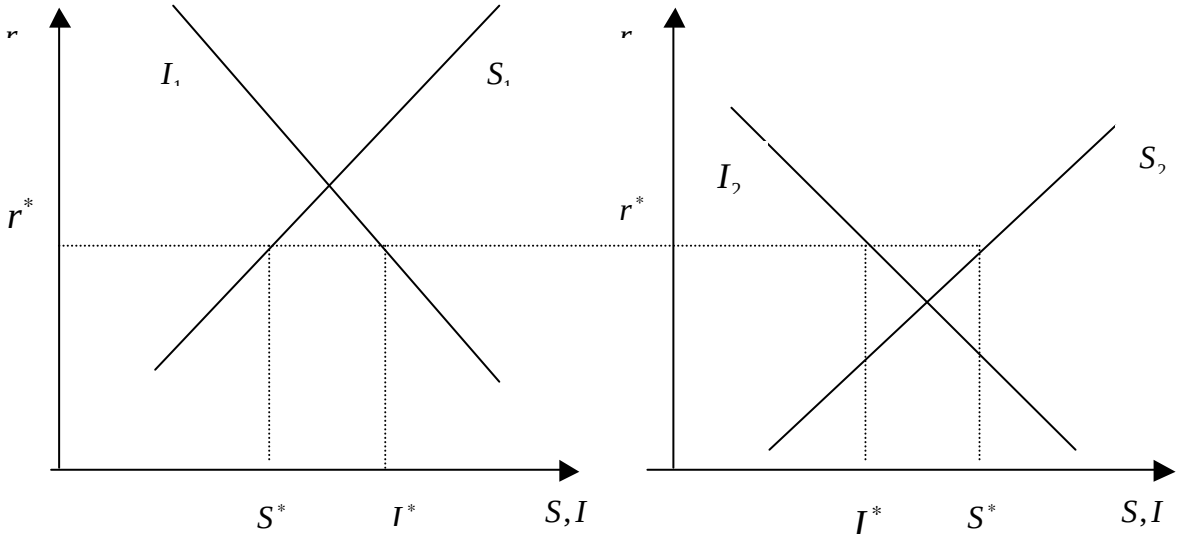
Investments are portfolio, direct (real) and intellectual. Portfolio investment is investment in securities, direct investment is investment in production, and intellectual is investment in R&D, labor forces. Direct investment in their term is divided into investment in business inventory and fixed business investments. The first group represents the investment, which is used as "buffers against variations in the sales of goods and services"[5] and as protection for shortages in materials for production. That is why they are very sensitive to the state of the economy of the country and business activity in it. The second group is represented by the expenditures on plant and equipment.

The source of the investment is saving, and the volume of saving directly influences the volume of the investment in the country. According to the theory, saving (S) are positively related to the interest rate (r) as it determines returns on the savings, while investments (I) depend negatively on the interest rate as it represents the opportunity costs of investing. The

[5] Berndt E. R. " The Practice of Econometrics: Classic and Contemporary", *Addison-WesleyPublishing Company*, 1996, p. 226.

graphical representation of these issues is proposed in Figure1. The horizontal axe shows the value of investment and saving, while the vertical – the level of interest rate in the particular economy.

The figure represents the situation, when "small" countries with open economies and full capital mobility should accept the world level of interest rates (r^*), which is far from the particular equilibrium for each of them. For host-country, at r^* - level, investment exceeds savings ($I(r^*) > S(r^*)$), that cause the shortage of capital in the economy. For the home country, the situation is opposite: investment is lower than saving ($I(r^*) < S(r^*)$), that causes surplus of capital in this country. If there is no capital control in the countries, we can expect the inflow of investments into host-country.



Host-country Home-country

Figure 1. Investment and saving framework for explanation of FDI inflow

If the country lacks domestic saving, it uses other sources, usually international financial markets, which represent the savings of the householders of other countries. Thus, investment can be domestic or foreign, depending on the

residential status of the person or company who made it. The residents of the country make domestic, while foreigners supply foreign investment.

Foreign direct investment (FDI). 1. Investment in the form of equipment, real estate, made by the resident of the foreign country. 2. Acquisition part of ownership in the foreign company, significant enough to obtain control on it (Lindert, 1986).

In the real world, the framework for explaining foreign investments is not so simple. Usually involvement of capital in the economy is not an easy task for the country. Besides of potential opportunities and advantages that can be obtained, each investment implies some level of risk. For the foreign investments – the level of risk increases significantly. In this case what is really important is that return on capital should be risk adjusted, namely it should include also risk premium.

That is why the idea of a favorable investment climate is very important. Usually it implies stability of economic and political process in the country, the development of its infrastructure, banking sector, transparency of legislation base and its stability, development of the insurance sector and others. Sometimes countries use tax privileges and special guarantees to improve investment climate of their economy. Investment climate can increase or decrease the risk of investing into the country. At the same time investors are interested in benefits that the new business can offer them. At this point the motives for investing play the most important role for the foreign investor. If the investors invest money regardless the state of the investment climate that means that the projects they are offered are really attractive. Hence, the improvement of the investment climate should increase the investment potential of the country.

2.2. Motives of foreign investors

Motives of the foreign investors are determined by the benefits they can obtain in the host country. Different theories proposed different motives for investors, which can be generalized in the model, which is estimated later for the case of Ukraine. Tax holiday in this section is considered as one of the determinant of the FDI, which influences the taxation of the particular company. I would like to warn reader that the aggregate nature of the data that is available for investigation constraint me in developing model. Some of the motives/determinants are not taken into account as they have company specific nature: for example, lowering costs because of low wages and labor-intensive production is a company specific factor. Including it into the model will be equivalent to the assumption that all the investments are made in labor-intensive production.

To investigate what motives have influence on the FDI flows in Ukraine, this paper uses multiple regression analysis, which involves dummy variable. Dependent variable in this model is the flow of FDI in a given period of time (FDI_t). According to the theory and to the concrete situation in Ukraine among the most reasonable factors, which have an impact on FDI are taxation in the given period of time, potential market share, tariff avoidance and privileges proposed by tax holiday. Each of the variables is included into the model because of following reasons.

TAX_t — Average level of corporate (not individual) taxation in the country in a given year. Higher taxation implies lower profitability for the companies, thus, lower returns on investments. If the return is low, company will not have an incentive to make FDI. That's why level of FDI lowers as tax rate increase. Hence, we can expect negative relation with FDI, and hence, negative sign of the coefficient: $a_1 \leq 0$.

$IEMP_t$ Total income of the employment people. I propose to use this variable as proxy for market share. Lots of studying support the idea that some foreign companies are markets seeking, which means that their main motive is obtaining a share in the host country market. Firm's willingness to invest abroad depends on the size of the foreign market for its product, as "size alone can bring down the average fixed costs of investing abroad" (Hornst, 1972). Some studies prove that the main motive for firm to invest in Ukraine – is share of the market it can obtain (Kudina, 1999). For this purpose I use proxy that is determined as total wage income obtained by employed people in dollar term. By this proxy, I assume that investors are looking at the purchasing power of the people. Wages, which determines the main source for income for Ukrainian people, is taken for approximation of this purchasing power. Investors are interesting in dollar equivalent of this income; thus, I take average wage in dollars. At the same time the market share depends also on the number of people that can buy the product. I use the number of employed in the industrial sector people (only such type of indicator, statistics on which available in quarter terms) that earn this wage. Taking into account only industrial workers one may argue that I underestimate the potential market. But the statistic for employment does not distinguish people who are officially working, but are not paid their wages. That is why in fact this proxy might not underestimate the market share. The size of market implies the returns on FDI. Thus, increase in this share means higher individual's ability to purchase the good and higher returns on FDI. Hence, the flow of FDI should increase. That's why the relationship expected to be positive: $a_2 \geq 0$.

Different sources of literature appeal to the tax holidays as an appropriate instrument for increasing the stock of investments in the country. Many papers proposed concrete models and methods to estimate the costs and benefits from them. For example, Bond (1991) analyzes the effects of tax holiday program in Puerto Rico on the behavior of firms locating there. This program was begun in 1949 and is considered by now to be one of the most successful programs in the world. It also provides empirical results and tests some hypothesis regarding the factors, which influenced the decision making of the foreign investors. The empirical results proved that tax holiday really influence the decision of the foreign investor, thus influence the flow of FDI. As tax holidays worked in Ukraine for four years, this variable is included as dependent[6]. Actually, we had two periods of tax holidays that differed by the incentive they provided. Hence, I should include two dummy variables, which reflect two periods of privileges in taxation. But since statistical data available for investigating dates from 1994, only second period of tax holidays will be considered.

TH_{94} Dummy variable, which represent the second period of tax holiday during 1994-1996. It proposed less favorable conditions than the previous one; the law abated it in 1996.

$TH_{94}=O$ - no tax holiday in a given period,

$TH_{94}=1$ - tax holiday (1994-1996) in a given period.

The expected sign is positive, as tax holiday should work as an incentive for FDI: $a_3 \geq 0$.

$TARIFF_t$ Average tariff on import in Ukraine. This variable is included because of the fact, that if companies are really markets seeking, the tariff on import to Ukraine may influence their decision making. The high import tariffs made import of goods more costly than

[6] The description of two tax holidays periods is made in the section 2.2. "Investment Climate."

producing it inside the country. Hence increasing in *TARIFF* increase the flow of FDI in the country: $a_4 \geq 0$.

Hence, the model will be presented in next way:

$$FDI_t = f(TAX_t, IEMP_t, TH_{94}, TARIFF_t) + u_t$$

Significance of the coefficients implies whether these factors matter for FDI, while the values of coefficients estimate this impact. Using also other indicators obtain in the analysis other conclusions can be made, for example, to which extend these variables explain the variability in FDI.

2.3. FDI in Ukraine.

The situation with FDI in Ukraine since the time of independence can be considered as extremely bad. The distribution of FDI flows can be showed by the Figure 2. The figure shows that the volume of FDI into Ukraine does not increase significantly throughout the period of 1994-1999. The growth of FDI was very small and the aggregate amount of FDI we have nowadays is still very low ($2.666 billions in September 1999). It fluctuates a lot, suggesting that flow of FDI might be caused by some more factors besides of the common motives. Why having good pre-conditions for attracting FDI, Ukraine fails to do it? Usually this is explained by the unfavorable investment climate in the country.

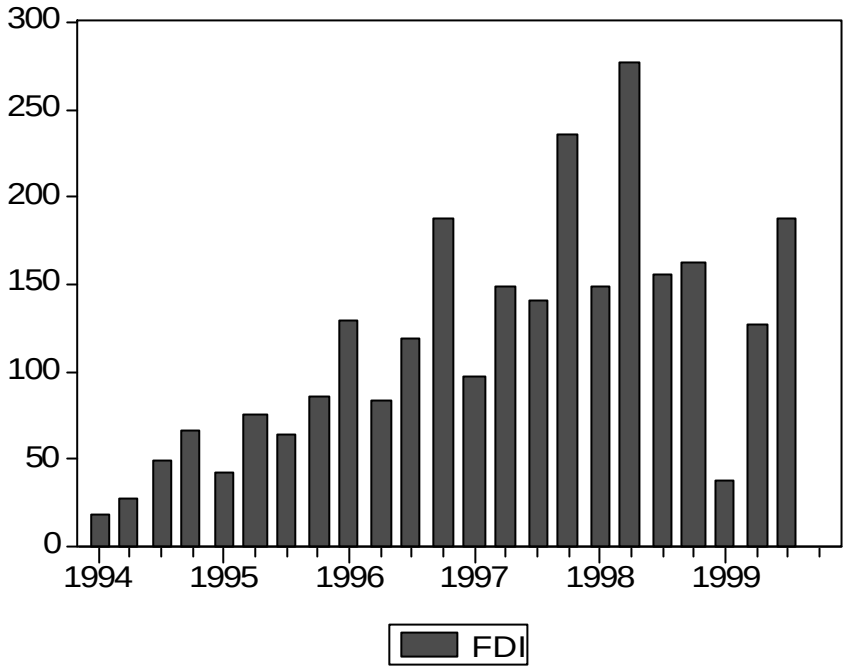


Figure 2. Flow of FDI in Ukraine during 1994-1999, mln. USD.

Source: IMF database

The term "investment climate" is always mentioned along with the term of FDI, as it determines the condition in which this investment will work. The taxation system, state of financial sector, infrastructure, legislative base, economical and political stability and others characterize it. The main obstacles, which foreign investor has met in Ukraine are extreme and unreasonable taxation, a complicated legislative base, trade restrictions and state control, bureaucracy. The main reasons of such complicated macro-economical situation in the country are extreme involvement of the political power in economic processes, negative results of the privatization, avoidance of tax payments, massive non-payments, development of barter operations, excess of cash money in US dollars in the economy, flight of the capital abroad, budget deficit. In addition, a considerable share of domestic savings and foreign investments are used for the service of the state debt, instead of developing the industries (Karandakova, 1999).

Legislation for FDI is very complicate and non-transparent. Laws relative to the issue of FDI vary through the time of independence. Legislation base that determines the conditions for FDI in Ukraine can be split in several groups. One group contains laws about foreign investments. Another group contains programs of encouragement of foreign investments, which provides additional privileges. One more group that influence the decision of the foreigners about investment contains international agreements about avoiding double taxation and free zones regulation.

The first group contains:

- The Law "About Foreign Investments" (1992).
- The Law "About The Foreign Investing Regime" (1993).
- The Law "About The Foreign Investing Regime" (1996).

The second group contains:

- The Law "About The State Program of Encouraging of Foreign Investments in Ukraine"(1993).

The main content of the laws from first group is almost the same except the issue of taxation and criteria for determining companies with foreign investments. The law of 1992 was abated by the law of 1993 and later by the law of 1996. All the laws proposed the same guarantees:

1. If the guarantees for protection of foreign investments would change the law guarantees to use the old legislation, if the investor wanted, for 10 year from the date of its adoption.
2. Foreign investments could not be nationalized.
3. Foreign investors had the right for compensation of the losses caused by the inappropriate activity of the state institutions.

4. After abatement of his activity foreign investors had the right to return back his investments and revenues without paying duties not later than after 6 month of abatement.
5. The law guaranteed transfer of the profits, revenues after paying all taxes in the form of foreign currency.

They also provided some more privileges:

1. There were no restrictions on the form of investments.
2. For some companies' projects, which fell under state programs of development of the prior industries (agriculture, light industry, wood industry, engineering industry, medical industry, metallurgy, fuel-power complex, transportation, communications, chemical industry), social sphere and territories, the law proposed privilege regime.
3. Property, imported in Ukraine as the contribution to the statutory capital of the company, was exempted from import duties. But if foreign investment alienated it from statutory capital during 3 years after investing, import duties should be paid on it (if only it is not transfer to home country).
4. Export of product, which was completely produced or converted enough for considering it as domestic product, was not an object for licenses or quotas.
5. Regime of treatment of foreign investments in free economic zones could not worsen the state of companies with foreign investments, which they had according to this law.

The main difference between all these laws relates to the criteria, which determines the "company with foreign investments", and the tax holidays that they proposed. The first (1992) law considers the company as "company with foreign investments" if foreign investor owns 20% of statutory capital or the share not less than $100,000. The second (1993) law considers the company as "company with foreign investments" if the investment counts to 20% of the statutory capital and not less than amount equivalent to:

- $100000 – for banks and other financial institutions
- $50000 – for other companies,

if the investment is made in the form of personal and real estate, intellectual property and rights for usage of the sources or providing some kind of activities.

- $1000000 – for financial institutions
- $500000 – for others,

if investment is made in the form of cash, currency or securities.

The third law (1996) considers the company as "company with foreign investments" if the investment counts to 10% of the statutory capital. As we can see the last law proposes the lowest level of minimal capital.

As for taxation, the law from 1992 created the most favorable conditions. This tax holiday was legal until the 1.01.94, though the law was abated in 1993. This law proposed the following:

1. For newly created companies:
   (a) Companies with foreign investments were exempted from paying taxes on revenue[7] for 5 years, and were paying 50% of them after that period of time(except agent companies and trading companies);
   (b) Agent companies were exempted from paying taxes on revenue for 2 years, and were paying 70% of them after that period of time;
   (c) Trade companies were exempted from paying taxes on revenue for 3 years, and were paying 70% of them after that period of time.
2. Companies with 100% of foreign investments could decrease their profit-before-taxing by the amount of their investment. If the current profit was less than investment they could decrease next profits by this amount.
3. Sum of before-tax-revenue was deducted by the amount of reinvested capital.

[7] Until 1995, there was no tax on profit in Ukraine. The companies paid tax on revenue instead.

4. The products, which were produced by the company with both Ukrainian and foreign capital, were exempted from VAT for 5 years from the moment of official registration of the company.

The law from 1993 worsens the conditions for tax holidays. It proposed next issues:

1. Companies with foreign investments, except gambling activities, entertainment, casino, were exempted from paying taxes on revenue for 5 years from the moment of investment.
2. If investor alienated his investment before the end of its amortization or earlier than 5 years, the company would pay the tax on revenue for the whole period that it was exempted from it.
3. Profits, which were transferred abroad, were taxed by 15%.
4. If the company invested the amount equivalent to more than $10,000, but less than $50,000 it was exempted from the tax on profit for 1 year.

Besides on this one the Law "About The State Program of Encouraging of Foreign Investments in Ukraine"(1993), appeared in that period of time, determines the additional tax privileges for companies with foreign investments. It determines the prior industries in the country and privileges for the companies with foreign investments in those industries. According to that law such industries are agriculture, light industry, wood industry, engineering industry, medical industry, metallurgy, fuel-power complex, transportation, communications, chemical industry, social infrastructure. If the company measures up to the list of criteria and is working in the prior branches it could get next privilege:

- Accelerated amortization;
- The period of exemption from tax on profit was increased by 1 year (for investment less or equal to $500,000), by 2 years (for

investments $500,000-5,000,000), by 3 years (for investments $5-50 mln.), by 5 years (for investment more than 50 mln.);

- Tax credit for the taxes that company should pay in first 3 years of existing firms (for agricultural industry);
- Paying back 50% of import duty for the goods for manufacturing purposes, and 100% for details, aggregates, which were proved to be used in production;
- Providing credits on privilege clauses from the special budgetary fund;
- Insurance from investment risks from the special budgetary fund.

All these laws were amended by the law in 1996, which legally abated tax holidays in the country. However, one more fact should be admitted that the tax holidays where abated earlier in 1995, by imposing new tax on profit of 30%, instead of tax on revenue. Thus, only companies that were created prior to 1995 were free from paying this tax. Moreover, this was not the end of the story with the privileges for foreigners. Some of the companies tried to return the tax privileges on import and VAT for the period that was pointed out in the laws through courts at the moment of their founding.

Number of companies obtains tax privileges on the individual basis. Particularly for Daewoo Company the law was produced, which allowed the tax privileges for the companies with FDI in automobile industry (the minimal investments in that industry should be 150 mln. USD). The last decision regarding this question was made at the beginning of 2000, when the government produced the law, which abated tax breaks for all the foreign investors except the investors in the automobile industry in the country, disregarding the time they make the investments.

2.5. Data

The process of obtaining and analysis of the data for regression analysis involves the overview of the legislation for the period of 1994 –2000, IMF database, different Ukrainian statistical reports and surveys ("Ukrainian Economic Trends"). I also construct indexes for some variables, namely TAX (level of corporate taxation) and TARIFF (level of tariffs). The statistical data is represented in A1 in the Appendices.

The tax system of Ukraine is represented by a large number of taxes. I decided to choose for index the most important taxes for corporations, which conduct their business in Ukraine. It contains the following: (1) VAT; (2) Tax on Profit; (3) Tax to the Chernobyl Fund; (4) Tax to the Fund of Social Insurance; (5) Tax to the Fund of Employment. The last three taxes represent the taxation of the fund of total earnings that are paid by a company. I propose equal weights to each of taxes, as all of them are very important for business. Certainly, the amount of tax payments made by individual company on each tax depends on the profit it generates, products it produced or sale and the amount of people working in it. For example, labor-intensive production the role of the taxes on fund of wages will play greater role than for capital intensive. But these effects are hard to distinguish, as I use aggregated data across industries. I still have analyzed the model applying different weights for different taxes, but it appeared that it didn't change the outcomes significantly (the same variables were significant for the same level of significance, R^2 stay the same)[8].

Payments for import can be divided in two parts: (1) payments for standard services at customs; (2) duties on particular group of products, (3) excises on special groups of products. The value of first group of payments doesn't

[8] The results are presented in the section "Empirical study: The Case of Ukraine".

change during 1994-1999 and it represents very small part of payments on import. Thus I decided not to include this group into the index for TARIFF. As for the second and third groups, while constructing index, one should take into account that different items are objects for different duties. That is why I propose to construct a basket, which will represent different types of product that can be consumed inside of the country. Again for choosing items I will take into account the part of the most essential products for consumers. This basket will consists of next items: (1) Meat; (2) Milk; (3) Coffee; (4) Chocolate; (5) Beer; (6) Vine; (7) Spirit (ethyl); (8) Vodka; (9) Cigarettes; (10) Leather dress; (11) Textile; (12) Jewelry; (13) Furniture; (14) Tape recorder; (15) Cassettes with records; (16) TV-sets; (17) Automobiles; (18) Weapon; (19) Gasoline. In the ideal version we should use weights, which can be determined by the share of particular item import in the total import to the country. The problem for the case of Ukraine is that these data is not available. I want to warn that changing the items of goods in the basket can certainly influence the value of tariff index, thus the relationship between the FDI flow and particular tariff index can be ambiguous, depending on what items include into the basket. This index should cover the effect of high tariffs on the willingness to invest in the production of these goods. Hence, choosing the goods for basket we should take into account what industries are the objects of the FDI. I have data constraint in this field thus cannot be sure for inclusion the “right” items in the basket.

The tariffs for particular items have changed not only in value, but also in the form of tariff (from ad valorem to specific). To overcome the problem of aggregating the information, I used the world prices for these items. I calculate the value of ad valorem tariff for unit of item and translate it into the Euro equivalent (all the specific tariffs in Ukraine are determined in these currency).

All the other data was available from the statistical surveys. As the result, I have 20 observations for the period 1994-1998.

2.4. Empirical study: The case of Ukraine

Obtaining all the statistical data and constructing indexes for taxation and tariffs, we can run regression and estimate the coefficients. I choose the linear form for the model, thus the next equation should be estimated:

$$FDI_t = a_0 + a_1 TAX_t + a_2 IEMP_t + a_3 TH_{94} + a_4 TARIFF_t + u_t$$

The results of the OLS estimation are proposed in the Table 4. It represents the value of the coefficients, standard errors in the parentheses, R^2-ratio and F-statistic. I also experiment with different weights for taxes in the tax index and these results are also reported in the table. Besides equal weights for all of the taxes represented in the index TAX, three other variants are represented. The description of the indexes is made in A2 in the Appendices.

According to the obtained results, for 10% of significance level the flow of FDI into Ukraine is influenced by the level of taxation and by the potential market share. R^2 ratio of 69% indicates that about 69% of variation in FDI can be explained by the variables included in the model. The signs of the both coefficients confirmed our expectations, meaning that the lower taxation induces foreigners to invest more. As we expected, different weights for taxes in the tax index did not change results a lot. Increasing of the market share, due to increase in the average wage of the individual, stimulate more investments into the country. Average index for tariff does not fluctuate that much across the period of 1994-1998, as for many items, except cigarettes, alcohol, automobiles, tariffs were not changed so often. The negative sign of the coefficient proves the ambiguous expectations due to the structure of the basket.

As for the tax holiday policy, the analysis shows that the one that was used by our government during the period of 1994-1998 was ineffective. It does not bring the expected results, namely increase in the flow of FDI into the country. This policy did not matter for investors, when they make their decision about investing here. At first sight, the results seems to be strange as though taxation matter for investors and the relation is negative, we might expect that the tax holidays should matter. So why it failed in attracting FDI? There can be two explanation of the situation. First, absence of the credibility of the policy make the policy ineffective[9]. In fact, the policy was absolutely non-credible and was used for very short period of time at the beginning of the observed period. In that time the amount of foreign investments was extremely low. Secondly, extremely weak fundamentals we have in Ukraine offset the benefits from capital. The problem is that if the company sees any benefits from investing here and will consider the taxation to be appropriate, then it still invests no matter whether there is any tax holidays in the country. Strategic investors oriented at long-run period, but tax holiday – is rather a short-run policy (in Ukraine it was proposed for 5 years), thus it may not taken into account by the investors. Rather they are looking for a long-run determinants of their prosperity, hence, weak fundamentals, which represent rather a long-term determinants, will matter for them more. In this sense, tax holiday might be considered as compensation for unfavorable investment climate.

2.4. Credibility and effectiveness of the policy

The effectiveness of a policy depends on its credibility. Investors will not consider seriously any proposals from a government, if the do not believe that the government will implement its promises into life. The notion of credibility here can be viewed from the two sides: investors should believe that particular policy is beneficial for the government and it has no incentive to deviate from

[9] This issue is considered more widely in the section "Credibility and Effectivness of the Tax Holiday Policy"

it; or, investors should believe in decency of the government, that the government will follow the policy it chooses.

For the case of tax holiday the trust to the government is very important, as no government can benefit from the tax-holiday policy in the short-run, loosing in tax payments. This trust can be achieved through the years of "normal" cooperation between the authorities and investors. As we can see from the previous section, the "normal" cooperation was absent in the case of Ukraine. Government did not keep to the promise gave to investors about exemption from the taxes. Starting the 1993, the first time the legislation regarding this question was changed, investors had stop trusting government and take into account tax holiday as incentive for investing. After proposing tax on profit instead revenue tax in 1995 and following amendment of the tax holiday actually placed in jeopardy the notion of credibility of the government policy regarding FDI. All the further events with the courts and impossibility of consensus between the government and parliament regarding this issue show that not only government policy credibility is under question now, but the credibility of the system as a whole.

Investor knows that government has an incentive to deviate from the tax holiday policy, thus the situation when the tax holiday is proposed cannot be considered as absolutely stable, except the case when government is decent. As the history and experience of the investors prove that Ukrainian government cannot be considered as decent, thus, investors should not consider seriously the tax holiday as an incentive to invest. Consequently, this issue of credibility could influence a lot the effectiveness of the policy.

Weak fundamentals sometimes are compensated by different incentive policies. Hence, if tax holiday cannot compensate these fundamentals, we have negative impact on the FDI and insignificance of tax holiday policy as a whole.

These results are similar to the outcomes of the surveys of foreign investors made for Ukraine (Mollers (1998), Kudina (1999)), according to which the main motive of the investors here is a share in new market. Taxation also plays an important role for them. Hence, this model can be used for prediction and explanation of the role of different motives for FDI in Ukraine. However, the evidence from weak statistic indicators show that motives of FDI, which are common for most of the investors in many countries, do not completely determine the main flow of FDI into the country. We should consider the credibility of the policy and fundamentals, which can matter for FDI.

Table 1. The Empirical Results for Motives of FDI the Case of Ukraine

	(1)	(2)	(3)	(4)
C	1094.30**	2516.24***	5111.03***	755.06**
	(480.27)	(1227.27)	(2601.61)	(310.02)
TAX	-51.90***			
	(27.54)			
TAX_1		-103.79***		
		(55.07)		
TAX_2			-207.58***	
			(110.15)	
TAX_3				-35.16***
				(18.82)
$IEMP$	0.129***	0.129***	0.129***	0.128***
	(0.0734)	(0.0734)	(0.0734)	(0.0736)
TH	41.70	41.70	41.70	37.83
	(43.28)	(43.28)	(43.28)	(42.59)
$TARIFF$	-1.118	-1.118	-1.118	-1.131
	(1.274)	(1.274)	(1.274)	(1.275)
R^2	0.69	0.69	0.69	0.69
$F-statistic$	8.3432*	8.3432*	8.3432*	8.3023*

*- Statistically significant at 1% level; **- Statistically significant at 5% level; ***- Statistically significant at 10% level

Chapter 3

FUNDAMENTALS AND THEIR IMPACT ON FDI

3.1. Fundamentals and FDI: simple correlation analysis

Ukraine can be attractive for foreigners because of the following reasons: large potential market, high level of education of the employees, favorable geographic position in the center of Europe, low level of wages in comparison with developed countries (Hoffman, Zidenberg, 1997). Nevertheless, foreign investments stay at the lowest level among the transition countries.

Generally, bad fundamentals and weak institutions characterize unfavorable investment climate in Ukraine. By the fundamentals I mean the growth of the economy, economic stability, development of the financial sectors, pace of the reforms in the country and many other factors. To estimate, whether such relations exist I use simple correlation analysis. The values of correlation between some indicators or proxies for them and FDI is proposed in the table 1. The data that was used for this purpose is taken from the statistical surveys and is presented in A1 in the Appendices for the period of 1994-1998.

Table 2. Correlation coefficient between FDI and proxies for some fundamentals.
(for the period of 1994-1998)

	Changes in CPI	**Banks' credits**	**Exchange rate**
FDI	-0.57	0.65	0,65

As we can see, the analysis shows the relations between FDI and change in CPI, which indicates the inflation processes in the economy is negative and

we can suppose that this relation is rather strong. Development of the financial sector, which can be approximated by the assets of the commercial banks in the country, also appeared to be strongly positively correlated with the FDI.

By the same token, devaluation of national currency is strongly positively correlated with FDI. This can be explained by the direction of the capital movement in the export-oriented industries or in the domestic production, which used domestic inputs (the price of which is not influenced by devaluation).

Linear correlation coefficient calculated by Muravytska (2000) for GDP growth rate, fiscal deficit and reform index and FDI show the strong relationship between these variables and FDI, but simple correlation analysis does not prove this for the case with growth rate and fiscal deficit.

This is just simple correlation analysis for some fundamentals. However, it still suggests that for foreign investors, fundamentals matter for their decision about investing into the country. Weak fundamentals of Ukraine do not attract FDI into the country.

3.2. Theoretical approach

The standard direction of the flow of investment is from developed countries to the developing. Many developing countries propose more opportunities for investments and higher return on capital, especially if a country exhibits high rates of growth. However FDI are distributed unevenly between these countries. A number of theories try to explain such differences and neoclassical theory is among them. According to the latter, with only labor and capital inputs in the economy as well as identical technologies, poor countries should have greater return on capital and thus attract more

investments (Zebregs, 1998). But the evidence shows that countries with middle level of income attract more capital than with lower level. The same situation is observed in the transition countries: relatively richer countries obtain more investments than poor do. This situation is described in Figure in the Appendices A5. This means that some others factor matter for investors and the assumptions of the constraint neoclassical theory do not hold. The most doubtful point here is the assumption about identical technologies. Technologies across countries differ not only in the intensity with which the factors are used, but also in total factor productivity (TFP). "Technology" should be considered wider than just technical term: different economic aspects such as human capital, infrastructure, political stability can influence TFP and thus have an impact on technology and FDI (Zebregs, 1998) and should be taken into account. Different environment in which the same technologies are used may make them different as well. Thus if we accept the fact that countries have different fundamentals and institutions we should take into account difference in technologies. By relaxing assumption about identical technologies the difference in distribution of the investment across transition countries can be explained, as well as prove the fact that fundamentals and institutions matters for foreign investors through their impact on technology.

In this work we consider three different specification: the first one is the version of the neoclassical theory; the second one allows the TPF to differ across the countries; the third one allows the intensity of the factors usage to differ across the countries.

For the equation that is estimated for this purpose I use Cobb-Douglas production function, which satisfies the assumptions of constant returns to scale and diminishing marginal returns to labor and capital:

$$\ln(q_t) = A + \alpha \ln(k_t) + \varepsilon_t, \qquad (1)$$

where q_t is real GDP per worker, k_t the capital stock per worker, and ε_t the error term in period *t* (Zebregs, 1998). For this specification *A* represents the TFP and α implies the intensity of factors usage for the particular technology (higher α means more capital and less labor intensive technology).

Marginal product of capital (MPK):

$$\frac{\partial f(k)}{\partial k} = \alpha e^{A} k^{\alpha - 1}. \qquad (2)$$

Thus, estimating *A* and α, having values of *k* we can calculate the marginal product of capital for the particular country.

As we can see from the equation (2) countries with lower capital per worker ratio and the same technologies should have higher MPK and attract more investments. However, the countries with capital scarcity usually use less capital-intensive technologies (means lower values of α) and has lower TFP. Hence, the MPK for these countries will be lower than for relatively richer countries (Zebregs, 1998).

3.3. The Data

For estimation I use data from the database of the World Bank for the ten transition countries for the period of 1990-1996. For the determination of the number of workers I use total labor force of the particular country, real GDP is estimated in the constant USD of 1995, while the capital stock per worker can be obtained through specific transformation of the gross domestic fixed investment. Namely these values are obtained as the cumulated depreciated sum of past gross domestic investment with the rate of depreciation of 10% and the 1990 as 0-point at the time vector. Such estimation of the capital stock in this case may create measurement error. The problem is that I have no data on fixed domestic investment before 1990. Taking the fixed domestic

investment for 1990 as the capital stock for that year, the measurement error created proportional to the difference between the real and estimated value of capital stock. As time goes this discrepancy diminishes due to the depreciation factor. Though I think that for the case of Ukraine, where the capital stock is obsolete its real value is too low. We can assume that new capital is used in the production, not old, but this assumption is too strong. The problem with measurement error can be eliminated if obtain data on the fixed domestic investments before 1990. The sample contains ten countries, which are split into two groups – low (Belarus, Romania, Russia, Slovakia, Ukraine) and middle (Czech Republic, Estonia, Latvia, Poland, Slovenia) income countries.

3.4. Empirical Results

Using the framework developed by Zebregs (1998) for the similar study for developing countries and described in the theoretical approach section above, I developed specifications for the transition countries to test the hypothesis about different technologies in the countries and their influence on attracting FDI into the country.

For different specifications described above, the three equations are estimated. Each equation includes the t - variable to capture the similar trend in $\hat{q}$ across all the countries in the sample, t_i -variable to capture country specific trend in $\hat{q}$. If the equation captures country specific effects through A_i or α_i, general trend (t) for all transition country is included; if the equation does not capture country specific effects, country specific trend (t_i) is included. The main reasoning for inclusion of trend is that all transition countries in observed period between 1990-1996 experienced the same transformation of their economies (from administrative to market system), hence, they may have the same trend in their development. On another side, each country has its own fundamentals and institutions, which can determine country specific characteristics, which also should be captured. In equations,

combinations of identical and country-specific intercept, slope and trend capture general and country specific effects.

The first specification:

$$\hat{q}_{i,t} = A + \alpha\hat{k}_{i,t} + \beta t_i + \varepsilon_{i,t}, \qquad (3)$$

where $\hat{q}, \hat{k}$ indicate the logarithm of *q*, *k*, index *i* - the particular country, and *t* – the time. This specification implies the identical technologies, thus identical values for A, α across countries.

The second specification:

$$\hat{q}_{i,t} = A_i + \alpha\hat{k}_{i,t} + \beta t + \varepsilon_{i,t} \qquad (4)$$

This specification allows different intercepts for each country, which implies different TFP for them. General specification may be represented by the next equation:

$$\hat{q}_{i,t} = A + \alpha\hat{k}_{i,t} + dD_l + \beta t_i + \varepsilon_{i,t} \qquad (4a)$$

where D_l – dummy variable, which takes the value 0 for low-income countries and 1 – for middle-income, *d* – correction term for intercept, which represents the TFP for middle-income group of countries. The specification (4a) generalize the situation, but it allows at first glance determine whether middle-income group has higher TFP.

The third specification:

$$\hat{q}_{i,t} = A + \alpha_i\hat{k}_{i,t} + \beta t + \varepsilon_{i,t} \qquad (5)$$

This specification allows different slopes for different countries, or actually assumes different intensity of the technologies used by these countries. General representation of this problem can be made by next equation:

$$\hat{q}_{i,t} = A + \alpha\hat{k}_{i,t} + \gamma(S_l\hat{k}_{i,t}) + \beta t_i + \varepsilon_{i,t}, \qquad (5a)$$

where S_l – dummy variable, which takes the value 0 for low-income countries and 1 – for middle-income, g represents the correction term for the capital intensity in middle-income group (a), or actually can help to determine whether low-income group of countries use less capital intensive technology.

We used pooled regression to estimate the parameters. Using data available for all ten countries for the period 1990-1996, we have 70 observations in the sample. Cross-sectional analysis implies the heteroscedasticity problem; thus I use GLS for the estimation of the equation. The results of the regressions are represented in the Table 2.

Even without calculating MPK, we can see from specification (2a) and (3a) that low-income countries are experiencing lower TFP and less capital-intensive technologies than middle-income countries do, as correction term in both cases is negative. Thus, we can expect lower marginal product of capital in low-income countries and lower level of investments in these economies. Referring to table A4 in the Appendices, almost all countries except Slovenia have negative significant trend in $\hat{q}$. This can be explained by decreasing of the GDP per worker because of economic downturn in the transition countries at earlier 90s caused by the process of transition. Some of these countries still experience negative trend in it.

Table 3. Estimation Results for Neoclassical Model
(Pooled data; 70 observations; Dependant variable $\hat{q}$)

Variable	1	2	2a	3	3a
A	4.95*	***	5.62*	7.59*	5.45*
	(0.6969)		(0.4336)	(0.6635)	(0.4569)
$\hat{k}$	0.50*	0.14**	0.43*	***	0.45*
	(0.0917)	(0.0824)	(0.0593)		(0.0629)
D_l			-0.30*		
			(0.0982)		
S_l					-0.04*
					(0.0128)
T	***	-0.08*	***	-0.08*	***
		(0.0202)		(0.0205)	
R^2	0.85	0.92	0.88	0.93	0.88

* - Significant at 1% level.
** - Significant at 10% level.
*** - Country specific values; represented at tables A3 and A4 in the Appendix.

The average level of marginal product of capital, calculated for specifications (1), (2), (3), is represented in table 3.

Table 4. Marginal Product of Capital
(Average)

	1	2	2a	3	3a
Low-income countries	1.200	0.236	0.884	0.213	0.843
Middle-income countries	1.022	0.305	0.998	0.421	1.054

As we can see from table 3 the average level of MPK in the middle-income countries is lower for the neoclassical version and higher for all the other specifications, which relax the assumption about the identical technologies.

These results suggest the following conclusions. First, constraint version of neoclassical theory, with the assumption about identical technologies cannot explain uneven distribution of FDI in transition countries. Larger flows of FDI in relatively richer transition countries can be explained by higher return on capital because of better technologies (more capital-intensive) and higher productivity. Finally, investors' decision and, thus, total amount of investments, including flow of FDI into the country, depends on its fundamentals and institutions (human capital, infrastructure, political stability, transparency of the whole economic system, legislation base, etc.) through their impact on the total factor productivity (TFP) and, consequently, marginal product of capital. Thus, low level of FDI into Ukraine can be explained by extremely bad fundamentals, comparatively even to similar at first glance transition countries (such as Poland, Czech Republic), which lower possible returns on capital and induce foreigners to avoid investing into our country.

Chapter 4

CONCLUSIONS AND POLICY IMPLICATIONS

This work determines both the investment climate and motives of FDI into the country. Empirical analysis actually answers several questions. First of all, it proposes the way to explain how fundamentals may influence the decision of investors. Neoclassical model together with the assumptions about different technologies helps in it. According to the theory, investors invest into country, which represents higher marginal product on capital. It shows that fundamentals have an impact on the total factor productivity and, consequently, on the marginal rate of capital. Besides of it, this approach explains the uneven distribution of the FDI across transition countries. Different technologies cause the differences in the marginal rate of capital. As the result poor countries, because of less capital intensive technologies and lower total factor productivity, experience lower returns on capital and, thus, lower inflow of FDI. For Ukraine, this marginal product of capital is low, that explains the low volume of FDI and caused by weak fundamentals. Even simple correlation analysis conducted for Ukraine, shows that fundamentals matter for investors here. That is why improving investment climate should be the preliminary task of the government. The country cannot expect that our country repeat the story of the new industrial countries or transition countries that perform better indicators of development and growth. These countries implement the rules and laws that improve the situation in the investment and economic environment.

At the same time, the tax holidays policy, which was considered for a long time as the main "remedy" for weak investment climate appears to be ineffective, meaning that they do not increase the flow of FDI into the country for a given period of time. The policy of tax holidays was absolutely

not credible with its frequent change of the laws, which denied each other. Thus, it could not bring the expected results (increase of FDI into the country). This can also explains the fact that though taxation matters for investors tax holidays did not. The reasons are that level of taxation is generally stable issue, at least much constant than the non-credible tax holiday policy. Also high risk of uncertainty could offset the expectation that the foreigners will use the advantages of tax breaks. As practice show, mostly domestic producers try to use these breaks to avoid taxation in the country by changing their status for joint ventures. Acquisition of the market share in the new markets remains the main motive for investors in Ukraine, which proves different surveys done in the field of FDI. I must warn the reader that the result of the model presented in the chapter 3 must be considered with some cautious. I cannot capture all the motives, because of aggregate nature of data that is used for estimation. For perfect fitness of the model, we should take at least cross-industries data and take into account the motives for particular industries. But still, I think that tax holidays are not sufficient policy to compensate the unfavorable investment climate. As was suggested in the second chapter, the investment climate matters for FDI through the total factor productivity. But as tax holidays, in fact, do not have an impact on productivity issues, we might expect no influence on the FDI flow. Strategic investors oriented at long-run period, but tax holiday – is rather a short-run policy (in Ukraine it was proposed for 5 years), thus it may not taken into account by the investors. Rather they are looking for a long-run determinants of their prosperity, hence, weak fundamentals, which represent rather a long-term determinants, will matter for them more. Short-run policy, such as tax holiday, cannot compensate for weak fundamentals and unfavorable investment climate.

As for the policy implications, as we can see from the obtained results. First of all, the country should improve the investment climate of the country, i.e. it must strengthen its institutions and fundamentals. Secondly, the improvement

of the fundamentals should have a positive impact on the total factor productivity in direct or indirect way, as in this case, we can expect increase in flow of FDI. Tax holidays policy should be considered with some cautious. As the past experience of Ukraine shows that this policy was not sufficient to compensate weak fundamentals of the country. But as tax issue is still important for the foreign investors, the thing that should be taken into account is the credibility and stability of the policy that is implemented. Finally, we should realize that strategic investors are looking for indicators of long-run positive changes in the economy. Thus, all the policies undertaken by our government should have long lasting effect.

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APPENDICES

A1. SOME ECONOMIC INDICATORS FOR UKRAINE

Year	**FDI, (mln.USD)	*Average Wage (USD/month)	*Employment in industry (Thous)	*Change in CPI	**Exchange Rate UAH/USD	**Banks Assets UAH, mln
1994 Q1	18,0	23,40	16595,0	109,72	0,13	793,2
1994 Q2	27,0	23,30	16236,0	19,65	0,18	1206,68
1994 Q3	48,0	26,50	16161,0	10,95	0,28	1988,13
1994 Q4	66,0	25,80	16037,0	113,03	1,04	2908,56
1995 Q1	42,0	31,90	15916,0	89,97	1,3	3581,39
1995 Q2	75,0	45,80	15936,0	25,09	1,42	4931,25
1995 Q3	65,0	55,60	15625,0	18,93	1,7	6970,78
1995 Q4	85,0	65,10	15440,0	27,6	1,79	8459,79
1996 Q1	129,0	64,60	15263,0	21,81	1,87	9796,13
1996 Q2	84,0	72,50	15037,0	7,39	1,79	10584,7
1996 Q3	119,0	83,00	14766,0	5,03	1,76	10871,1
1996 Q4	189,0	84,40	14532,0	5,87	1,89	12041,1
1997 Q1	97,0	77,30	14278,0	4,08	1,85	12721,5
1997 Q2	149,0	83,70	14085,0	1,84	1,86	13703,4
1997 Q3	141,0	88,50	13928,0	0,83	1,87	15506,4
1997 Q4	236,0	89,10	13760,0	2,79	1,9	15949,6
1998 Q1	150,0	80,50	13638,0	2,75	2,04	16726,5
1998 Q2	276,0	81,50	13570,0	0,81	2,06	18972,5
1998 Q3	155,0	73,00	13344,0	-0,11	3,4	24105,9
1998 Q4	162,0	50,30	13174,0			

Source: * - "Ukrainian Economic Trends", UEPLAC

** - Database of the IMF

A2. WEIGHTS FOR TAXES IN TAX INDEXES.

Taxes	TAX	TAX_1	TAX_2	TAX_3
VAT	0.2	0.3	0.4	0.1
Tax on Profit	0.2	0.3	0.4	0.1
Tax to the Chernobyl Fund	0.2	0.2	0.1	0.3
Tax to the Fund of Social Insurance	0.2	0.1	0.05	0.2
Tax to the Fund of Employment	0.2	0.1	0.05	0.3

A3. TFPS (A) AND CAPITAL SHARE PARAMETERS (α) FOR TRANSITION COUNTRIES

	2	3
Low-income countries	A_i	α_i
Belarus	7.41	0.121
Romania	7.21	0.091
Russia	7.65	0.149**
Slovakia	7.75	0.160**
Ukraine	7.49	0.129
Middle-income countries		
Czech Republic	8.09	0.197*
Estonia	7.77	0.162**
Latvia	7.68	0.153**
Poland	7.79	0.169**
Slovenia	8.75	0.268*

* - Significant at 5% level.

** - Significant at 10% level.

A4. TRENDS COEFFICIENTS FOR TRANSITION COUNTRIES.

	1	2a	3a
Low-income countries			
Belarus	-0.24*	-0.19*	-0.19*
Romania	-0.19*	-0.15*	-0.15*
Russia	-0.19*	-0.14*	-0.13*
Slovak Republic	-0.17*	-0.11*	-0.11*
Ukraine	-0.24*	-0.19*	-0.18*
Middle-income countries			
Czech Republic	-0.11*	-0.13*	-0.13*
Estonia	-0.17*	-0.19*	-0.19*
Latvia	-0.16*	-0.18*	-0.19*
Poland	-0.08*	-0.11*	-0.11*
Slovenia	0.03	0.02	0.01

* - Significant at 1% level.

A4. FDI PER CAPITA IN TRANSITION COUNTRIES, USD PER CAPITA (1997)